62nd YEAR OF PUBLICATION

NEWARK ELECTRONICS

Presenting Products from 200 Manufacturers

ALL PRODUCTS LISTED IN THIS CATALOG ARE STOCKED

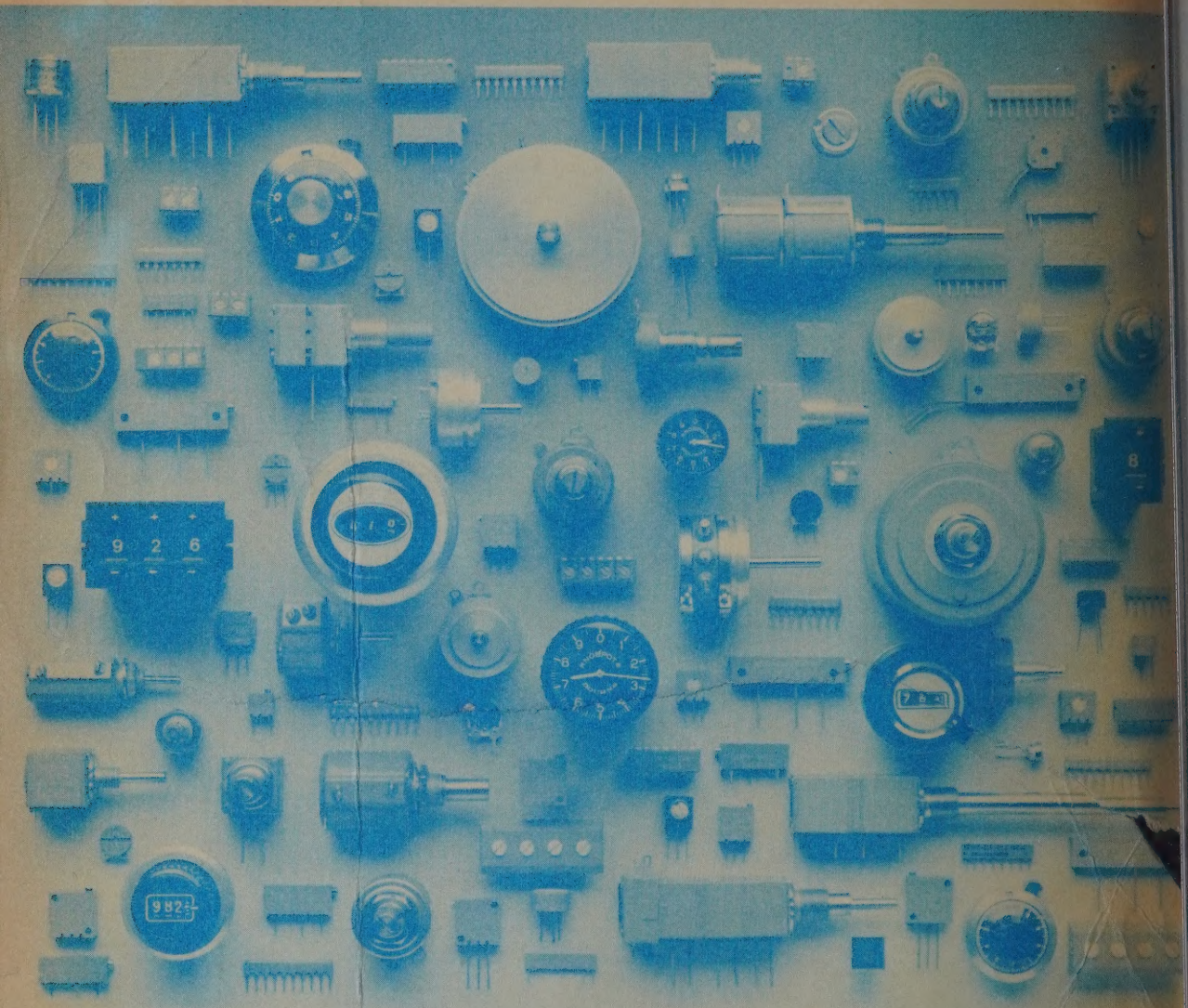
CALL NEWARK FIRST
for all of your electronic needs

Wherever you are Newark is there, too.

CATALOG 106
Table of Contents

Discrete Device Price List	1	8-20
Integrated Circuit Price List	2	21-26
Semiconductor Specifications	3	27-100
Tubes and Displays	4	101-122
Resistors and Potentiometers	5	123-162
Capacitors	6	163-219
Switches and Timers	7	220-298
Relays	8	299-367
Fuses and Circuit Breakers	9	368-379
Connectors, Barrier Strips, Spacers, Test Leads	10	380-463
P.C. Components	11	464-492
Hardware	12	493-536
Wire, Cable and Tubing	13	537-593
Transformers, Power Supplies	14	594-625
Lamps, Indicator Lights	15	626-653
Tools	16	654-703
Batteries	17	704-709
Fans, Cabinets, Knobs	18	710-744
Test Equipment, Meters	19	745-777
Audio	20	778-788
Product Index	21	789-797
Manufacturer's Index	22	798-799

BOURNS AND NEWARK,
THERE IS NO EQUIVALENT



Bourns offers high performance panel controls, unique and superior precision potentiometers, and more types of networks and trimmers than any single source.

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For complete product descriptions see the following pages:

Dials 149
Potentiometers 148
Panel Controls 147
Networks 142
Trimmers . . . . . .143 , 144 , 145 , 146

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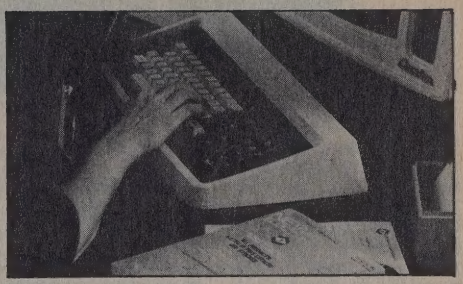
NEWARK ELECTRONICS

"Where serving you begins even before you call"

Newark Electronics is a UNIQUE broadline distributor of electronic components, dedicated to providing complete service, fast delivery and in-depth inventory. Our main warehouse and numerous branch warehouses make immediately available a multi-million dollar inventory of electronic components and equipment. Thousands of items are stocked from **200 manufacturers** in quantity. This means you get off-the-shelf deliveries of leading brand-name products promptly and efficiently from Newark's broadline inventory.

With more than **130 BRANCHES,** Newark offers Local Branch Services in **42 states** to Industrial Customers.

Refer to the following page for Branch Addresses and Telephone Numbers.



NEWARK'S ON-LINE SYSTEM

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- **RESALE PRICES**
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- **FAST ORDER ENTRY**

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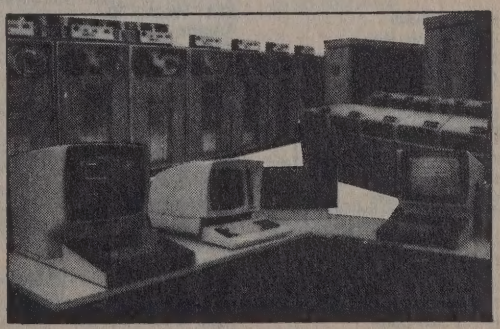
SERVICE — Starts with having what you want In Stock when you want it! Take advantage of Newark's Broadline, in-depth inventory.



This system spans the nation and maintains perpetual inventory balances on **THOUSANDS OF ELECTRONIC COMPONENT PARTS** for fast response to customer inquiries.

A DIVISION OF PREMIER INDUSTRIAL CORP.

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St. Paul, MN 55113
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(315) 437-6611

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(212) 343-6842

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Pittsburgh, PA 15205
(412) 787-7740

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Pittsburgh, PA 15237
(412) 367-2790

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(401) 738-4010

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150 Executive Center Dr.
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(817) 589-1295

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Houston, TX 77036
(713) 782-4800

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Houston, TX 77092
(713) 688-6846

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Pasadena, TX 77502
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(703) 522-0880

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Richmond, VA 23230
(804) 282-5671

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(703) 522-0880

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Cheverly, MD 20781
(301) 773-1333
(301) 937-5085

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Madison, WI 53716
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Brookfield, WI 53005
(414) 781-2450

PUERTO RICO
Lorencita St. Edif 7
La Ceramica, P.O. Box T
Carolina, PR 00630
(809) 762-4490/762-4690
762-4906
Telex: 365-4251 Perm PR

Administrative Offices
500 N. Pulaski Road
Chicago, IL 60624
(312) 638-4411

IT'S CONVENIENT AND PLEASANT TO DO BUSINESS WITH

Wherever you are located, Newark can provide fast, efficient service for your electronic component requirements. A list of facilities is on pages two and three.

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CATALOG PRICES ARE NET, F.O.B. SHIPPING POINT. THEY ARE SUBJECT TO CHANGE WITHOUT NOTICE. ORDERS ARE FILLED AT THE PRICES IN EFFECT AT THE DATE OF SHIPMENT AND THESE PRICES MAY VARY FROM THOSE SHOWN HEREIN, DEPENDING UPON THE PRICE CHANGES. FOR UP TO THE MINUTE PRICES AND FOR PRICES ON QUANTITIES IN EXCESS OF THOSE SHOWN, CONTACT THE NEWARK BRANCH NEAREST YOU. PRICES DO NOT INCLUDE ANY FEDERAL, STATE OR LOCAL TAXES.

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OPEN ACCOUNTS/ INDUSTRIAL CUSTOMERS

Orders are accepted for open account billing from well-rated firms, institutional and school accounts and government agencies. Firms without a published rating may apply for credit by submitting trade and bank references. Terms of payment are net, 10th and 25th of the month. Past due accounts subject to late payment charge of 2% per month.

MINIMUM BILLING

Minimum billing is $25.00 for the total amount of any order. On non-catalog items; minimum billing is $25.00 per item.

LARGE QUANTITY QUOTATION OR BIDS

Newark will quote on quantities in excess of the maximum amounts shown in the catalog. Contact your nearest Newark branch for current prices and delivery.

PRECIOUS METAL SURCHARGE

Because of the volatile price fluctuation of precious metals used in many electronics devices, a surcharge may apply on selected products. The surcharge is based on prices in effect at time of shipment. Products subject to the surcharge include connectors, relays, switches and semiconductors. Current price data is available from your Newark branch.

TO PLACE AN ORDER

Call your nearest Newark branch (see page 2 and 3) to place all orders. Orders must be at least $25.00. Non-catalog items—$25.00 minimum per item. We ship the most economical way. Current prices and delivery information will be provided by friendly personnel. To qualify for an open account, follow the procedure outlined .

C.O.D. SHIPMENTS

A $2.00 handling charge is made on all C.O.D. shipments in addition to any charges by Postal, UPS or Truck carriers. In addition, the Post Office charges a collection fee and a money order fee. A handling charge of $20.00 is made on checks returned for "non-sufficient funds." Check with your Newark branch for current prices and availability, before ordering.

SALES TAX

Newark Electronics is required by law to charge and collect state & local sales tax. As laws vary from state to state, please remit the correct percentage for your locality. A state sales tax exemption certificate copy must accompany all C.O.D. orders; otherwise, sales tax will be charged. Open account customers must have a state sales tax exemption certificate on file with Newark Electronics to avoid state sales tax charges. Sales tax will always be charged unless otherwise indicated. A customer using a restricted sales tax exemption certificate (Per Purchase Order) must submit a confirming purchase order referencing the state sales tax exemption number for all orders exempt from sales tax.

NO BACK ORDERS ON C.O.D. ORDERS

On C.O.D. orders, shipment is made from available stocks. Back orders are not created on out of stock items. Appropriate refunds are made on items not shipped.

NON-CATALOG ITEMS—Open Account orders Only

Merchandise not listed in our catalog, if available from our regular suppliers, may be subject to minimum order quantities and/or special handling charges. Shipment is made as quickly as deliveries are received from our source. Special order products are sold on a nonreturnable basis.

NEWARK ELECTRONICS

IF YOU CALL

If you call regarding a phone order, information can best be obtained by talking to the sales person in the branch who took your order. Always contact your nearest Newark facility. (See pages 2 and 3).

IF YOU WRITE US

When writing us regarding Open Account orders please give your purchase order number and our invoice number. If you wish to return a C.O.D. order include the packing copy from your shipment or one of your invoice copies, as well as your instructions with your request. Follow instructions under "returns".

RETURNS

Returns must be made promptly and accompanied by a "Return Authorization." Authorization may be obtained from the Newark facility in your area. Returns without this authorization will not be accepted. Returns may be subject to a restocking charge.

APO AND FPO SHIPMENTS

Orders for shipment to APO and FPO destinations should be addressed to "Export Department, Newark Electronics, Chicago, IL 60624." Minimum order amount is $100.00 and full remittance including postage is required. No C.O.D. shipment can be made. It is advisable to write for current prices on the items you wish to purchase.

APO and FPO Rates and Services from Chicago

Standard Parcel Post (4th Class)—Maximum size (length plus girth), 100 inches. Maximum weight, 70 pounds, APO, FPO New York (zone 5)—$2.33 first pound, APO, FPO San Francisco (zone 8)—$2.98 first pound.

Parcel Air Life (PAL)—Maximum size, 60 inches. Maximum weight, 30 pounds. Rate same as standard Parcel Post plus $1.00 per package.

Space Available Mail (SAM)—This is also by air, subject to availability of capacity. Maximum size, 60 inches. Maximum weight, 15 pounds. Rate same as standard Parcel Post with no surcharge.

METHOD OF SHIPMENT

All terms are F.O.B. shipping point

UNITED PARCEL SERVICE. UPS serves the 48 states and the island of Oahu in Hawaii.

AIR SHIPMENT—EXPRESS MAIL. If requested, we will ship air freight or UPS air, shipping charges collect, or by Express Mail, which is next day postal service between major cities. Consult your local facility for rates.

TRUCK. For heavy shipments, Common Carrier truck is most economical. Charges are F.O.B. shipping point.

SHIPMENT DAMAGE

Merchandise we ship is carefully packed or prepackaged by our suppliers in compliance with carrier requirements. Claims for loss or damage in transit must be made with the carrier by the customer.

Concealed Loss or Damage. Does not become apparent until shipment is unpacked. Make a request for inspection by the carrier's agent and file claim with the carrier.

Visible Loss or Damage. Any external evidence of loss or damage must be noted on the freight bill or carrier's receipt and signed by the carrier's agent. Failure to do this will result in the carrier refusing to honor the claim. For your protection our billings include insurance for damage or loss in transit.

DEPEND ON NEWARK FOR SERVICE—SELECTION—AVAILABILITY

LOCAL SERVICE—Over 130 Branches Nationwide

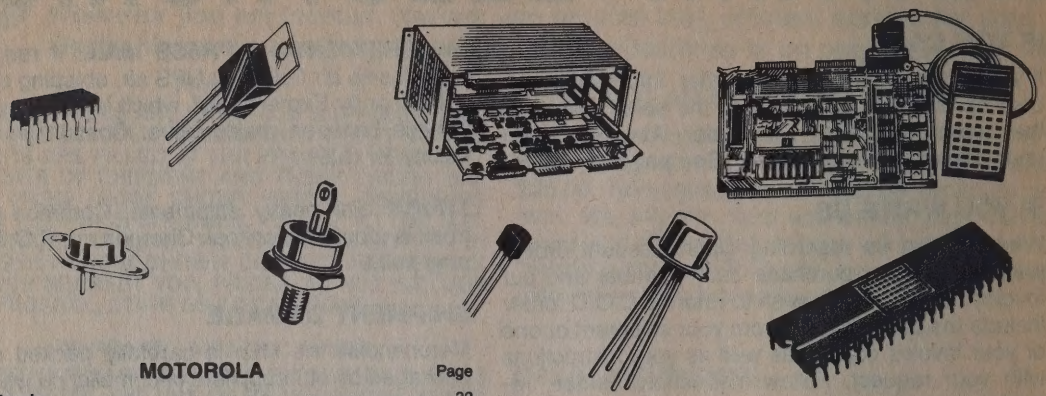
VAST STOCKS—Many Thousands Of Items Stocked

BROAD COVERAGE—over 200 Major Product Lines

HIGH SERVICE LEVELS—All Products Catalogued Are Stocked

FAST RESPONSE—Computerized Inventory Management and Order Processing Systems

NEWARK SEMICONDUCTOR MASTER INDEX



MOTOROLA

	Page
Optoelectronics	33
System Development Equipment & Options	
M6800 Development Systems	48
EXORciser Peripherals	46
Micromodules	45
Microprocessors	47
Memories	43
Cardcages, Chassis, & Power Supplies	45
Integrated Circuits	
LS Low Power Schottky	38,39
CMOS	42
Linear Integrated Circuits	40,41
CATV Linear Modules	44
High Speed CMOS	42
ALS-Advanced Low Power Schottky	42
Fast Schottky TTL	42
Zener & Avalanche Regulator Diodes	27
SCR's Triacs	37,38
Rectifiers	28,29
Transient Suppressors	27
Pressure and Temperature Sensors	27
Transistors	
Switchmode Power Transistors	35,36
Power Darlingtons	34
Power Switching Transistors	31
Silicon Power Transistors	35,36
Small Signal Metal Transistors	29,30,32,34
Plastic-Encapsulated Small Signal Transistors	31,32,34
Field Effect Transistors	31
RF Power Transistors	31,32
Multiple Transistors	34
Small Signal Darlington Transistors	34
TMOS Power Fets	36
S.O.T. Small Signal	32

TEXAS INSTRUMENTS

	Page
Economy Thryristors	50
NPN-PNP Silicon Power Transistors	50,51
Linear Circuits	54,55,56,57
Special Circuits & Consumer Circuits	61
Fiberoptic Data Link	52
Optoelectronics	52,53
TM 990 Micromodules & Ampl Prototyping System	61,62,63,64
Microprocessor & Memory Chips	60
Low Power Schottky-Clamped Digital	57,58,59,60
Series 74LS	57,58,59,60
TTL Logic and Memory	57,58,59,60
Advanced Low Power Schottky	57,58,59,60
Voice Synthesis	62
Advanced Schottky	57,58,59,60

GENERAL ELECTRICS

	Page
Triacs and Triac Triggers	93
Silicon Controlled Rectifiers	88,89,90,91
Power Modules	97
GE-Mov Metal Oxide Varistors	99
Silicon Rectifiers	91,92
Silicon Small Signal Transistors	94,95
Unijunctions & Silicon Switches	93,96,97
Silicon Power Transistors	96,97
Silicon Power Pac Transistors	96
Optoelectronics	98

INTERNATIONAL RECTIFIER

	Page
Power Bi-Polar Trans	81,82
Silicon Power Transistors	81,82
Power Darlingtons	82
Power Hex Fets	80,81
Silicon Controlled Rectifiers	83,84
Silicon Rectifiers	84,85
Power Schottky Diodes	82
Molded Circuit Assemblies	84

RCA

	Page
Microprocessors	66
NPN Silicon Power Transistors	67,68
PNP Silicon POwer Transistors	67,68
NPN Monolithic Darlington Transistors	68
Triacs	
Sensitive Gate	69
General Purpose	69,70
Zero Voltage Switch	70
SCR's	71
COS/MOS Integrated Circuits	71,72
Linear Integrated Circuits	73,74
QMOS-High Speed CMOS	72

LANSDALE

	Page
High Power Diffused Based Transistors	49
High Power Alloy Transistors	49

GENERAL OPTOELECTRONICS

	Page
Discrete LED Lamps	107
Display	106
Optoisolators and Infrared Devices	108

SPRAGUE

	Page
Integrated Circuits	65

CRYDOM

	Page
Solid State Relays	86,87
Input/Output Modules	86,87

UNITED STATES CRYSTAL CORP.

	Page
Microprocessor Crystals	65

IDI

	Page
Germanium Power Transistors	49
Germanium Switching Transistors	49
General Purpose Amplifiers	49
Silicon Transistors	49

INTERSIL

	Page
A-D Converters	75
Analog Gate Switches and Multiplexes	76
Linear IC	77
Memories	76
Vertical Power Mosfets	77
REMDAC	79
Counters and Display Drivers	78
Tone Diallers, Clocks, Timers	78

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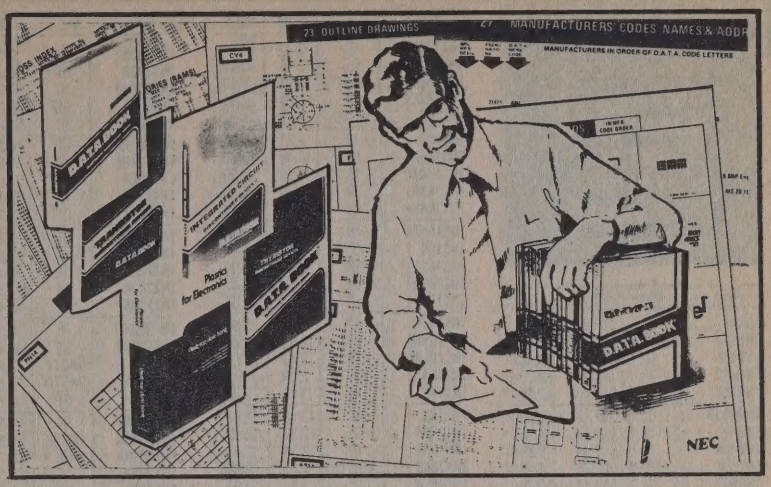

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Type	Mfr.	1-99	100+
1N248	IR	2.44	2.26
1N248B	MOTO	1.45	1.23
1N248B	GE	12.48	10.40
1N248B	IR	2.44	2.26
1N248C	IR	2.44	2.26
1N248RB	GE	12.48	10.40
1N249	IR	2.44	2.26
1N249A	IR	2.44	2.26
1N249B	MOTO	1.76	1.49
1N249B	GE	12.48	10.40
1N249B	IR	2.44	2.26
1N249C	IR	2.44	2.26
1N250	IR	2.86	2.43
1N250A	IR	2.86	2.43
1N250B	MOTO	2.69	2.28
1N250B	IR	2.86	2.43
1N250B	GE	12.56	10.47
1N250C	IR	2.86	2.43
1N250RB	GE	12.56	10.47
1N649	GEIN	1.00	.65
1N702	MOT	1.85	1.50
1N702A	MOTO	2.60	2.10
1N703	MOTO	1.85	1.50
1N704A	MOTO	2.60	2.10
1N705A	MOTO	2.60	2.10
1N718A	MOTO	2.60	2.10
1N746	MOTO	.54	.25
1N746A	MOTO	.54	.25
1N747	MOTO	.54	.25
1N748A	MOTO	.54	.25
1N750	MOTO	.54	.25
1N750A	MOTO	.54	.25
1N751	MOTO	.54	.25
1N751A	MOTO	.54	.25
1N752A	MOTO	.54	.25
1N753	MOTO	.54	.25
1N753A	MOTO	.54	.25
1N754A	MOTO	.54	.25
1N756	MOTO	.54	.25
1N757A	MOTO	.54	.25
1N758A	MOTO	.54	.25
1N821	MOTO	.60	.35
1N821A	MOTO	1.25	.87
1N823	MOTO	1.25	.87
1N823A	MOTO	1.55	1.20
1N825	MOTO	1.65	1.34
1N825A	MOTO	1.90	1.64
1N827	MOTO	4.08	3.78
1N827A	MOTO	6.30	5.95
1N829A	MOTO	16.85	13.50
1N914	GE	.40	.26
1N914A	GE	.53	.35
1N914B	GE	1.06	.72
1N935	MOTO	1.85	1.40
1N935A	MOTO	2.10	1.55
1N936	MOTO	2.20	1.65
1N936A	MOTO	2.85	2.15
1N937	MOTO	4.30	3.70
1N938	MOTO	6.00	5.83
1N938A	MOTO	6.50	6.31
1N941	MOTO	2.75	2.67
1N942	MOTO	3.00	2.91
1N942A	MOTO	3.75	3.64
1N944	MOTO	8.75	8.50
1N944A	MOTO	11.25	10.93
1N969B	TI	.37	.20
1N1183	MOTO	1.84	1.56
1N1183	IR	2.33	1.81
1N1183A	GE	12.48	10.40
1N1183A	IR	3.09	2.31
1N1183R	IR	2.33	1.81
1N1183RA	GE	12.48	10.40
1N1183A	MOTO	1.93	1.63
1N1183RA	IR	3.09	2.31
1N1184	MOTO	2.16	1.83
1N1184	IR	2.33	1.81
1N1184A	GE	12.48	10.40
1N1184A	IR	3.18	2.39
1N1184R	IR	2.33	1.81
1N1184RA	GE	12.48	10.40
1N1184RA	IR	3.18	2.39
1N1185	MOTO	2.53	2.14
1N1185	IR	2.66	1.99
1N1185A	GE	12.56	10.47
1N1185A	IR	3.43	2.57
1N1185R	IR	2.66	1.99
1N1185RA	GE	12.56	10.47
1N1185RA	IR	3.43	2.57
1N1186	MOTO	2.89	2.45
1N1186	IR	3.10	2.32
1N1186	GE	12.56	10.47
1N1186A	GE	12.56	10.47
1N1186A	IR	3.51	2.63
1N1186R	MOTO	2.89	2.45
1N1186R	IR	3.10	2.32
1N1186RA	GE	12.56	10.47
1N1186RA	IR	3.51	2.63
1N1187	MOTO	3.25	2.75
1N1187	IR	3.50	2.62
1N1187A	GE	12.64	10.53
1N1187A	IR	4.29	3.21
1N1187R	IR	3.50	2.62
1N1187RA	GE	12.64	10.53
1N1187RA	IR	4.29	3.21
1N1188	MOTO	3.62	3.06
1N1188	IR	4.22	3.16
1N1188	GE	12.79	10.66
1N1188A	GE	12.79	10.66
1N1188A	IR	5.23	3.92
1N1188R	MOTO	3.62	3.06
1N1188R	IR	4.22	3.16
1N1188RA	GE	12.79	10.66
1N1188RA	IR	5.23	3.92
1N1189	MOTO	5.18	4.38
1N1189	IR	4.93	3.70
1N1189A	GE	12.95	10.79
1N1189A	IR	5.87	4.40
1N1189R	MOTO	5.18	4.38
1N1189R	IR	4.93	3.70
1N1189RA	IR	5.87	4.40
1N1190	MOTO	5.99	5.08
1N1190	IR	5.57	4.17
1N1190	GE	13.26	11.05
1N1190A	GE	13.26	11.05
1N1190A	IR	6.44	4.83
1N1190R	MOTO	5.99	5.08
1N1190R	IR	5.57	4.17
1N1190RA	GE	13.26	11.05
1N1190RA	IR	6.44	4.83
1N1191	MOTO	1.84	1.56
1N1191A	GE	12.48	10.40
1N1191RA	GE	12.48	10.40
1N1192A	GE	12.48	10.40
1N1192RA	GE	12.48	10.40
1N1193A	GE	12.56	10.47
1N1193RA	GE	12.56	10.47
1N1194A	GE	12.56	10.47
1N1194RA	GE	12.56	10.47
1N1195A	GE	12.64	10.53
1N1195RA	GE	12.64	10.53
1N1196A	MOTO	3.90	3.30
1N1196A	GE	12.79	10.66
1N1196RA	GE	12.79	10.66
1N1197A	GE	12.95	10.79
1N1197RA	GE	12.95	10.79
1N1198	MOTO	5.99	5.08
1N1198A	GE	13.26	11.05
1N1198RA	GE	13.26	11.05
1N1199A	GE	8.03	6.69
1N1199A	IR	2.09	1.94
1N1199A	MOTO	1.22	.94
1N1199RA	GE	8.03	6.69
1N1199RA	IR	2.09	1.94
1N1200	MOTO	1.40	1.17
1N1200A	MOTO	1.40	1.17
1N1200A	IR	2.09	1.94
1N1200A	GE	8.03	6.69
1N1200RA	IR	2.09	1.94
1N1201A	GE	8.25	6.88
1N1201A	IR	2.25	2.09
1N1201RA	GE	8.25	6.88
1N1201RA	IR	2.25	2.09
1N1202A	MOTO	1.50	1.25
1N1202A	IR	2.25	2.09
1N1202A	GE	8.25	6.88
1N1202RA	GE	8.25	6.88
1N1202RA	IR	2.25	2.09
1N1203	GE	8.48	7.06
1N1203A	IR	2.35	2.18
1N1203A	GE	8.48	7.06
1N1203AR	IR	2.35	2.18
1N1203RA	GE	8.48	7.06
1N1204	MOTO	1.86	1.55
1N1204A	MOTO	1.86	1.55
1N1204A	GE	8.70	7.25
1N1204A	IR	2.35	2.18
1N1204RA	MOTO	1.86	1.55
1N1204RA	GE	8.70	7.25
1N1204RA	IR	2.35	2.18
1N1205A	GE	9.00	7.50
1N1205A	IR	2.80	2.34
1N1205RA	GE	9.00	7.50
1N1205RA	IR	2.80	2.34
1N1206	MOTO	3.30	2.75
1N1206A	MOTO	3.30	2.75
1N1206A	IR	3.30	2.75
1N1206A	GE	9.00	7.50
1N1206AR	MOTO	3.30	2.75
1N1206RA	MOTO	3.30	2.75
1N1206RA	IR	3.30	2.75
1N1206RA	GE	9.38	7.81
1N1341A	GE	8.03	6.69
1N1341RA	GE	8.03	6.69
1N1342A	GE	8.03	6.69
1N1342RA	GE	8.03	6.69
1N1343A	GE	8.25	6.88
1N1343RA	GE	8.25	6.88
1N1344A	GE	8.25	6.88
1N1344RA	GE	8.25	6.88
1N1345A	GE	8.48	7.06
1N1345RA	GE	8.48	7.06
1N1346A	GE	8.70	7.25
1N1346RA	GE	8.70	7.25
1N1347A	GE	9.00	7.50
1N1347RA	GE	9.00	7.50
1N1348A	GE	9.38	7.81
1N1348RA	GE	9.38	7.81
1N1612	GE	8.03	6.69
1N1612R	GE	8.03	6.69
1N1613	GE	8.03	6.69
1N1613R	GE	8.03	6.69
1N1614	GE	8.25	6.88
1N1614R	GE	8.25	6.88
1N1615	GE	8.70	7.25
1N1615R	GE	9.38	7.81
1N1616	GE	9.38	7.81
1N1616R	GE	9.38	7.81
1N2054	IR	29.81	17.93
1N2054R	IR	29.81	17.93
1N2055	IR	30.58	17.93
1N2055R	IR	30.58	17.93
1N2056	IR	27.80	16.70
1N2056R	IR	27.80	16.70
1N2057	IR	30.58	18.37
1N2057R	IR	30.58	18.37
1N2058R	IR	28.30	17.00
1N2059	IR	31.57	19.03
1N2059R	IR	31.57	19.03
1N2060	IR	28.70	17.30
1N2060R	IR	28.70	17.30
1N2061	IR	31.57	19.03
1N2061R	IR	31.57	19.03
1N2062R	IR	29.35	17.95
1N2063	IR	30.00	18.75
1N2063R	IR	30.00	18.75
1N2064	IR	36.74	22.28
1N2064R	IR	36.74	22.28
1N2065	IR	35.90	21.10
1N2065R	IR	35.90	21.10
1N2066	IR	42.30	25.25
1N2066R	IR	42.30	25.25
1N2067	IR	45.05	26.90
1N2067R	IR	45.05	26.90
1N2068	IR	47.85	28.55
1N2068R	IR	47.85	28.55
1N2069	IR	.34	.26
1N2069	GEIN	.68	.44
1N2069A	IR	.34	.26
1N2070	IR	.37	.28
1N2070A	IR	.37	.28
1N2071	IR	.47	.35
1N2071A	IR	.47	.35
1N2128	IR	2.58	1.90
1N2128A	IR	5.59	3.97
1N2128AR	IR	5.59	3.97
1N2128R	IR	2.58	1.90
1N2128RA	IR	5.59	3.97
1N2129	IR	2.58	1.90
1N2129A	IR	5.71	4.04
1N2129AR	IR	5.71	4.04
1N2129R	IR	2.58	1.90
1N2129RA	IR	5.71	4.04
1N2130	IR	2.83	2.12
1N2130A	IR	5.98	4.23
1N2130AR	IR	5.98	4.23
1N2130R	IR	2.83	2.12
1N2131	IR	3.45	2.59
1N2131A	IR	6.12	4.32
1N2131AR	IR	6.12	4.32
1N2131R	IR	3.45	2.59
1N2132	IR	5.25	3.80
1N2132A	IR	6.34	4.90
1N2132AR	IR	6.34	4.90
1N2132R	IR	5.25	3.80
1N2133	IR	3.88	2.91
1N2133A	IR	7.42	5.24
1N2133AR	IR	7.42	5.24
1N2133R	IR	3.88	2.91
1N2134	IR	6.26	4.77
1N2134A	IR	7.35	4.90
1N2134AR	IR	7.35	4.90
1N2134R	IR	6.26	4.77
1N2135	IR	4.68	3.51
1N2135A	IR	8.74	6.17
1N2135AR	IR	8.74	6.17
1N2135R	IR	4.68	3.51
1N2136	IR	8.01	5.42
1N2136A	IR	8.26	5.16
1N2136AR	IR	8.26	5.16
1N2136R	IR	8.01	5.42
1N2137	IR	5.48	4.11
1N2137A	IR	9.87	6.97
1N2137AR	IR	9.87	6.97
1N2137R	IR	5.48	4.11
1N2138	IR	6.18	4.64
1N2138A	IR	11.00	7.76
1N2138AR	IR	11.00	7.76
1N2138R	IR	6.18	4.64
1N2154	IR	2.44	2.35
1N2154R	IR	2.44	2.35
1N2155	IR	2.77	2.35
1N2155	GE	12.48	10.40
1N2155R	IR	2.77	2.35
1N2156	GE	12.56	10.47
1N2156	IR	3.93	3.33
1N2156R	IR	3.93	3.33
1N2157	IR	4.76	4.17
1N2157	GE	12.64	10.53
1N2157R	IR	4.76	4.17
1N2158	GE	12.79	10.66
1N2158	IR	6.33	5.30
1N2158R	GE	12.79	10.66
1N2158R	IR	6.33	5.30
1N2159	GE	12.95	10.79
1N2159R	GE	12.95	10.79
1N2159	IR	6.93	5.81
1N2159R	IR	6.93	5.81
1N2160	IR	7.54	6.30
1N2160	GE	13.26	11.05
1N2160R	GE	13.26	11.05
1N2160R	IR	7.54	6.30
1N2163	MOTO	4.13	3.44
1N2163A	MOTO	4.31	3.62
1N2620	MOTO	5.13	4.27
1N2623	MOTO	11.00	9.20

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr.	1-99	100+
1N2804A	MOTO	7.65	7.00
1N2810B	MOTO	10.65	9.72
1N2813B	MOTO	10.65	9.72
1N2816A	MOTO	7.65	7.00
1N2820A	MOTO	7.65	7.00
1N2820B	MOTO	10.65	9.72
1N2833B	MOTO	10.65	9.72
1N2838A	MOTO	7.65	7.00
1N2846A	MOTO	11.30	10.29
1N2970A	MOTO	5.85	5.29
1N2970B	MOTO	7.30	6.72
1N2970RA	MOTO	5.85	5.29
1N2971B	MOTO	7.30	6.72
1N2972A	MOTO	5.85	5.29
1N2973A	MOTO	5.85	5.29
1N2974A	MOTO	5.85	5.29
1N2974B	MOTO	7.30	6.72
1N2976A	MOTO	5.85	5.29
1N2976B	MOTO	7.30	6.72
1N2977A	MOTO	5.85	5.29
1N2977B	MOTO	7.30	6.72
1N2978B	MOT	7.30	6.72
1N2979A	MOTO	5.85	5.29
1N2979B	MOTO	7.30	6.72
1N2979RA	MOTO	5.85	5.29
1N2979RB	MOT	7.30	6.72
1N2980A	MOTO	5.85	5.29
1N2980B	MOTO	7.30	6.72
1N2980RA	MOTO	5.85	5.29
1N2982A	MOTO	5.85	5.29
1N2982B	MOTO	7.30	6.72
1N2984A	MOTO	5.85	5.29
1N2984B	MOTO	7.30	6.72
1N2985A	MOTO	5.85	5.29
1N2985B	MOTO	7.30	6.72
1N2986A	MOTO	5.85	5.29
1N2986B	MOTO	7.30	6.72
1N2986RB	MOT	7.30	6.72
1N2988A	MOTO	5.85	5.29
1N2988B	MOTO	7.30	6.72
1N2989A	MOTO	5.85	5.29
1N2990B	MOTO	7.30	6.72
1N2991A	MOTO	5.85	5.29
1N2992A	MOTO	5.85	5.29
1N2992B	MOTO	7.30	6.72
1N2993A	MOTO	5.85	5.29
1N2997A	MOTO	5.85	5.29
1N3000B	MOTO	7.30	6.72
1N3001A	MOT	5.85	5.29
1N3003A	MOTO	5.85	5.29
1N3003B	MOTO	7.30	6.72
1N3004B	MOTO	7.30	6.72
1N3005A	MOTO	5.85	5.29
1N3005B	MOTO	7.30	6.72
1N3007B	MOTO	7.30	6.72
1N3008A	MOT	5.85	5.29
1N3008B	MOTO	7.30	6.72
1N3009A	MOTO	5.85	5.29
1N3009B	MOTO	7.30	6.72
1N3011A	MOTO	5.85	5.29
1N3011B	MOTO	7.30	6.72
1N3012A	MOTO	5.85	5.29
1N3012B	MOTO	7.30	6.72
1N3014A	MOT	9.00	8.14
1N3015A	MOTO	9.00	8.14
1N3015B	MOTO	13.75	12.57
1N3016B	MOTO	3.70	3.43
1N3017B	MOTO	3.70	3.43
1N3018B	MOTO	3.70	3.43
1N3019A	MOTO	3.20	2.85
1N3019B	MOTO	3.70	3.43
1N3020A	MOTO	3.20	2.85
1N3020B	MOTO	3.70	3.43
1N3021B	MOTO	3.70	3.43
1N3022A	MOTO	3.20	2.85
1N3022B	MOTO	3.70	3.43
1N3023A	MOTO	3.20	2.85
1N3024A	MOTO	3.20	2.85
1N3024B	MOTO	3.70	3.43
1N3025B	MOTO	3.70	3.43
1N3026A	MOTO	3.20	2.85
1N3026B	MOTO	3.70	3.43
1N3027A	MOTO	3.20	2.85
1N3027B	MOTO	3.70	3.43
1N3028A	MOTO	3.20	2.85
1N3028B	MOTO	3.70	3.43
1N3029A	MOTO	3.20	2.85
1N3029B	MOTO	3.70	2.43
1N3030B	MOTO	3.70	3.43
1N3031A	MOTO	3.20	2.85
1N3031B	MOTO	3.70	3.43
1N3032B	MOTO	3.70	3.43
1N3033A	MOTO	3.20	2.85
1N3033B	MOTO	3.70	3.43
1N3034B	MOTO	3.70	3.43
1N3037B	MOTO	3.70	3.43
1N3044A	MOTO	3.20	2.85
1N3044B	MOTO	3.70	3.43
1N3045A	MOTO	3.25	3.00
1N3046A	MOTO	3.25	3.00
1N3046B	MOTO	4.65	4.28
1N3047A	MOTO	3.25	3.00
1N3048A	MOTO	3.25	3.00
1N3048B	MOTO	4.65	4.28
1N3049B	MOTO	4.65	4.28
1N3050B	MOTO	4.65	4.28
1N3051A	MOTO	3.25	3.00
1N3051B	MOTO	4.65	4.28
1N3085	IR	18.34	13.75
1N3085R	IR	18.34	13.75
1N3086	IR	19.99	14.98
1N3086R	IR	19.99	14.98
1N3087	IR	20.16	15.13
1N3087R	IR	20.16	15.13
1N3088	IR	20.71	15.53
1N3088R	IR	20.71	15.53
1N3089	IR	22.00	16.50
1N3089R	IR	22.00	16.50
1N3090	IR	23.84	17.88
1N3090R	IR	23.84	17.88
1N3091	IR	25.85	19.38
1N3091R	IR	25.85	19.38
1N3092	IR	27.96	20.97
1N3092R	IR	27.96	20.97
1N3111	IR	17.96	13.48
1N3111R	IR	17.96	13.48
1N3154	MOTO	2.60	2.25
1N3155	MOTO	3.55	3.05
1N3155A	MOTO	4.35	3.75
1N3161	IR	21.29	17.03
1N3162	IR	22.94	18.35
1N3163	IR	24.31	19.45
1N3164	IR	25.52	20.41
1N3165	IR	26.40	21.12
1N3166	IR	29.10	23.23
1N3167	IR	30.53	24.42
1N3168	IR	31.90	25.52
1N3169	IR	33.77	27.01
1N3170	IR	36.41	29.13
1N3171A	IR	38.72	30.97
1N3172A	IR	42.63	34.10
1N3173A	IR	44.94	35.95
1N3174A	IR	47.69	38.15
1N3208	MOTO	1.31	1.03
1N3208	IR	2.34	1.81
1N3208R	IR	2.34	1.81
1N3209	MOTO	1.60	1.25
1N3209	IR	2.77	2.05
1N3209R	IR	2.77	2.05
1N3210	MOTO	2.05	1.61
1N3210	IR	3.85	2.89
1N3210R	IR	3.85	2.89
1N3211	MOTO	2.55	2.00
1N3211	IR	4.77	3.57
1N3211R	IR	4.77	3.57
1N3212	MOTO	2.91	2.28
1N3212	IR	6.05	4.54
1N3212	GE	9.30	7.75
1N3212R	MOTO	2.91	2.28
1N3212R	IR	6.05	4.54
1N3213	IR	6.60	4.95
1N3213R	IR	6.60	4.95
1N3214	MOTO	4.18	3.29
1N3214	GE	10.50	8.75
1N3214	IR	7.15	5.36
1N3214R	IR	7.15	5.36
1N3266	GE	41.28	24.78
1N3266R	GE	41.28	24.78
1N3267	GE	42.72	25.62
1N3267R	GE	42.72	25.62
1N3268	GE	44.16	26.52
1N3268R	GE	44.16	26.52
1N3269	GE	45.84	27.48
1N3269R	GE	45.84	27.48
1N3270	GE	47.40	28.38
1N3270R	GE	47.40	28.28
1N3271R	GE	50.40	30.18
1N3271	GE	50.40	30.18
1N3272	GE	53.52	32.10
1N3272R	GE	53.52	32.10
1N3273	GE	57.00	34.14
1N3273R	GE	57.00	34.14
1N3288	IR	16.40	9.80
1N3288A	IR	16.40	9.80
1N3288R	IR	16.40	9.80
1N3288RA	IR	16.40	9.80
1N3289	GE	30.10	18.08
1N3293	GE	36.17	21.72
1N3293A	GE	38.02	22.78
1N3289	IR	16.60	9.90
1N3289A	IR	16.60	9.90
1N3289R	IR	16.60	9.90
1N3289RA	IR	16.60	9.90
1N3290	IR	18.65	11.11
1N3290A	IR	18.65	11.11
1N3290	GE	31.55	18.95
1N3290A	GE	33.13	19.87
1N3290R	GE	31.55	18.95
1N3290RA	GE	33.13	19.87
1N3290R	IR	18.65	11.11
1N3290RA	IR	18.65	11.11
1N3291	GE	33.00	19.80
1N3291	IR	20.69	12.31
1N3291A	IR	10.69	12.31
1N3291R	IR	20.69	12.31
1N3291A	GE	34.58	20.80
1N3291RA	GE	34.58	20.80
1N3291RA	IR	20.69	12.31
1N3292	GE	34.45	20.66
1N3292A	GE	36.17	21.72
1N3292	IR	22.07	13.18
1N3292R	GE	34.45	20.66
1N3292RA	GE	36.17	21.72
1N3292R	IR	22.07	13.18
1N3293	IR	23.44	14.04
1N3293A	IR	23.44	14.04
1N3293R	IR	23.44	14.04
1N3293RA	GE	38.02	22.78
1N3293RA	IR	23.44	14.04
1N3294	GE	39.66	23.89
1N3294A	GE	41.84	25.08
1N3294	IR	26.60	16.01
1N3294A	IR	26.60	16.01
1N3294RA	GE	41.84	25.08
1N3294R	IR	26.60	16.01
1N3294RA	IR	26.60	16.01
1N3295	GE	43.96	26.40
1N3295A	GE	46.20	27.72
1N3295	IR	30.78	18.147
1N3295A	IR	30.78	18.47
1N3295R	IR	30.78	18.47
1N3295RA	IR	30.78	18.47
1N3296	GE	48.58	29.11
1N3296R	GE	48.58	29.11
1N3305B	MOT	10.65	9.70
1N3306A	MOTO	7.65	7.00
1N3309B	MOTO	10.65	9.70
1N3311A	MOTO	7.65	7.00
1N3312A	MOTO	7.65	7.00
1N3314A	MOTO	7.65	7.00
1N3314B	MOTO	10.65	9.70
1N3317A	MOT	7.65	7.00
1N3317B	MOTO	10.65	9.70
1N3319A	MOTO	7.65	7.00
1N3321B	MOTO	10.65	9.70
1N3322B	MOTO	10.65	9.70

Key	Mfr.
GE	General Electric
GI	General Instrument
GIO	General Instruments Optoelectronics
IDI	International Devices Inc.
INT	Intersil
IR	International Rectifier
LAN	Lansdale
MOT	Motorola
NAT	National Electronics
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
1N3323B	MOTO	10.65	9.70
1N3327A	MOTO	7.65	7.00
1N3340A	MOTO	7.65	7.00
1N3340B	MOTO	10.65	9.70
1N3350A	MOTO	11.30	10.29
1N3350B	MOTO	17.95	16.43
1N3491	MOTO	.91	.77
1N3492	MOTO	1.09	.92
1N3492R	MOTO	1.09	.92
1N3493	MOTO	1.27	1.08
1N3493R	MOTO	1.27	1.08
1N3494	MOTO	1.55	1.31
1N3495	MOTO	1.73	1.46
1N3495R	MOTO	1.73	1.46
1N3663	MOTO	1.73	1.46
1N3663R	MOTO	1.73	1.46
1N3670A	GE	10.50	8.75
1N3670RA	GE	10.50	8.75
1N3671A	GE	10.95	9.13
1N3671RA	GE	10.95	9.13
1N3670A	IR	7.00	6.50
1N3670RA	IR	7.00	6.50
1N3671A	IR	7.50	7.10
1N3671RA	IR	7.50	7.10
1N3672A	GE	11.48	9.56
1N3672RA	GE	11.48	9.56
1N3672A	IR	8.40	7.90
1N3672RA	IR	8.40	7.90
1N3673	GE	12.00	10.00
1N3673A	IR	8.80	8.00
1N3673A	GE	12.00	10.00
1N3673RA	GE	12.00	10.00
1N3673RA	IR	8.80	8.00
1N3712	GE	10.95	6.68
1N3716	GE	7.21	4.42
1N3717	GE	13.63	8.31
1N3718	GE	8.78	5.35
1N3737	GE	45.96	27.60
1N3737R	GE	45.96	27.60
1N3735	IR	30.58	18.37
1N3735R	IR	30.58	18.37
1N3736	IR	32.27	19.43
1N3736R	IR	32.27	19.43
1N3737	IR	32.80	19.72
1N3737R	IR	32.80	19.72
1N3738	GE	49.08	29.46
1N3738R	GE	49.08	29.46
1N3739	GE	50.76	30.48
1N3739R	GE	50.76	30.48
1N3738	IR	33.32	20.00
1N3738R	IR	33.32	20.00
1N3739	IR	35.90	21.74
1N3739R	IR	35.90	21.74
1N3740	GE	52.68	31.56
1N3740R	GE	52.68	31.56
1N3740	IR	38.84	23.48
1N3740R	IR	38.84	23.48
1N3741R	GE	57.84	34.74
1N3742	GE	65.52	39.30
1N3742R	GE	65.52	39.30
1N3743R	GE	74.28	44.52
1N3763R	GE	10.44	8.70
1N3765	GE	13.57	11.31
1N3765R	GE	13.57	11.31
1N3741	IR	44.63	26.63
1N3741R	IR	44.63	26.63
1N3742	IR	50.42	30.11

NEW TYPES STOCKED AS SOON AS RELEASED

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Type	Mfr.	1-99	100+
1N3742R	IR	50.42	30.11
1N3743	GE	74.28	44.52
1N3743	IR	56.21	33.58
1N3743R	IR	56.21	33.58
1N3765	IR	6.40	4.80
1N3765R	IR	6.40	4.80
1N3766	GE	14.04	11.70
1N3766R	GE	14.04	11.70
1N3767	GE	14.43	12.03
1N3767R	GE	14.43	12.03
1N3766	IR	7.23	5.42
1N3766R	IR	7.23	5.42
1N3767	IR	8.13	6.23
1N3767R	IR	8.13	6.23
1N3768	GE	14.82	13.35
1N3987	GE	10.50	8.75
1N3987R	GE	10.50	8.75
1N3988	GE	10.95	9.13
1N3988R	GE	10.95	9.13
1N3989	GE	11.48	9.56
1N3989R	GE	11.48	9.56
1N3990	GE	12.00	10.00
1N3768	IR	9.40	7.05
1N3768R	IR	9.40	7.05
1N3793B	MOTO	8.69	7.38
1N3799B	MOTO	8.69	7.38
1N3821	MOTO	2.10	2.00
1N3825	MOTO	2.10	2.00
1N3826	MOTO	2.10	2.00
1N3826A	MOTO	2.65	2.43
1N3827	MOTO	2.10	2.00
1N3828	MOTO	2.10	2.00
1N3828A	MOTO	2.65	2.43
1N3880	MOTO	2.20	1.50
1N3880	GE	8.63	7.19
1N3881	MOTO	2.60	1.75
1N3883	MOTO	3.40	2.30
1N3889	MOTO	2.30	1.55
1N3889R	MOTO	2.30	1.55
1N3890	MOTO	2.70	1.80
1N3891	MOTO	3.10	2.10
1N3893	MOTO	4.30	2.90
1N3899	MOTO	3.30	2.45
1N3901	MOTO	3.85	2.85
1N3909	MOTO	3.55	2.65
1N3911	MOTO	4.10	3.05
1N3913	GE	14.59	12.16
1N3990R	GE	12.00	10.00
1N3993	MOTO	5.65	5.14
1N3995	MOTO	5.65	5.14
1N3996	MOTO	5.65	5.14
1N3996A	MOTO	7.70	7.00
1N3997	MOTO	5.65	5.14
1N3997A	MOTO	7.70	7.00
1N3998	MOTO	5.65	5.14
1N3998A	MOTO	7.70	7.00
1N4000	MOTO	5.65	5.14
1N4001	MOTO	.25	.19
1N4001	IR	.25	.19
1N4001	GEIN	.22	.17
1N4002	MOTO	.26	.20
1N4002	IR	.26	.20
1N4002	GEIN	.23	.18
1N4003	MOTO	.27	.22
1N4003	IR	.27	.22
1N4004	MOTO	.30	.24
1N4004	IR	.30	.24
1N4004	GEIN	.27	.22
1N4005	MOTO	.35	.31
1N4005	IR	.35	.31
1N4005	GEIN	.32	.28
1N4006	MOTO	.44	.36
1N4006	IR	.44	.36
1N4007	MOTO	.55	.42
1N4007	IR	.55	.42
1N4043	IR	20.00	—
1N4044	IR	29.43	17.68
1N4044R	IR	29.43	17.68
1N4045	IR	29.45	17.70
1N4045R	IR	29.45	17.70
1N4046	IR	29.47	17.72
1N4046R	IR	29.47	17.72
1N4047	IR	29.48	17.73
1N4047R	IR	29.48	17.73
1N4048	GE	46.68	27.96
1N4048R	GE	46.68	27.96
1N4048	IR	33.83	20.39
1N4048R	IR	33.83	20.39
1N4049	GE	48.00	28.80
1N4049R	GE	48.00	28.80
1N4049	IR	34.65	21.05
1N4049R	IR	34.65	21.05
1N4050	GE	51.24	30.72
1N4050R	GE	51.24	30.72
1N4050	IR	35.70	21.40
1N4050R	IR	35.70	21.40
1N4051	GE	53.04	31.80
1N4051R	GE	53.04	31.80
1N4051	IR	36.19	21.67
1N4051R	IR	36.19	21.67
1N4052R	GE	54.96	32.94
1N4052	IR	39.19	23.90
1N4052R	IR	39.19	23.90
1N4053	GE	56.76	34.08
1N4053R	GE	56.76	34.08
1N4053	IR	42.00	25.25
1N4053R	IR	42.00	25.25
1N4054	IR	45.00	27.00
1N4054	GE	60.36	36.24
1N4054R	GE	60.36	36.24
1N4054R	IR	45.00	27.00
1N4055	GE	64.20	38.52
1N4055R	GE	64.20	38.52
1N4055	IR	47.80	28.60
1N4055R	IR	47.80	28.60
1N4056	IR	50.55	30.25
1N4056	GE	68.16	40.98
1N4056R	GE	68.16	40.98
1N4056R	IR	50.55	30.25
1N4104	MOTO	1.26	90
1N4148	GE	.40	.26
1N4156	GE	.99	.67
1N4157	GE	1.38	.92
1N4245	GE	.46	.35
1N4247	GE	.71	.55
1N4249	GE	1.44	.97
1N4510	GE	24.30	20.25
1N4529	GE	36.00	30.00
1N4530	GE	48.06	45.05
1N4552B	MOTO	11.50	10.50
1N4562B	MOTO	11.50	10.50
1N4571	MOTO	2.40	1.90
1N4572A	MOT	5.40	2.60
1N4575	MOTO	1.20	.75
1N4576A	MOTO	1.95	1.15
1N4719	MOTO	1.22	1.03
1N4720	MOTO	1.33	1.12
1N4721	MOTO	1.44	1.22
1N4722	MOTO	1.56	1.32
1N4723	MOTO	1.69	1.43
1N4724	MOTO	2.51	2.12
1N4725	MOTO	3.80	3.22
1N4728	MOTO	.80	.45
1N4730	MOTO	.80	.45
1N4731	MOTO	.80	.45
1N4731A	MOTO	.80	.45
1N4732	MOTO	.80	.45
1N4732A	MOTO	.80	.45
1N4733	MOTO	.80	.45
1N4733A	MOTO	.80	.45
1N4734	MOTO	.80	.45
1N4734A	MOTO	.80	.45
1N4735	MOTO	.80	.45
1N4735A	MOTO	.80	.45
1N4736	MOTO	.80	.45
1N4736A	MOTO	.80	.45
1N4737	MOTO	.80	.45
1N4738	MOTO	.80	.45
1N4738A	MOTO	.80	.45
1N4739	MOTO	.80	.45
1N4739A	MOTO	.80	.45
1N4740	MOTO	.80	.45
1N4740A	MOTO	.80	.45
1N4742	MOTO	.80	.45
1N4742A	MOTO	.80	.45
1N4743	MOTO	.80	.45
1N4743A	MOTO	.80	.45
1N4744	MOTO	.80	.45
1N4744A	MOTO	.80	.45
1N4745	MOTO	.80	.45
1N4745A	MOTO	.80	.45
1N4746	MOTO	.80	.45
1N4746A	MOTO	.80	.45
1N4747	MOTO	.80	.45
1N4747A	MOTO	.80	.45
1N4748A	MOTO	.80	.45
1N4749	MOTO	.80	.45
1N4749A	MOTO	.80	.45
1N4752A	MOTO	.80	.45
1N4753	MOTO	.85	.50
1N4754	MOTO	.85	.50
1N4756A	MOTO	.95	.58
1N4759	MOTO	.95	.60
1N4761	MOTO	.95	.60
1N4763	MOTO	.95	.60
1N4764	MOTO	.95	.60
1N4764A	MOTO	1.05	.68
1N4817	IR	.35	.27
1N4818	IR	.38	.30
1N4819	IR	.40	.32
1N4820	IR	.43	.34
1N4822	IR	.50	.40
1N4933	MOTO	.30	.25
1N4934	MOTO	.33	.28
1N4935	MOTO	.38	.32
1N4936	MOTO	.41	.34
1N4937	MOTO	.46	.39
1N4997	MOTO	1.22	1.03
1N4998	MOTO	1.33	1.12
1N4999	MOTO	1.44	1.22
1N5000	MOTO	1.56	1.32
1N5001	MOTO	1.69	1.43
1N5003	MOTO	3.80	3.22
1N5053	IR	.92	.73
1N5059	GE	.38	.29
1N5060	GE	.49	.38
1N5061	GE	.66	.46
1N5062	GE	1.00	.65
1N5221	MOTO	.60	.40
1N5223	MOTO	.60	.40
1N5223B	MOTO	.93	.63
1N5225	MOTO	.60	.40
1N5228	MOTO	.42	.27
1N5228A	MOTO	.42	.27
1N5228B	MOTO	.42	.27
1N5229B	MOTO	.42	.27
1N5230	MOTO	.42	.27
1N5230B	MOTO	.42	.27
1N5231	MOTO	.42	.27
1N5231B	MOTO	.42	.27
1N5232	MOTO	.42	.27
1N5234	MOTO	.42	.27
1N5234A	MOTO	.42	.27
1N5234B	MOTO	.42	.27
1N5235	MOTO	.42	.27
1N5235B	MOTO	.42	.27
1N5236	MOTO	.42	.27
1N5240	MOTO	.42	.27
1N5240B	MOTO	.42	.27
1N5242	MOTO	.42	.27
1N5245	MOTO	.42	.27
1N5245B	MOTO	.42	.27
1N5252	MOTO	.42	.27
1N5252B	MOTO	.42	.27
1N5255A	MOTO	.42	.27
1N5257B	MOTO	.42	.27
1N5281	MOTO	1.05	.53
1N5283	MOT	5.50	5.34
1N5290	MOTO	5.50	5.35
1N5291	MOT	2.30	1.90
1N5297	MOT	5.50	5.36
1N5305	MOTO	5.50	5.36
1N5309	MOTO	2.30	1.90
1N5314	MOT	5.50	5.36
1N5331	GE	12.98	10.81
1N5331RA	GE	12.98	10.81
1N5332	GE	15.60	13.00
1N5332R	GE	15.60	13.00
1N5333A	MOTO	1.75	1.17
1N5333B	MOTO	1.80	1.25
1N5334A	MOTO	1.75	1.17
1N5336A	MOTO	1.75	1.17
1N5337A	MOTO	1.75	1.17
1N5337B	MOTO	1.80	1.25
1N5338A	MOTO	1.75	1.17
1N5338B	MOTO	1.80	1.25
1N5339A	MOTO	1.75	1.17
1N5339B	IDI	1.32	.90
1N5339B	MOTO	1.80	1.25
1N5340A	MOTO	1.75	1.17
1N5341A	MOTO	1.75	1.17
1N5341B	MOTO	1.80	1.25
1N5342A	MOTO	1.75	1.17
1N5342B	MOTO	1.80	1.25
1N5343A	MOTO	1.75	1.17
1N5343B	MOTO	1.80	1.25
1N5344A	MOTO	1.75	1.17
1N5346B	MOTO	1.80	1.25
1N5347A	MOTO	1.75	1.17
1N5347B	MOTO	1.80	1.25
1N5348B	MOTO	1.80	1.25
1N5349A	MOTO	1.75	1.17
1N5349B	MOTO	1.80	1.25
1N5350A	MOTO	1.75	1.17
1N5350B	MOTO	1.80	1.25
1N5351A	MOTO	1.75	1.17
1N5351B	MOTO	1.80	1.25
1N5352A	MOTO	1.75	1.17
1N5352B	MOTO	1.80	1.25
1N5352A	IDI	1.32	.90
1N5353A	MOTO	1.75	1.17
1N5353B	MOTO	1.80	1.25
1N5354B	MOTO	1.80	1.25
1N5355A	MOTO	1.75	1.17
1N5355B	MOTO	1.80	1.25
1N5357A	MOTO	1.75	1.17
1N5357B	MOTO	1.80	1.25
1N5358A	MOT	1.75	1.17
1N5358B	MOTO	1.80	1.25
1N5359A	MOTO	1.75	1.17
1N5359B	MOTO	1.80	1.25
1N5360A	MOTO	1.75	1.17
1N5361A	MOTO	1.75	1.17
1N5361B	MOTO	1.80	1.25
1N5362B	MOTO	1.80	1.25
1N5363A	MOTO	1.75	1.17
1N5363B	MOTO	1.80	1.25
1N5364B	MOTO	1.80	1.25
1N5365A	MOTO	1.75	1.17
1N5365B	MOTO	1.80	1.25
1N5366A	MOTO	1.75	1.17
1N5366B	MOTO	1.80	1.25
1N5367A	MOTO	1.75	1.17
1N5367B	MOTO	1.80	1.25
1N5368A	MOTO	1.75	1.17
1N5369A	MOTO	1.75	1.17
1N5370A	MOTO	1.75	1.17
1N5372B	MOTO	1.80	1.25
1N5373A	MOTO	1.75	1.17
1N5374A	MOTO	1.75	1.17
1N5374B	MOTO	1.80	1.25

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr.	1-99	100+
1N5375A	MOTO	1.75	1.17
1N5375B	MOTO	1.80	1.25
1N5376A	MOTO	1.75	1.17
1N5377A	MOTO	1.75	1.17
1N5378A	MOTO	2.00	1.25
1N5378B	MOTO	2.10	1.34
1N5379A	MOTO	2.00	1.25
1N5380A	MOT	2.00	1.25
1N5380B	MOTO	2.10	1.34
1N5381B	MOTO	2.10	1.34
1N5383A	MOTO	2.00	1.25
1N5383B	MOTO	2.10	1.34
1N5384B	MOTO	2.10	1.34
1N5386B	MOTO	2.10	1.34
1N5388A	MOTO	2.00	1.25
1N5388B	MOTO	2.10	1.34
1N5392	MOTO	.26	.19
1N5400	MOT	.29	.25
1N5401	MOTO	.35	.29
1N5402	GEIN	.56	.43
1N5402	MOTO	.38	.32
1N5404	MOT	.44	.37
1N5406	MOTO	.60	.51
1N5624	GE	.79	.53
1N5625	GE	1.05	.70
1N5626	GE	1.61	1.09
1N5627	GE	3.94	2.63
1N5758	MOTO	.47	.41
1N5758A	MOTO	.52	.45
1N5760	MOTO	.47	.41
1N5761A	MOTO	.52	.46
1N5818	MOTO	.91	.67
1N5820	MOTO	1.30	.95
1N5823	MOTO	4.60	3.40
1N5826	MOTO	4.60	3.40
1N5829	MOTO	5.50	4.00
1N5832	MOTO	6.90	5.10
1N5908	MOTO	1.25	1.04
1N5928A	MOTO	2.40	1.80
1N5993A	MOTO	1.75	1.60
1N6096	IR	4.95	3.70
1N6264	GE	2.25	1.80
1N6266	GE	3.07	2.46
1N6267A	MOTO	1.46	1.20
1N6268A	MOTO	1.46	1.20
1N6271A	MOTO	1.46	1.20
1N6272A	MOTO	1.46	1.20
1N6274A	MOTO	1.46	1.20
1N6275A	MOTO	1.46	1.20
1N6277A	MOTO	1.46	1.20
1N6278A	MOTO	1.46	1.20
1N6281A	MOTO	1.46	1.20
1N6282A	MOTO	1.46	1.20
1N6283A	MOTO	1.46	1.20
1N6284A	MOTO	1.46	1.20
1N6285A	MOTO	1.46	1.20
1N6287	MOTO	1.37	1.14
1N6287A	MOTO	14.60	1.20
1N6288A	MOTO	1.63	1.40
1N6290A	MOTO	1.63	1.40
1N6291A	MOTO	1.63	1.40
1N6293A	MOTO	1.63	1.40
1N6295A	MOTO	1.63	1.40
1N6302A	MOTO	2.52	2.25
1N6303A	MOTO	2.52	2.25
1N6373	MOTO	1.25	1.20
2N174	LAND	6.77	6.16
2N176	IDI	4.69	3.91
1N6265	GE	2.25	1.80
2N251A	IDI	3.91	3.36
2N277	LAND	4.93	4.49
2N278	LAND	5.78	5.26
2N301	IDI	4.69	3.91
2N375	IDI	9.62	8.02
2N398A	LAND	4.46	4.06
2N404	IDI	2.15	1.60
2N404A	IDI	2.45	1.79
2N441	LAND	3.55	3.23
2N442	LAND	4.53	4.11
2N456	IDI	5.80	4.82
2N443	LAND	5.10	4.64

Type	Mfr.	1-99	100+
2N456A	IDI	5.80	4.82
2N457A	IDI	5.80	4.82
2N458A	IDI	6.77	5.64
2N489	GE	20.92	13.96
2N490	GE	21.84	14.45
2N491	GE	22.98	15.32
2N524	IDI	2.90	2.30
2N525	IDI	2.80	2.20
2N526	IDI	2.90	2.30
2N527	IDI	3.45	2.50
2N553	IDI	7.44	6.19
2N597	IDI	2.70	1.80
2N656	MOTO	1.96	1.31
2N657	MOTO	2.31	1.54
2N669	IDI	3.73	3.11
2N681	MOTO	2.34	1.70
2N681	IR	4.58	3.52
2N681	GE	3.55	2.65
2N682	MOTO	2.82	2.05
2N682	IR	4.58	3.52
2N682	GE	3.80	2.82
2N683	MOTO	3.57	2.60
2N683	GE	4.76	3.52
2N683	IR	4.58	3.52
2N684	IR	4.20	3.16
2N685	MOTO	4.81	3.50
2N685	IR	5.51	4.04
2N685	GE	7.12	5.28
2N686	MOTO	5.36	3.90
2N686	GE	7.81	6.16
2N686	IR	6.05	4.72
2N687	GE	8.14	6.43
2N687	MOTO	5.77	4.20
2N687	IR	6.30	4.92
2N688	GE	9.49	7.48
2N688	MOTO	6.74	4.90
2N688	IR	7.33	5.78
2N688	RCA	7.70	5.60
2N688	GE	10.06	7.92
2N689	MOTO	8.05	5.85
2N689	IR	7.77	6.10
2N690	MOTO	9.44	7.55
2N690	RCA	9.90	7.20
2N690	GE	10.60	8.35
2N690	IR	8.20	6.49
2N691	GE	11.67	9.34
2N691	IR	9.03	7.17
2N692	GE	17.08	12.65
2N692	IR	11.47	9.09
2N697	MOTO	.43	.37
2N697	RCA	.52	.38
2N699	MOTO	1.65	1.15
2N706	MOTO	.69	.46
2N706A	MOTO	1.64	1.10
2N708	MOTO	.45	.28
2N718	MOTO	.65	.45
2N718A	MOTO	.62	.38
2N720A	MOTO	1.65	1.15
2N834	MOTO	2.50	1.80
2N914	MOTO	1.20	.85
2N918	MOTO	.83	.71
2N930	MOTO	.45	.28
2N930A	MOTO	1.65	1.15
2N956	MOTO	1.15	.85
2N1008A	IDI	4.40	3.65
2N1099	LAND	6.27	5.70
2N1100	LAND	9.72	8.83
2N1132	MOTO	1.17	.78
2N1166	LAND	8.03	7.38
2N1193	IDI	3.78	2.64
2N1302	IDI	3.50	2.65
2N1303	IDI	2.00	1.45
2N1304	IDI	3.60	2.75
2N1305	IDI	2.35	1.75
2N1306	IDI	4.10	3.20
2N1307	IDI	2.55	2.00
2N1309	IDI	3.50	2.65
2N1370	LAND	4.03	3.66
2N1375	IDI	3.50	2.65
2N1377	IDI	4.10	3.10
2N1378	IDI	4.30	3.25
2N1415	IDI	1.80	1.25

Type	Mfr.	1-99	100+
2N1479	RCA	1.12	.82
2N1482	RCA	1.47	1.07
2N1483	RCA	1.73	1.26
2N1484	RCA	1.91	1.39
2N1485	RCA	1.91	1.39
2N1487	RCA	2.16	1.58
2N1522	LAND	9.26	8.42
2N1523	LAND	9.58	8.71
2N1532	IDI	8.35	6.96
2N1535	IDI	6.19	5.16
2N1537	IDI	10.99	9.16
2N1539	IDI	5.93	4.93
2N1540	IDI	6.74	5.62
2N1542	IDI	7.70	6.42
2N1546	IDI	7.15	5.95
2N1547	IDI	10.46	8.71
2N1551	LAND	6.35	5.77
2N1554	LAND	4.87	4.43
2N1595	GE	1.95	1.30
2N1596	GE	2.76	1.84
2N1597	GE	5.66	3.78
2N1598	MOTO	2.97	2.61
2N1599	MOTO	7.01	6.14
2N1613	RCA	.65	.55
2N1613	MOT	.57	.38
2N1651	LAND	8.94	8.13
2N1671	GE	8.09	5.39
2N1671A	GE	9.01	5.99
2N1671B	GE	9.93	6.61
2N1700	RCA	1.90	1.38
2N1701	RCA	2.31	1.68
2N1711	MOT	.43	.37
2N1711	RCA	.80	.57
2N1771	GE	5.35	4.12
2N1772	GE	5.85	4.51
2N1774	GE	8.52	6.18
2N1774A	GE	9.34	6.72
2N1775	GE	10.15	7.20
2N1777	GE	12.59	9.34
2N1777A	GE	13.40	9.97
2N1798	IR	40.71	24.41
2N1798	GE	56.75	34.03
2N1799	GE	32.82	19.69
2N1805	IR	47.92	28.82
2N1806	IR	53.46	32.27
2N1807	IR	64.98	38.83
2N1842	GE	3.27	2.62
2N1842A	GE	3.46	2.78
2N1842	MOTO	2.90	1.90
2N1843A	GE	3.85	3.08
2N1844A	GE	4.69	3.75
2N1845	GE	4.78	3.83
2N1845A	GE	4.98	3.99
2N1846	MOTO	4.41	3.20
2N1846A	GE	6.49	5.18
2N1847A	GE	6.88	5.50
2N1848	GE	6.98	5.58
2N1848A	GE	7.18	5.74
2N1848A	MOTO	5.51	4.00
2N1849	GE	8.37	6.69
2N1849A	GE	8.57	6.85
2N1849	MOTO	6.49	4.70
2N1850	GE	9.48	7.58
2N1850	MOTO	7.51	5.45
2N1893	RCA	.87	.64
2N1909	IR	20.01	12.01
2N1910	IR	22.19	13.33
2N1911	IR	24.47	14.70
2N1912	IR	27.22	16.35
2N1913	IR	29.61	17.79
2N1913	GE	41.28	24.80
2N1914	IR	32.70	19.61
2N1915	IR	35.21	21.16
2N1916	GE	56.75	34.03
2N1916	IR	40.71	24.41
2N2060	MOTO	3.60	2.58
2N2060A	MOTO	3.20	2.29
2N2076	LAND	6.62	6.02
2N2077	LAND	5.13	4.66
2N2082	LAND	4.65	4.23
2N2102	MOTO	1.60	1.05
2N2102	RCA	1.17	.85

Key	Mfr.
GE	General Electric
GI	General Instrument
GIO	General Instruments Optoelectronics
IDI	International Devices Inc.
INT	Intersil
IR	International Rectifier
LAN	Lansdale
MOT	Motorola
NAT	National Electronics
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
2N2102	IDI	.97	.71
2N2152	LAND	6.45	5.87
2N2156	LAND	7.33	6.67
2N2157	LAND	8.29	7.54
2N2160	GE	6.97	4.64
2N2193A	MOTO	4.40	2.95
2N2218	MOTO	.43	.37
2N2219	MOTO	.43	.37
2N2219A	MOT	.44	.38
2N2222	MOTO	.51	.34
2N2222A	MOTO	.53	.36
2N2223A	MOTO	3.40	2.43
2N2270	MOTO	.99	.66
2N2270	RCA	.74	.54
2N2322	GE	2.31	1.53
2N2323	GE	2.54	1.69
2N2324	GE	2.54	1.69
2N2324A	GE	2.54	1.69
2N2326	GE	4.74	3.20
2N2329	GE	10.00	6.80
2N2369	MOTO	.49	.31
2N2369A	MOTO	.50	.32
2N2405	RCA	1.70	1.24
2N2484	MOTO	.49	.28
2N2501	MOTO	6.60	4.38
2N2575	MOTO	6.00	5.09
2N2577	MOTO	7.57	6.03
2N2578	MOTO	8.00	5.92
2N2641	MOTO	2.20	1.58
2N2642	MOTO	3.00	2.15
2N2646	MOTO	.55	.48
2N2646	GE	1.07	.72
2N2647	MOTO	.96	.85
2N2647	GE	2.02	1.35
2N2857	MOTO	1.55	1.35
2N2869	IDI	4.01	3.34
2N2894	MOTO	2.40	1.70
2N2895	MOTO	2.05	1.45
2N2896	MOTO	3.10	2.05
2N2903	MOTO	6.65	4.75
2N2904	MOT	.53	.35
2N2904A	MOTO	.60	.40
2N2905	MOTO	.54	.36
2N2905A	MOT	.56	.38
2N2906	MOTO	.52	.35
2N2906A	MOTO	.54	.36
2N2907	MOTO	.51	.33
2N2907A	MOTO	.53	.36
2N2913	MOTO	2.50	1.79
2N2914	MOTO	2.80	2.00
2N2917	MOTO	3.50	2.50
2N2919	MOTO	4.20	3.00
2N2920	MOTO	4.50	3.22
2N2923	GE	.30	.21
2N2924	GE	.34	.22
2N2925	GE	.40	.27
2N3009	MOTO	2.25	1.60
2N3019	MOTO	.73	.49
2N3053	MOTO	.58	.39
2N3053	RCA	.55	.43
2N3053A	MOTO	1.30	.85
2N3054	MOT	1.17	.87
2N3054	RCA	1.24	.87
2N3054A	MOTO	1.15	.85
2N3055	MOTO	1.03	.76
2N3055	RCA	.98	.71
2N3091	IR	51.20	30.72

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr.	1-99	100+
2N3092	IR	58.75	35.25
2N3093	IR	64.03	38.43
2N3094	IR	70.39	42.26
2N3095	IR	76.86	46.14
2N3097	IR	88.50	53.10
2N3133	MOTO	5.65	4.05
2N3137	MOTO	2.10	1.80
2N3228	RCA	1.47	1.07
2N3250	MOTO	.58	.39
2N3250A	MOTO	.60	.40
2N3251	MOTO	.58	.39
2N3251A	MOTO	.60	.40
2N3253	MOT	1.85	1.30
2N3299	MOTO	.99	.66
2N3300	MOTO	1.25	.90
2N3330	MOTO	1.95	1.35
2N3375	MOTO	13.80	12.00
2N3390	GE	.74	.47
2N3391	GE	.45	.30
2N3391A	GE	.49	.34
2N3392	GE	.30	.21
2N3393	GE	.30	.21
2N3394	GE	.28	.19
2N3402	GE	.41	.29
2N3404	GE	.53	.37
2N3405	GE	.64	.45
2N3414	GE	.36	.24
2N3415	GE	.39	.26
2N3416	GE	.47	.32
2N3417	GE	.59	.40
2N3439	MOTO	1.09	.70
2N3439	RCA	1.59	1.10
2N3440	MOTO	.90	.60
2N3440	RCA	1.14	.79
2N3441	MOTO	1.00	.75
2N3441	RCA	1.00	.75
2N3442	MOTO	1.49	1.10
2N3442	RCA	1.49	1.10
2N3447	MOTO	5.06	3.75
2N3468	MOT	2.90	2.05
2N3498	MOT	3.50	2.50
2N3501	MOT	3.80	2.71
2N3507	MOTO	15.05	10.75
2N3525	RCA	1.77	1.29
2N3528	RCA	1.92	1.39
2N3529	RCA	2.10	1.53
2N3546	MOTO	2.80	2.15
2N3553	MOTO	1.55	1.35
2N3565	IDI	.66	.46
2N3566	IDI	.74	.49
2N3567	IDI	.74	.49
2N3568	IDI	.84	.56
2N3569	IDI	.86	.58
2N3583	RCA	1.09	.81
2N3583	MOTO	1.09	.81
2N3584	RCA	1.60	1.17
2N3585	MOTO	1.65	1.22
2N3585	RCA	1.65	1.22
2N3611	IDI	4.01	3.34
2N3612	IDI	4.01	3.34
2N3613	IDI	4.27	3.55
2N3614	IDI	6.89	5.74
2N3616	LAND	3.13	2.84
2N3617	IDI	7.44	6.19
2N3618	IDI	8.24	6.86
2N3632	MOTO	15.50	13.50
2N3634	MOTO	4.60	3.29
2N3635	MOTO	5.60	4.00
2N3636	MOT	5.50	3.93
2N3638	IDI	.74	.49
2N3638A	IDI	.80	.54
2N3642	IDI	.80	.54
2N3643	IDI	.80	.54
2N3644	IDI	.94	.62
2N3645	IDI	.94	.62
2N3656	GE	22.77	15.18
2N3657	GE	24.32	16.22
2N3658	GE	28.14	18.76
2N3668	RCA	2.82	2.06
2N3669	RCA	3.32	2.41
2N3670	RCA	3.99	2.90
2N3694	IDI	.86	.58
2N3713	MOTO	1.42	1.05
2N3714	MOTO	1.55	1.15
2N3715	MOTO	1.42	1.05
2N3716	TI	3.01	2.00
2N3716	MOTO	1.55	1.15
2N3725	MOTO	2.27	1.51
2N3731	IDI	13.07	10.88
2N3735	MOT	.84	.60
2N3738	MOTO	1.54	1.14
2N3739	MOTO	1.94	1.44
2N3740	MOTO	1.62	1.20
2N3741	MOTO	1.82	1.35
2N3762	MOT	6.05	4.30
2N3766	MOTO	1.49	1.10
2N3767	MOTO	1.70	1.25
2N3771	TI	2.88	1.92
2N3771	MOTO	2.67	1.99
2N3771	RCA	2.67	1.99
2N3772	TI	2.90	1.93
2N3772	MOTO	2.90	2.15
2N3772	RCA	2.90	2.15
2N3773	MOTO	2.88	2.30
2N3773	RCA	2.94	2.36
2N3789	MOTO	1.62	1.20
2N3790	MOTO	1.82	1.35
2N3791	MOTO	1.28	.95
2N3792	MOTO	1.35	1.00
2N3792	TI	3.31	2.20
2N3796	MOTO	3.45	2.63
2N3797	MOTO	3.45	2.63
2N3799	MOTO	4.05	2.90
2N3810	MOTO	4.60	3.29
2N3821	MOTO	1.25	.90
2N3822	MOTO	1.20	.85
2N3823	MOTO	1.05	.75
2N3824	MOTO	1.05	.75
2N3866	MOTO	1.30	1.10
2N3866A	MOTO	1.50	1.30
2N3868	MOTO	9.92	7.35
2N3871	MOTO	4.54	3.30
2N3872	MOTO	5.94	4.32
2N3872	RCA	6.78	4.90
2N3873	MOTO	7.34	5.34
2N3878	RCA	1.65	1.35
2N3879	RCA	2.70	1.97
2N3896	GE	5.07	3.39
2N3896	RCA	3.86	2.85
2N3897	GE	7.41	4.95
2N3897	MOTO	4.87	3.54
2N3897	RCA	4.84	3.55
2N3898	GE	10.45	6.97
2N3898	MOTO	6.27	4.56
2N3898	RCA	6.27	4.56
2N3899	GE	11.78	7.85
2N3899	MOTO	7.67	5.58
2N3899	RCA	7.67	5.58
2N3902	MOTO	4.73	3.50
2N3903	MOTO	.47	.30
2N3903	GE	.49	.32
2N3904	MOTO	.49	.35
2N3904	GE	.51	.37
2N3904	SPRA	.40	.27
2N3905	MOTO	.50	.32
2N3905	GE	.55	.35
2N3906	MOTO	.52	.37
2N3906	GE	.56	.39
2N3947	MOTO	2.75	1.95
2N3954	INT	5.40	3.60
2N3959	MOTO	3.85	3.35
2N3970	MOTO	1.45	1.05
2N3993	INT	3.30	2.20
2N4001	IDI	8.70	6.00
2N4014	MOTO	2.15	1.55
2N4033	MOTO	1.00	.71
2N4036	RCA	.97	.71
2N4037	RCA	.78	.56
2N4048	LAND	7.91	7.19
2N4049	LAND	10.55	9.59
2N4050	LAND	14.39	13.08
2N4053	LAND	20.87	18.98
2N4063	RCA	1.35	.98
2N4072	MOTO	1.80	1.56
2N4091	MOTO	.90	.65
2N4092	MOTO	.85	.60
2N4092	INT	.95	.61
2N4093	MOTO	.90	.65
2N4101	RCA	2.22	1.61
2N4102	RCA	2.52	1.84
2N4103	RCA	5.44	3.96
2N4118A	MOT	1.75	1.20
2N4119	MOTO	1.35	.95
2N4123	MOTO	.34	.20
2N4124	MOTO	.35	.23
2N4124	GE	.37	.24
2N4125	MOTO	.34	.21
2N4126	MOTO	.35	.23
2N4126	GE	.38	.24
2N4150	IDI	18.00	13.20
2N4168	MOTO	4.83	4.53
2N4169	MOTO	5.03	4.71
2N4170	MOTO	5.16	4.84
2N4171	MOTO	5.35	5.02
2N4172	MOTO	5.68	5.34
2N4174	MOTO	7.79	7.32
2N4184	MOTO	4.80	4.49
2N4185	MOTO	4.98	4.69
2N4186	MOTO	5.13	4.81
2N4187	MOTO	5.32	5.01
2N4188	MOTO	5.67	5.32
2N4190	MOTO	7.76	7.28
2N4220	MOTO	1.40	1.20
2N4220A	MOTO	1.45	1.05
2N4221	MOTO	1.40	1.00
2N4222	MOTO	1.40	1.00
2N4222A	MOTO	1.45	1.05
2N4223	MOTO	1.40	1.00
2N4234	MOTO	1.25	.95
2N4235	MOTO	1.45	1.10
2N4236	MOTO	1.65	1.25
2N4237	MOTO	1.10	.85
2N4238	MOTO	1.40	1.05
2N4239	MOTO	1.60	1.20
2N4240	MOTO	1.70	1.27
2N4240	RCA	1.70	1.27
2N4249	IDI	.80	.54
2N4250	IDI	.86	.58
2N4260	MOTO	14.80	11.40
2N4261	MOTO	17.50	13.50
2N4265	MOTO	.54	.36
2N4276	LAND	6.33	5.75
2N4277	LAND	6.33	5.75
2N4278	LAND	7.40	6.73
2N4279	LAND	7.40	6.73
2N4280	LAND	10.02	9.11
2N4283	LAND	14.56	13.23
2N4314	RCA	.87	.64
2N4338	INT	1.35	.90
2N4347	RCA	1.40	1.02
2N4348	RCA	2.19	1.75
2N4351	MOTO	2.25	1.60
2N4352	MOTO	2.50	1.80
2N4360	MOTO	.45	.30
2N4391	MOTO	.90	.65
2N4392	MOTO	.90	.65
2N4392	INT	1.05	.70
2N4393	MOTO	1.00	.70
2N4398	MOTO	3.04	2.25
2N4398	TI	3.22	2.15
2N4399	MOTO	4.05	3.00
2N4399	TI	4.30	2.86
2N4400	MOTO	.56	.36
2N4401	MOTO	.72	.46
2N4401	GE	.77	.47
2N4402	MOTO	.56	.36
2N4403	MOTO	.82	.46
2N4403	GE	.77	.47
2N4404	MOTO	9.90	7.62
2N4405	MOTO	10.80	8.30
2N4409	MOTO	.67	.45
2N4410	MOTO	.96	.65
2N4416	MOTO	1.50	1.05
2N4416	INT	1.00	.65
2N4424	GE	.45	.30
2N4427	MOTO	1.30	1.10
2N4441	MOTO	1.55	1.46
2N4442	MOTO	1.67	1.55
2N4443	MOTO	2.28	2.14
2N4444	MOTO	3.58	3.33
2N4851	MOTO	.89	.78
2N4852	MOTO	.89	.78
2N4853	MOTO	2.16	1.89
2N4856	INT	1.15	.74
2N4857	MOTO	1.05	.75
2N4858	MOTO	1.05	.75
2N4870	MOTO	.70	.62
2N4871	MOTO	.63	.55
2N4890	MOTO	1.55	1.03
2N4898	MOTO	1.28	.95
2N4899	MOTO	1.42	1.05
2N4900	MOTO	1.60	1.20
2N4901	MOTO	1.55	1.15
2N4903	MOTO	2.36	1.75
2N4904	MOTO	1.69	1.25
2N4905	MOTO	2.23	1.65
2N4906	MOTO	2.43	1.80
2N4912	MOTO	1.28	.95
2N4914	MOTO	1.42	1.05
2N4915	MOTO	1.62	1.20
2N4918	MOTO	1.05	.78
2N4919	MOTO	1.23	.91
2N4920	MOTO	1.42	1.05
2N4921	MOTO	1.16	.86
2N4922	MOTO	1.35	1.00
2N4923	MOTO	1.55	1.15
2N4924	MOTO	2.40	1.70
2N4925	MOT	2.90	2.05
2N4927	MOTO	3.90	2.75
2N4928	MOT	4.70	3.35
2N4929	MOT	5.70	4.05
2N4931	MOTO	7.65	5.89
2N4948	MOTO	.79	.69
2N4949	MOTO	2.09	1.83
2N4957	MOTO	3.45	3.00
2N4959	MOTO	2.30	2.00
2N4983	GE	2.30	1.33
2N4987	GE	.84	.56
2N4988	GE	1.35	.90
2N4989	GE	1.82	1.21
2N4990	GE	.94	.63
2N4991	GE	.83	.55
2N4992	GE	1.46	.97
2N5031	MOTO	2.70	2.35
2N5038	RCA	4.53	3.30
2N5039	RCA	3.97	2.88
2N5052	MOTO	3.38	2.50
2N5058	MOT	2.95	2.10
2N5060	MOTO	.40	.35
2N5060	GE	.72	.49
2N5061	MOTO	.41	.36
2N5061	GE	.77	.52
2N5062	MOTO	.47	.41
2N5062	GE	.86	.58
2N5063	GE	.93	.62
2N5064	MOTO	.57	.50
2N5064	GE	.97	.65
2N5067	MOTO	1.08	.80
2N5086	MOTO	.50	.36
2N5087	MOTO	.60	.40
2N5088	MOTO	.50	.36
2N5089	MOTO	.72	.46

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr.	1-99	100+
2N5089	GE	.76	.48
2N5108	MOTO	3.45	3.00
2N5109	MOTO	1.70	1.45
2N5114	INT	2.95	1.95
2N5116	INT	2.95	1.95
2N5134	IDI	.58	.38
2N5135	IDI	.58	.38
2N5138	IDI	.58	.38
2N5160	MOTO	3.45	3.00
2N5166	MOTO	3.75	2.72
2N5169	MOTO	3.23	2.35
2N5170	MOTO	4.08	2.96
2N5171	MOTO	5.28	3.84
2N5172	GE	.25	.17
2N5179	MOTO	1.04	.90
2N5190	MOTO	1.04	.77
2N5191	MOTO	1.22	.90
2N5192	MOTO	1.42	1.05
2N5193	MOTO	1.15	.85
2N5194	MOTO	1.34	.99
2N5195	MOTO	1.62	1.20
2N5204	GE	18.83	13.44
2N5204	IR	9.75	6.86
2N5205	GE	20.02	14.31
2N5205	IR	14.79	7.84
2N5206	GE	24.97	16.05
2N5206	IR	19.35	10.29
2N5207	GE	33.29	17.71
2N5207	IR	25.79	13.13
2N5210	MOTO	.72	.48
2N5222	MOTO	.24	.16
2N5239	RCA	5.82	4.23
2N5240	RCA	6.32	4.60
2N5241	MOTO	12.15	9.00
2N5294	RCA	.73	.53
2N5296	RCA	.73	.53
2N5298	RCA	.74	.54
2N5301	MOTO	2.09	1.55
2N5302	MOTO	2.36	1.75
2N5302	TI	2.92	1.94
2N5303	MOTO	2.63	1.95
2N5306	GE	.45	.30
2N5307	GE	.49	.34
2N5308A	GE	.62	.41
2N5320	RCA	1.14	.83
2N5321	RCA	.91	.66
2N5322	RCA	1.47	1.07
2N5323	RCA	1.01	.73
2N5336	MOTO	4.86	3.60
2N5337	MOTO	5.74	4.25
2N5344	MOTO	7.09	5.25
2N5345	MOTO	8.64	6.40
2N5355	GE	.43	.28
2N5366	GE	.53	.35
2N5397	INT	1.95	1.28
2N5400	MOTO	.75	.50
2N5401	MOTO	.89	.60
2N5415	RCA	1.46	1.01
2N5416	RCA	1.98	1.38
2N5416	MOTO	1.87	1.25
2N5431	MOTO	3.03	2.65
2N5432	INT	4.50	3.00
2N5433	INT	3.90	2.58
2N5434	INT	3.90	2.58
2N5442	MOTO	6.77	4.92
2N5444	RCA	5.97	4.34
2N5445	MOTO	7.10	5.16
2N5445	RCA	7.10	5.16
2N5446	MOTO	8.79	6.40
2N5446	RCA	8.79	6.40
2N5457	MOTO	.45	.30
2N5458	MOTO	.45	.30
2N5459	MOTO	.45	.32
2N5460	MOTO	.70	.50
2N5461	MOTO	.65	.45
2N5462	MOTO	.70	.50
2N5484	MOTO	.45	.30
2N5485	MOTO	.45	.32
2N5485	INT	.60	.38
2N5486	MOTO	.45	.32
2N5490	RCA	.96	.70
2N5494	RCA	.96	.70
2N5496	RCA	1.04	.76
2N5550	MOTO	.58	.36
2N5551	MOTO	.62	.38
2N5567	MOTO	3.05	2.22
2N5569	RCA	3.38	2.46
2N5570	MOTO	3.99	2.90
2N5572	RCA	3.89	2.83
2N5573	MOTO	3.58	2.60
2N5573	RCA	3.58	2.60
2N5574	MOTO	4.22	3.07
2N5574	RCA	4.22	3.07
2N5583	MOTO	3.45	3.00
2N5590	MOTO	10.35	9.00
2N5591	MOTO	13.80	12.00
2N5629	MOTO	3.78	2.80
2N5630	MOTO	4.52	3.35
2N5631	MOTO	5.00	3.70
2N5634	MOTO	2.97	2.20
2N5639	MOTO	.50	.35
2N5641	MOTO	9.20	8.00
2N5642	MOTO	10.95	9.50
2N5643	MOTO	15.50	13.50
2N5654	MOTO	.50	.35
2N5655	MOTO	.95	.70
2N5656	MOTO	1.11	.82
2N5657	MOTO	1.31	.97
2N5671	RCA	10.72	7.80
2N5672	RCA	13.60	9.90
2N5679	MOTO	1.37	1.05
2N5680	MOTO	1.37	1.05
2N5681	MOTO	1.20	.93
2N5682	MOTO	1.37	1.05
2N5683	MOTO	13.50	10.00
2N5684	MOTO	15.75	11.67
2N5685	MOTO	8.56	6.34
2N5686	MOTO	12.15	9.00
2N5745	MOTO	2.63	1.95
2N5754	RCA	.94	.73
2N5755	RCA	1.09	.84
2N5756	RCA	1.40	1.08
2N5757	RCA	1.89	1.42
2N5760	MOTO	1.49	1.10
2N5771	MOTO	.43	.27
2N5777	MOTO	.60	.50
2N5777	GE	.60	.50
2N5780	MOTO	.90	.80
2N5780	GE	1.20	.80
2N5781	RCA	1.47	1.07
2N5783	RCA	1.40	1.02
2N5784	RCA	1.24	.90
2N5785	RCA	1.08	.78
2N5786	RCA	.99	.72
2N5836	MOTO	3.68	3.19
2N5840	MOTO	2.43	1.80
2N5859	MOTO	1.08	.72
2N5875	MOTO	1.28	.95
2N5875	RCA	1.28	.95
2N5876	MOTO	1.74	1.29
2N5877	MOTO	1.42	1.05
2N5878	TI	2.99	1.99
2N5879	MOTO	1.69	1.25
2N5880	MOTO	1.89	1.40
2N5881	MOTO	1.69	1.25
2N5882	MOTO	1.89	1.40
2N5882	RCA	1.89	1.40
2N5883	MOTO	3.31	2.45
2N5884	MOTO	4.05	3.00
2N5885	MOTO	2.90	2.15
2N5886	MOTO	3.24	2.40
2N5905	INT	4.30	2.85
2N5909	INT	4.50	2.97
2N5911	INT	9.70	6.45
2N5912	INT	5.70	3.80
2N5943	MOTO	1.85	1.60
2N5946	MOTO	14.40	12.50
2N5954	RCA	1.56	1.14
2N5956	RCA	1.23	.90
2N5979	MOTO	2.30	1.70
2N5985	MOTO	2.48	1.84
2N5986	MOTO	2.57	1.90
2N5987	MOTO	2.84	2.10
2N5988	MOTO	3.11	2.30
2N5991	MOTO	2.97	2.20
2N6027	MOTO	.27	.24
2N6027	GE	.79	.53
2N6028	MOTO	.34	.30
2N6028	GE	1.00	.65
2N6030	MOTO	5.00	3.70
2N6031	MOTO	5.74	4.25
2N6034	MOTO	1.65	1.22
2N6035	MOTO	1.83	1.36
2N6036	MOTO	2.14	1.58
2N6037	MOTO	1.38	1.02
2N6038	MOTO	1.53	1.13
2N6039	MOTO	1.78	1.32
2N6040	MOTO	1.95	1.45
2N6041	MOTO	2.10	1.55
2N6042	MOTO	2.30	1.70
2N6043	MOTO	1.75	1.30
2N6044	MOTO	1.90	1.40
2N6045	MOTO	2.05	1.50
2N6049	MOTO	1.60	1.20
2N6050	MOTO	3.04	2.25
2N6051	MOTO	3.38	2.50
2N6052	MOTO	3.78	2.80
2N6053	MOTO	1.96	1.45
2N6054	MOTO	2.30	1.70
2N6055	MOTO	1.38	1.02
2N6056	MOTO	1.69	1.25
2N6057	MOTO	2.50	1.85
2N6058	MOTO	2.70	2.00
2N6059	MOTO	3.17	2.35
2N6069	MOTO	.68	.55
2N6069A	MOTO	.80	.65
2N6071	MOTO	.85	.69
2N6071A	MOTO	.89	.73
2N6071B	MOTO	1.13	.92
2N6072	MOTO	.89	.73
2N6073	MOTO	.92	.75
2N6073A	MOTO	1.19	.97
2N6075	MOTO	1.71	1.39
2N6076	GE	.25	.17
2N6078	RCA	2.47	1.80
2N6079	RCA	2.96	2.16
2N6080	MOTO	9.20	8.00
2N6081	MOTO	10.35	9.00
2N6082	MOTO	11.50	10.00
2N6083	MOTO	13.25	11.50
2N6084	MOTO	15.00	13.00
2N6101	RCA	1.15	.84
2N6103	RCA	1.15	.84
2N6107	RCA	.75	.58
2N6109	RCA	.75	.58
2N6111	MOTO	.73	.54
2N6116	MOTO	1.21	1.06
2N6121	MOTO	.67	.50
2N6122	MOTO	.74	.55
2N6123	MOTO	.79	.59
2N6124	MOTO	.74	.55
2N6125	MOTO	.79	.59
2N6146	MOTO	5.37	3.91
2N6151	MOTO	2.15	1.93
2N6152	MOTO	2.95	2.76
2N6161	MOTO	5.74	4.59
2N6162	MOTO	7.09	5.67
2N6163	MOTO	6.00	4.80
2N6164	MOTO	6.90	5.52
2N6211	MOTO	1.69	1.25
2N6212	MOTO	2.03	1.50
2N6213	RCA	2.36	1.75
2N6214	RCA	7.35	6.27
2N6226	MOTO	1.15	.85
2N6228	MOTO	1.49	1.10
2N6230	MOTO	2.43	1.80
2N6231	MOTO	2.97	2.20
2N6235	MOTO	5.55	4.12
2N6239	MOTO	.79	.69
2N6246	RCA	1.98	1.44
2N6247	RCA	2.31	1.68
2N6248	RCA	2.64	1.92
2N6249	RCA	4.70	3.48
2N6249	MOTO	4.98	3.75

Key	Mfr.
GE	General Electric
GI	General Instrument
GIO	General Instruments Optoelectronics
IDI	International Devices Inc.
INT	Intersil
IR	International Rectifier
LAN	Lansdale
MOT	Motorola
NAT	National Electronics
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
2N6250	RCA	5.50	4.08
2N6250	IR	5.69	3.62
2N6251	RCA	5.91	4.38
2N6251	MOT	5.99	4.65
2N6251	IR	5.78	3.69
2N6254	RCA	1.98	1.50
2N6258	IDI	7.14	5.58
2N6259	RCA	7.67	5.58
2N6261	RCA	1.40	.98
2N6262	RCA	3.22	2.34
2N6274	MOTO	14.85	11.00
2N6275	MOTO	17.75	13.15
2N6276	MOTO	23.49	17.40
2N6282	MOTO	3.38	2.50
2N6283	MOTO	3.65	2.70
2N6284	MOTO	4.05	3.00
2N6284JAN	MOTO	7.16	5.30
2N6285	MOTO	4.05	3.00
2N6286	MOTO	4.32	3.20
2N6287	MOTO	4.73	3.50
2N6288	RCA	.69	.51
2N6290	RCA	.73	.54
2N6292	RCA	.73	.54
2N6294	MOTO	1.62	1.20
2N6295	MOTO	1.76	1.30
2N6296	MOTO	1.82	1.35
2N6300	MOTO	1.55	1.15
2N6301	MOTO	1.69	1.25
2N6306	IR	2.54	1.88
2N6306	RCA	2.50	1.86
2N6307	MOTO	3.24	2.40
2N6308	MOTO	4.66	3.45
2N6308	IR	4.50	3.31
2N6316	MOTO	1.34	.99
2N6328	TI	3.55	2.36
2N6331	TI	4.08	2.72
2N6338	MOTO	6.01	4.45
2N6342A	MOTO	1.40	1.16
2N6343	MOTO	1.45	1.21
2N6343A	MOTO	1.70	1.43
2N6344A	MOTO	2.30	1.96
2N6346A	MOTO	1.50	1.28
2N6347A	MOTO	1.80	1.54
2N6349A	MOTO	4.50	3.83
2N6354	RCA	5.20	3.78
2N6371	RCA	1.49	1.18
2N6383	RCA	1.61	1.17
2N6384	RCA	1.78	1.30
2N6385	RCA	1.98	1.44
2N6386	RCA	.95	.71
2N6387	RCA	1.05	.78
2N6388	RCA	1.18	.88
2N6388	MOTO	1.18	.88
2N6398	MOTO	2.81	2.37
2N6400	MOTO	1.60	1.04
2N6402	MOTO	1.90	1.22
2N6403	MOTO	2.57	1.63
2N6404	MOTO	3.90	2.50
2N6405	MOTO	5.94	3.96
2N6420	MOTO	1.27	.94
2N6421	MOTO	1.58	1.17
2N6427	MOT	.48	.30
2N6437	MOTO	11.48	8.50
2N6438	MOTO	14.65	10.85
2N6474	RCA	.93	.68
2N6476	RCA	1.02	.74
2N6497	MOTO	2.00	1.47

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr.	1-99	100+
2N6504	MOTO	1.97	1.43
2N6505	MOTO	2.50	1.82
2N6517	MOT	.72	.47
2N6520	MOTO	.76	.49
2N6531	RCA	1.75	1.27
2N6534	RCA	2.06	1.50
2N6543	MOTO	2.97	2.20
2N6545	MOTO	5.20	3.85
2N6546	MOTO	6.95	5.15
2N6547	MOTO	8.51	6.30
2N6569	MOTO	.80	.59
2N6575	IR	6.10	4.50
2N6576	MOTO	1.16	.86
2N6609	MOTO	3.50	2.59
2N6650	RCA	2.15	1.56
2N6667	RCA	1.39	1.01
2N6668	MOTO	1.31	.97
2N6755	IR	9.37	7.68
2N6756	IR	12.49	10.24
2N6757	IR	9.83	8.06
2N6758	IR	13.12	10.76
2N6759	IR	10.29	8.44
2N6760	IR	13.73	11.26
2N6761	IR	11.34	9.30
2N6762	IR	15.11	12.39
2N6763	IR	59.99	49.19
2N6764	IR	70.59	57.88
2N6765	IR	62.99	51.65
2N6766	IR	74.11	60.77
2N6767	IR	66.00	54.12
2N6768	IR	77.65	63.67
2N6769	IR	72.60	59.53
2N6770	IR	85.42	70.04
3N81	GE	5.72	3.80
3N84	GE	3.34	2.22
3N128	MOTO	2.05	1.45
3N128	RCA	2.30	1.90
3N138	RCA	3.36	2.77
3N140	RCA	2.14	1.77
3N141	RCA	1.92	1.58
3N153	RCA	1.82	1.50
3N163	INT	2.65	1.75
3N165	INT	5.35	3.55
3N169	MOTO	3.00	2.15
3N170	MOTO	2.75	1.95
3N170	INT	2.65	1.75
3N171	MOTO	2.50	1.80
3N187	RCA	3.16	2.61
3N200	RCA	5.08	4.19
3N201	MOT	1.20	.85
3N203	MOT	1.10	.80
3N211	MOT	1.40	1.00
3N212	MOT	1.40	1.00
3N246	MOT	1.40	1.03
3N247	MOT	1.51	1.11
3N248	MOT	1.62	1.19
3N250	MOT	1.93	1.42
3N253	MOT	1.51	1.11
3N254	MOT	1.62	1.19
3N255	MOT	1.73	1.28
3N256	MOT	1.82	1.34
3N257	MOT	2.04	1.50
3N259	MOT	2.79	2.05
4N24	TI	8.10	6.75
4N25	GE	.96	.72
4N25	MOTO	.96	.72
4N25	MONS	.97	.72
4N26	GE	.96	.72
4N26	MOTO	.96	.72
4N26	MONS	.96	.72
4N27	MOTO	.87	.69
4N27	MONS	.87	.69
4N28	MOTO	.87	.69
4N28	GE	.87	.69
4N28	MONS	.87	.69
4N29	MOTO	1.20	1.00
4N29	GE	1.20	1.00
4N30	MOTO	1.20	1.00
4N30	GE	1.20	1.00
4N31	MOTO	1.10	.95
4N32	MOTO	1.40	1.10
4N32	GE	1.35	1.08
4N32	MONS	1.35	1.08
4N32A	GE	1.35	1.08
4N33	MOTO	1.40	1.10
4N33	GE	1.40	1.10
4N33	MONS	1.40	1.20
4N35	GE	1.10	.88
4N35	MONS	1.10	.88
4N36	GE	1.04	.83
4N36	MONS	1.04	.83
4N37	GE	.92	.73
4N37	MONS	.92	.73
4N38	GE	1.30	1.10
4N38	MOTO	1.30	1.00
4N38A	MOTO	1.30	1.00
4N39	GE	1.17	.93
4N39	MOTO	1.85	1.50
4N40	GE	1.47	1.17
6N137	MONS	6.00	5.10
A14A	GE	.36	.27
A14F	GE	.32	.24
A14P	GE	1.16	.82
A15A	GE	.65	.44
A15F	GE	.60	.41
A40D	GE	9.30	7.75
A40M	GE	10.50	8.75
A44D	GE	9.30	7.75
A44M	GE	10.50	8.75
A45D	GE	9.30	7.75
A114A	GE	.88	.59
A114B	GE	1.01	.67
A114D	GE	1.13	.83
A114F	GE	.82	.55
A115A	GE	1.64	.93
A115B	GE	1.98	1.10
A115D	GE	2.68	1.72
A115M	GE	3.91	2.39
A139E	GE	14.95	9.97
A170A	GE	30.10	18.08
A170B	GE	31.68	18.95
A170PA	GE	48.58	29.17
A170PB	GE	50.95	30.56
A170RA	GE	30.10	18.08
A170RB	GE	31.68	18.95
A170RN	GE	41.84	25.08
A170RP	GE	46.20	27.72
A170RS	GE	39.86	23.96
A170RT	GE	43.96	26.30
A170P	GE	21.41	14.27
A170C	GE	33.13	19.87
A170D	GE	34.58	20.80
A170E	GE	36.17	21.72
A170M	GE	38.02	22.78
A170N	GE	41.84	25.08
A170P	GE	46.20	27.72
A170PC	GE	53.46	32.08
A170PD	GE	55.84	33.53
A170RC	GE	33.13	19.87
A170RD	GE	34.58	20.80
A170RE	GE	36.17	21.72
A170RM	GE	38.02	22.78
A170RPA	GE	48.58	29.17
A170RPB	GE	50.95	30.56
A170RPC	GE	53.46	32.08
A170RPD	GE	55.84	33.53
A170S	GE	39.86	23.96
A170T	GE	43.96	26.30
A177A	GE	35.14	21.06
A177N	GE	48.79	29.27
A180A	GE	33.00	19.80
A180B	GE	34.58	20.80
A180D	GE	37.88	22.70
A180E	GE	39.60	23.76
A180M	GE	41.58	24.95
A180MX	GE	41.58	24.95
A180N	GE	45.80	27.46
A180P	GE	50.56	30.36
A180PA	GE	53.20	31.94
A180PB	GE	55.84	33.53
A180PC	GE	58.48	35.11
A180PD	GE	61.12	36.70
A180PE	GE	63.89	38.28
A180RA	GE	33.00	19.80
A180RB	GE	34.58	20.80
A180RC	GE	36.30	21.78
A180RD	GE	37.88	22.70
A180RE	GE	39.60	23.76
A180RM	GE	41.58	24.95
A180RN	GE	45.80	27.46
A180RP	GE	50.56	30.36
A180RPA	GE	53.20	31.94
A180RPB	GE	55.84	33.53
A180RPC	GE	58.48	35.11
A180RPD	GE	51.12	36.70
A180RS	GE	43.69	26.21
A180RIRT	GE	48.05	28.85
A180S	GE	43.69	26.21
A180T	GE	48.05	28.85
A190A	GE	44.16	26.52
A190B	GE	45.72	27.42
A190PA	GE	72.60	43.56
A190PB	GE	77.40	46.44
A190PC	GE	82.44	49.50
A190RA	GE	44.16	26.52
A190RB	GE	45.72	27.42
A190RPA	GE	72.60	43.56
A190RPB	GE	77.40	46.44
A190C	GE	48.00	28.80
A190D	GE	51.24	30.72
A190E	GE	53.04	31.80
A190M	GE	54.96	32.94
A190N	GE	60.36	36.24
A190P	GE	68.28	40.98
A190PD	GE	87.60	52.56
A190RC	GE	48.00	28.80
A190RD	GE	51.24	30.72
A190RE	GE	53.04	31.80
A190RM	GE	54.96	32.94
A190RN	GE	60.36	36.24
A190RP	GE	68.28	40.98
A190RPC	GE	82.44	49.50
A190RPD	GE	87.60	52.56
A190RS	GE	56.76	34.08
A190RT	GE	64.20	38.52
A190S	GE	56.76	34.08
A190T	GE	64.20	38.52
A215A	GE	12.80	7.70
A215C	GE	14.90	8.95
A215D	GE	16.70	10.05
A215M	GE	19.25	11.55
A215N	GE	22.00	13.20
A230A	GE	16.00	9.60
A230C	GE	17.00	10.20
A230D	GE	18.50	11.10
A230M	GE	23.00	13.80
A230N	GE	27.00	16.20
A330A	GE	67.56	40.56
A330B	GE	71.76	43.02
A330PA	GE	134.88	80.94
A330PB	GE	142.56	85.50
A330C	GE	75.96	45.54
A330D	GE	80.04	48.06
A330E	GE	84.24	50.58
A330M	GE	87.84	52.74
A330N	GE	106.08	63.66
A330P	GE	125.76	75.48
A330PC	GE	151.68	90.96
A330PD	GE	159.12	95.52
A330S	GE	96.96	58.20
A330T	GE	113.76	68.28
A390A	GE	37.26	22.36
A390B	GE	39.19	23.52
A390C	GE	41.12	24.67
A390D	GE	43.06	25.84
A390E	GE	44.93	26.96
A390M	GE	46.92	28.15
A390N	GE	49.33	29.69
A390PA	GE	59.35	35.52
A390PB	GE	63.46	38.03
A390PC	GE	67.40	40.54
A390PD	GE	71.50	42.89
A390S	GE	48.24	28.96
A390T	GE	52.68	31.73
A397M	GE	55.91	33.40
A430A	GE	69.31	41.58
A430B	GE	73.49	44.09
A430PB	GE	144.28	86.53
A430C	GE	77.66	46.60
A430D	GE	81.86	49.10
A430E	GE	86.04	51.62
A430M	GE	89.63	53.72
A430N	GE	107.84	64.68
A430P	GE	127.51	76.50
A430PC	GE	153.38	92.00
A430PD	GE	160.91	96.56
A430S	GE	98.74	59.21
A430T	GE	115.50	70.16
A430PA	GE	136.62	81.97
C6A	GE	2.54	1.69
C6B	GE	4.74	3.20
C6F	GE	2.54	1.69
C6U	GE	2.31	1.53
C702L	GE	613.01	367.82
C15B	GE	6.42	4.93
C15C	GE	8.81	6.77
C15D	GE	9.71	7.46
C35A	GE	6.87	5.29
C35B	GE	8.57	6.23
C35C	GE	10.24	7.45
C35D	MOTO	8.63	6.22
C35D	GE	11.17	8.12
C35E	GE	12.05	8.76
C35F	GE	6.79	5.21
C35G	GE	7.50	5.45
C35H	GE	9.50	6.91
C35M	GE	13.18	9.59
C35N	MOTO	12.96	9.18
C35S	GE	13.95	10.15
C35U	GE	6.37	4.91
C37A	GE	6.19	4.76
C37B	GE	8.00	5.74
C37C	GE	9.75	6.98
C37D	GE	11.16	7.98
C37E	GE	12.54	8.97
C37F	GE	6.01	4.62
C37M	GE	13.75	9.86
C37S	GE	14.74	10.57
C37U	GE	5.80	4.45
C38D	GE	18.43	13.19
C38E	GE	22.11	15.84
C38F	GE	9.90	7.07
C38M	GE	9.91	7.09
C45A	GE	43.04	25.82
C45B	GE	36.18	21.68
C45C	GE	43.04	25.82
C45D	GE	48.94	29.33
C45E	GE	55.14	33.08
C45F	GE	30.92	18.58
C45G	GE	35.45	21.27
C45H	GE	39.53	23.75
C45N	GE	73.01	43.82
C45M	GE	62.00	37.22
C45PA	GE	92.93	55.79
C45PB	GE	98.18	58.90
C45P	GE	86.70	52.06
C45S	GE	68.21	40.96
C45T	GE	80.96	48.61
C45U	GE	80.96	48.61
C46B	GE	36.18	21.68
C46D	GE	48.94	29.33
C46E	GE	55.14	33.08
C46G	GE	24.38	14.63

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr.	1-99	100+
C46F	GE	30.92	18.58
C46M	GE	62.00	37.22
C46S	GE	68.21	40.96
C46T	GE	80.96	48.61
C46U	GE	30.92	18.58
C46P	GE	86.70	52.06
C46PA	GE	92.93	55.79
C50A	GE	30.92	18.58
C46PB	GE	98.18	58.90
C50B	GE	24.38	14.63
C50C	GE	39.53	23.75
C50D	GE	39.53	23.75
C50F	GE	30.92	18.58
C50E	GE	64.07	38.42
C50G	GE	29.48	17.69
C50H	GE	39.53	23.75
C50M	GE	71.40	42.88
C50N	GE	86.08	51.64
C50PA	GE	106.80	64.07
C50PB	GE	115.39	69.26
C50S	GE	78.90	47.34
C50U	GE	30.92	18.58
C52A	GE	30.92	18.58
C52B	GE	35.45	21.27
C52C	GE	39.53	23.75
C52D	GE	39.53	23.75
C52E	GE	64.07	38.42
C52F	GE	30.92	18.58
C52G	GE	35.45	21.27
C52H	GE	39.53	23.75
C52N	GE	86.08	51.64
C52M	GE	71.40	42.88
C52PA	GE	106.80	64.07
C52PB	GE	115.39	69.26
C52P	GE	99.78	59.87
C52S	GE	78.90	47.34
C52T	GE	92.93	55.79
C52U	GE	30.92	18.58
C103A	GE	.93	.63
C103B	GE	1.05	.70
C103Y	GE	.78	.53
C103YY	GE	.83	.55
C106A1	GE	.45	.40
C106B	MOTO	.41	.36
C106B1	GE	.51	.45
C106B2	GE	.61	.55
C106B4	GE	.61	.55
C106C1	GE	.64	.55
C106D	GE	.56	.49
C106D1	GE	.73	.65
C106D2	GE	.83	.75
C106E	MOTO	.70	.61
C106F1	GE	.44	.39
C106F2	GE	.57	.52
C106Y1	GE	.42	.37
C107D1	GE	.69	.59
C107F1	GE	.42	.37
C122A1	GE	1.05	.83
C122D	GE	1.62	1.29
C122D1	MOTO	1.36	1.11
C122E1	MOTO	1.60	1.30
C122F	GE	.96	.76
C137E	GE	17.96	12.65
C137N	GE	21.92	14.63
C137M	GE	19.10	13.55
C137P	GE	28.62	19.09
C137PA	GE	31.67	21.11
C137PB	GE	35.94	23.95
C137S	GE	19.61	13.98
C147B	GE	22.84	13.73
C147C	GE	23.50	14.12
C147D	GE	25.61	15.38
C147E	GE	28.51	17.10
C137T	GE	24.97	16.65
C147A	GE	22.18	13.33
C147M	GE	32.74	19.67
C147N	GE	44.22	26.53
C147P	GE	55.57	33.34
C147PA	GE	61.25	36.77
C147PB	GE	67.06	40.26
C147T	GE	49.90	29.96
C150A	GE	41.11	24.66

Type	Mfr.	1-99	100+
C150B	GE	43.99	26.40
C150C	GE	47.21	28.32
C150D	GE	51.26	30.76
C150E	GE	56.36	33.79
C150M	GE	62.70	37.62
C150N	GE	78.41	47.06
C150S	GE	71.94	43.16
C150T	GE	86.20	51.74
C150P	GE	94.12	56.50
C150PA	GE	100.45	60.26
C152PA	GE	100.45	60.26
C150PB	GE	108.37	65.02
C152E	GE	56.36	33.79
C152A	GE	41.11	24.66
C152B	GE	43.99	26.40
C152C	GE	47.21	28.32
C152D	GE	51.26	30.76
C152N	GE	78.41	47.06
C152PB	GE	108.37	65.02
C152S	GE	71.94	43.16
C158PB	GE	151.14	90.68
C180A	GE	57.02	34.19
C180C	GE	67.06	40.26
C180D	GE	74.18	44.48
C180M	GE	94.12	56.50
C180P	GE	156.82	94.12
C180PB	GE	182.92	109.75
C180S	GE	111.14	66.66
C220B	GE	2.85	2.06
C220C	GE	3.27	2.38
C220D	GE	3.54	2.56
C220E	GE	4.45	3.24
C222B	GE	2.56	1.92
C222D	GE	3.25	2.44
C228A	GE	4.61	3.62
C228B	GE	7.67	6.05
C228C	GE	8.22	6.49
C228D	GE	9.53	7.52
C228F	GE	4.38	3.45
C228M	GE	10.63	8.38
C228M2	GE	10.63	8.38
C230A	GE	4.38	3.44
C230B	GE	5.88	4.62
C230C	GE	6.90	5.45
C230D	GE	7.82	6.16
C230E	GE	8.74	6.89
C230F	GE	4.13	3.17
C230M	GE	9.14	7.20
C231D	GE	8.18	6.45
C232D	GE	7.48	5.90
C234M	GE	11.06	8.73
C350B	GE	35.50	21.30
C350C	GE	36.30	21.78
C350D	GE	39.86	23.89
C350E	GE	42.77	25.68
C350M	GE	48.44	29.04
C350P	GE	74.18	44.48
C350PA	GE	79.86	47.92
C350PB	GE	85.54	51.35
C350S	GE	55.57	33.34
C350T	GE	67.06	40.26
C380A	GE	45.67	27.40
C380B	GE	48.44	29.04
C380BX	500	GE	53.33
C380C	GE	54.12	32.47
C380CX500	GE	59.53	35.77
C380D	GE	62.70	37.62
C380DX500	GE	69.04	41.45
C380E	GE	74.18	44.48
C380EX555	GE	81.71	49.04
C380EX500	GE		81.71
C380M	GE	85.54	51.35
C380MX500	GE	94.12	56.50
C380MX555	GE	94.12	56.50
C380N	GE	108.37	65.02
C380NX555	GE	119.20	71.54
C380P	GE	131.21	78.74
C380PA	GE	145.46	87.25
C380PAX555	GE	160.12	96.10
C390PA	GE	195.36	117.22
C380PB	GE	156.82	94.12
C380PBX555	GE	172.52	103.56

Type	Mfr.	1-99	100+
C390PX555	GE	144.41	86.66
C380S	GE	96.89	58.15
C380SX555	GE	106.66	64.02
C380T	GE	119.72	71.81
C380TX555	GE	131.74	79.07
C390E	GE	114.84	68.90
C390EX500	GE	126.32	75.84
C390EX555	GE	126.32	75.84
C390M	GE	124.08	74.45
C390AX500	GE	85.67	51.42
C390B	GE	87.12	52.27
C390BX500	GE	95.83	57.55
C390C	GE	96.36	57.82
C390CX500	GE	106.00	63.62
C390D	GE	105.60	63.36
C390DX500	GE	116.16	69.70
C390MX500	GE	136.49	81.91
C390MX555	GE	136.49	81.91
C390N	GE	155.36	93.19
C390NX555	GE	170.94	102.56
C390P	GE	182.42	109.43
C390PX555	GE	200.77	120.52
C390PAX555	GE	214.90	128.96
C390PB	GE	208.16	124.87
C390PBX555	GE	229.02	137.41
C390SX555	GE	155.23	93.19
C390T	GE	165.40	99.26
C390TX555	GE	182.03	109.24
C391M	GE	105.72	63.42
C391N	GE	137.52	82.50
C391PB	GE	204.60	122.76
C391PC	GE	222.42	133.45
C391PA	GE	186.31	111.78
C391PD	GE	234.56	140.71
C391PN	GE	289.34	173.58
C391PS	GE	282.22	169.36
C391PE	GE	248.82	149.29
C391PM	GE	262.28	157.34
C391S	GE	121.80	73.08
C391T	GE	153.72	92.22
C430AX500	GE	80.92	48.58
C430B	GE	81.12	48.68
C430BX500	GE	90.16	54.12
C430C	GE	89.57	53.74
C430CX500	GE	99.53	59.74
C430D	GE	97.92	58.74
C430EX500	GE	118.14	70.88
C430MX500	GE	131.74	79.07
C430PA	GE	191.00	114.58
C430PAX555	GE	210.14	126.13
C430PB	GE	203.81	122.30
C430PBX555	GE	224.27	134.58
C431P	GE	167.11	100.26
C431PA	GE	183.30	109.68
C430DX500	GE	108.77	65.28
C430E	GE	107.32	64.42
C430EX555	GE	118.14	70.88
C430M	GE	119.72	71.81
C430MX555	GE	131.74	79.07
C430N	GE	151.14	90.68
C430NX555	GE	166.32	99.79
C430P	GE	178.20	106.92
C431PB	GE	201.60	120.96
C431PC	GE	218.05	130.80
C431PD	GE	230.20	138.15
C431PN	GE	285.12	171.10
C431PS	GE	278.00	166.80
C440PA	GE	330.79	198.47
C440PB	GE	384.91	230.94
C441PC	GE	270.86	162.49
C441PD	GE	297.00	176.22
C441PN	GE	387.82	232.72
C441PS	GE	362.08	217.27
C430PX555	GE	196.02	117.61
C430S	GE	136.88	82.10
C430SX555	GE	150.61	90.42
C430T	GE	161.04	96.62
C430TX555	GE	177.14	106.33
C431M	GE	102.72	61.62
C431N	GE	134.52	80.70
C431PE	GE	244.45	146.65
C431PM	GE	258.06	154.85

Key	Mfr.
GE	General Electric
GI	General Instrument
GIO	General Instruments Optoelectronics
IDI	International Devices Inc.
INT	Intersil
IR	International Rectifier
LAN	Lansdale
MOT	Motorola
NAT	National Electronics
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
C431S	GE	118.80	71.28
C431T	GE	150.72	90.42
C440B	GE	180.00	108.00
C440C	GE	193.01	115.80
C440D	GE	204.50	122.70
C440E	GE	219.00	131.40
C440M	GE	233.77	140.26
C440N	GE	265.19	159.13
C440P	GE	305.05	183.02
C440S	GE	248.03	148.84
C440T	GE	285.12	171.07
C441M	GE	190.66	114.40
C441N	GE	212.71	127.62
C441P	GE	234.48	140.69
C441PA	GE	245.40	147.23
C441PE	GE	313.63	188.17
C441PM	GE	339.24	203.54
C441S	GE	201.72	121.02
C441T	GE	223.51	134.11
C450B2	GE	178.70	107.22
C450C1	GE	214.01	128.40
C450C2	GE	195.00	116.82
C450D1	GE	224.30	134.58
C450D2	GE	203.11	121.86
C450N1	GE	323.14	193.91
C450N2	GE	293.70	176.22
C450P1	GE	382.54	229.55
C450P2	GE	347.82	208.69
C450S1	GE	296.34	177.80
C450S2	GE	269.41	161.64
C450T1	GE	352.84	211.73
C450T2	GE	320.76	192.46
C448PB	GE	492.62	295.55
C450E1	GE	235.22	141.11
C450E2	GE	213.84	128.30
C450M1	GE	266.64	159.72
C450M2	GE	242.35	145.40
C450PA1	GE	410.92	246.58
C450PA2	GE	373.56	224.14
C450PB1	GE	432.83	259.72
C450PB2	GE	393.49	236.09
C451E1	GE	197.60	118.61
C451E2	GE	179.65	107.78
C451M1	GE	227.44	136.49
C451M2	GE	206.71	124.02
C451PA1	GE	341.88	205.13
C451PA2	GE	310.73	186.46
C451B1	GE	175.34	105.20
C451B2	GE	157.99	94.80
C451C1	GE	182.86	109.70
C451C2	GE	166.66	100.00
C451D1	GE	190.01	114.00
C451D2	GE	172.25	103.34
C451PB1	GE	363.92	218.40
C451PB2	GE	330.79	198.47
C451PE1	GE	445.37	267.24
C451PE2	GE	404.84	242.88
C451PM1	GE	473.62	284.20
C451PM2	GE	430.58	258.32
C451PN1	GE	529.98	317.99
C451PN2	GE	481.80	289.08
C451PS1	GE	501.86	301.16
C451PS2	GE	456.19	273.71
C451N1	GE	272.84	163.75
C451N2	GE	248.03	148.84
C451P1	GE	319.84	191.93

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr.	1-99	100+
C451P2	GE	290.80	174.50
C451PC1	GE	388.87	233.38
C451PC2	GE	353.50	212.12
C451PD1	GE	417.12	250.27
C451PD2	GE	379.24	227.57
C451S1	GE	247.76	148.70
C451S2	GE	225.19	135.11
C451T1	GE	294.76	176.88
C451T2	GE	267.96	160.78
C501PC	GE	244.73	146.86
BPC10-005	GEIN	4.06	3.40
D5K1	GE	11.42	7.62
D5K2	GE	6.36	4.24
D2114L2	INT	6.00	4.80
D40C1	GE	.67	.44
D40C3	GE	1.05	.69
D40C4	GE	.75	.50
D40C5	GE	1.07	.71
D40C7	GE	1.07	.71
D40D1	GE	.64	.43
D40D2	GE	.81	.54
D40D4	GE	.78	.51
D40D5	GE	.88	.59
D40D7	GE	.86	.57
D40D8	GE	.97	.64
D40K1	GE	.86	.57
D40K2	GE	.98	.65
D41D2	GE	.91	.61
D41D5	GE	1.05	.69
D41D8	GE	1.19	.79
D41K1	GE	.93	.63
D41K2	GE	1.04	.71
D42C3	GE	.95	.62
D42C5	GE	1.07	.71
D42C8	GE	1.23	.82
D43C1	GE	.88	.59
D43C3	GE	1.01	.67
D43C12	GE	1.48	.99
D44C3	GE	1.03	.69
D44C5	GE	1.13	.75
D44C8	GE	1.17	.78
D44C10	GE	1.21	.80
D44C11	GE	1.29	.86
D44E1	GE	1.77	1.20
D44E2	GE	1.93	1.30
D44E3	GE	2.08	1.42
D44H2	GE	1.68	1.12
D44H5	GE	1.83	1.21
D44H8	GE	1.96	1.31
D44H10	GE	2.06	1.38
D44H11	GE	2.23	1.50
D44Q5	GE	1.91	1.27
D45C5	GE	1.17	.78
D45C8	GE	1.30	.86
D45E1	GE	2.23	1.51
D45E2	GE	2.71	1.83
D45E3	GE	2.87	1.96
D45H2	GE	1.95	1.29
D45H5	GE	2.05	1.35
D45H8	GE	2.18	1.46
D45H10	GE	2.27	1.52
D45H11	GE	2.41	1.61
DA1702	GE	.33	.22
E1000-40	IR	8.66	8.25
EE1000-110	IR	18.01	17.16
F501	GE	4.40	3.55
F502	GE	1.95	1.50
F503	GE	2.25	1.73
F5E1	GE	4.40	3.55
F5E2	GE	1.95	1.50
F5E3	GE	2.25	1.73
G128B	INT	13.15	10.50
GE-1	GE	1.20	.96
GE-2	GE	1.58	1.27
GEZD4.3	GE	.90	.72
GE-4	GE	7.90	6.32
GE-8	GE	2.50	2.00
GE-10	GE	1.20	.96
GE-12	GE	2.34	1.88
GE-14	GE	3.51	2.81
GE-16	GE	4.80	3.84
GE-17	GE	1.42	1.14
GE-18	GE	1.46	1.17
GE-20	GE	1.10	.88
GE-21	GE	1.12	.90
GE-25	GE	7.50	6.00
GE-27	GE	2.18	1.75
GE-28	GE	2.15	1.72
GE-29	GE	2.40	1.92
GE-32	GE	2.79	2.24
GE-36	GE	10.75	8.60
GE-38	GE	12.00	9.60
GE-39	GE	1.59	1.28
GE-44	GE	3.00	2.40
GE-47	GE	1.26	1.01
GE-48	GE	1.35	1.08
GE-51	GE	2.40	1.92
GE-53	GE	1.02	.82
GE-61	GE	1.32	1.06
GE-62	GE	.81	.65
GE-63A	GE	1.80	—
GE-67	GE	1.80	1.44
GE-69	GE	2.76	2.21
GE-76	GE	11.55	9.24
GE-80	GE	4.35	3.48
GE82	GE	1.02	.82
GE-86	GE	1.00	.80
GE-210	GE	.84	.68
GE-222	GE	1.60	1.28
GE230	GE	2.80	2.24
GE-239	GE	6.50	5.20
GE243	GE	1.75	1.40
GE-245	GE	2.16	1.73
GE-254	GE	13.15	10.52
GE-255	GE	3.78	3.02
GE256	GE	5.17	4.14
GE-265	GE	10.12	8.10
GE-300	GE	.81	.65
GE-504A	GE	.66	.53
GE-509	GE	.79	.64
GE510	GE	.81	.65
GE511	GE	1.23	.99
GE86A	GE	2.49	—
GE726	GE	12.26	9.81
GE-5136	GE	9.50	7.60
GE-BR-206	GE	4.77	3.82
GE-FET-1	GE	1.95	1.56
GE-FET-2	GE	1.44	1.16
GEMR-3	GE	8.60	6.50
GEMR-4	GE	3.80	2.90
GEMR-5	GE	1.40	1.07
GESP-752	GE	7.10	5.68
GE-X13	GE	1.60	1.28
GEZD-5.1	GE	.90	.72
GEZD-120	GE	.90	.72
H11A1	GE	1.00	.85
H11A1	MOTO	1.00	.85
H11A2	GE	.90	.75
H11A2	MOTO	.90	.75
H11A3	GE	1.00	.85
H11A5	GE	1.00	.83
H11A5100	GE	1.50	1.25
H11AA1	GE	1.98	1.60
H11AA2	GE	1.70	1.40
H11AA2	GE	1.70	1.40
H11B1	GE	1.55	1.25
H11B2	GE	1.50	1.20
H11B3	GE	1.40	1.10
H11B255	GE	1.40	1.10
H11C1	GE	1.80	1.44
H11C1	MOTO	2.15	1.70
H11C2	GE	1.69	1.35
H11C2	MOTO	2.15	1.70
H11C3	GE	1.29	1.03
H11C3	MOTO	1.55	1.25
H11C4	GE	2.25	1.80
H11C5	GE	2.11	1.69
H11C6	GE	1.62	1.29
H11D1	GE	1.80	1.44
H11D2	GE	1.47	1.18
H11D3	GE	1.35	1.08
H11D4	GE	1.20	.96
H11F1	GE	2.64	2.11
H11F2	GE	2.21	1.76
H11G2	GE	1.35	—
H11G3	GE	1.26	.99
H11J1	GE	1.94	1.60
H11J3	GE	1.55	1.28
H11J5	GE	.88	.70
H11L1	GE	2.61	2.09
H11L2	GE	1.98	1.58
H21A1	GE	2.02	1.50
H2181	GE	2.17	1.60
H23A1	GE	1.13	.91
H23B1	GE	1.34	1.07
H24A2	GE	1.60	1.28
H24B2	GE	1.68	1.34
H74A1	GE	1.53	1.22
IR409	IR	2.88	2.13
IR423	IR	3.98	2.94
IR425	IR	4.41	3.25
IR430	IR	3.47	2.56
IR701	IR	5.12	3.71
IRF120	IR	10.70	8.77
IRF122	IR	5.56	4.56
IRF123	IR	4.91	4.03
IRF130	IR	15.80	12.96
IRF131	IR	12.70	10.41
IRF132	MOTO	9.33	6.91
IRF133	MOTO	8.25	6.11
IRF140	IR	26.89	22.05
IRF141	IR	21.52	17.65
IRF142	IR	22.85	18.74
IRF143	IR	20.17	16.54
IRF150	IR	71.30	58.47
IRF151	IR	65.50	53.71
IRF220	IR	6.87	5.63
IRF221	IR	5.50	4.51
IRF222	IR	5.83	4.78
IRF223	IR	5.15	4.22
IRF230	IR	16.50	13.53
IRF240	IR	28.24	23.16
IRF241	IR	22.59	18.52
IRF242	IR	24.00	19.68
IRF243	IR	21.19	17.38
IRF250	IR	76.50	62.36
IRF251	IR	68.40	56.09
IRF252	IR	71.25	58.43
IRF320	IR	11.50	9.43
IRF322	IR	6.11	5.01
IRF323	IR	5.39	4.42
IRF330	IR	17.20	14.10
IRF331	IR	13.80	11.32
IRF332	IR	12.05	10.11
IRF332	MOTO	10.26	7.60
IRF333	MOTO	9.05	6.70
IRF340	IR	29.57	24.25
IRF341	IR	23.67	19.41
IRF342	IR	25.13	20.61
IRF343	IR	22.19	18.20
IRF350	IR	80.80	66.26
IRF430	IR	26.30	21.57
IRF432	MOTO	11.29	8.36
IRF433	MOTO	9.98	7.39
IRF440	IR	32.54	26.68
IRF441	IR	26.04	21.35
IRF442	IR	27.65	22.67
IRF443	IR	24.41	20.02
IRF450	IR	99.00	81.81
IRF452	IR	94.00	77.08
IRF520	IR	5.67	4.65
IRF521	IR	4.54	3.72
IRF522	IR	4.81	3.94
IRF523	IR	4.26	3.49
IRF530	IR	9.85	8.08
IRF531	IR	7.89	6.47
IRF532	IR	8.37	6.86
IRF532	MOTO	8.10	6.00
IRF533	IR	7.39	6.06
IRF533	MOTO	7.16	5.30
IRF540	IR	23.39	19.18
IRF541	IR	18.70	15.33
IRF542	IR	19.89	16.31
IRF543	IR	17.54	14.38
IRF620	IR	5.94	4.87
IRF621	IR	4.76	3.90
IRF622	IR	5.06	4.15
IRF623	IR	4.46	3.66
IRF630	IR	10.35	8.49
IRF640	IR	24.56	20.14
IRF641	IR	19.65	16.11
IRF642	IR	20.87	17.11
IRF643	IR	18.43	15.11
IRF720	IR	6.24	5.12
IRF721	IR	5.00	4.10
IRF730	IR	10.83	8.88
IRF731	IR	8.67	7.11
IRF732	IR	9.20	7.54
IRF732	MOTO	8.90	6.59
IRF733	IR	8.13	6.67
IRF733	MOTO	7.86	5.82
IRF740	IR	25.72	21.09
IRF741	IR	20.57	16.87
IRF742	IR	21.87	17.93
IRF743	IR	19.30	15.83
IRF831	IR	9.54	7.82
IRF832	MOTO	9.80	7.26
IRF833	MOTO	8.64	6.40
IRF840	IR	28.30	23.21
IRF841	IR	22.63	18.56
IRF842	IR	24.05	19.72
IRF843	IR	21.22	17.40
IRF9130	IR	13.06	10.71
IRF9230	IR	13.70	11.23
IRF9231	IR	10.96	8.99
IRF9232	IR	11.65	9.55
IRF9233	IR	10.28	8.43
IRF9520	IR	6.52	5.35
IRF9523	IR	4.89	4.01
IRF9530	IR	11.35	9.31
IRF9620	IR	6.85	5.62
IRF9621	IR	5.48	4.49
IRF9622	IR	5.83	4.78
IRF9623	IR	5.15	4.22
IRF9630	IR	11.93	9.78
IRF9631	IR	9.54	7.82
IRF9632	IR	10.13	8.31
IRF9633	IR	8.94	7.33
IRFD110	IR	3.28	2.69
IRFD111	IR	2.63	2.16
IRFD112	IR	2.78	2.28
IRFD113	IR	2.46	2.02
IRFD1Z0	IR	2.07	1.70
IRFD1Z1	IR	1.67	1.37
IRFD1Z2	IR	1.76	1.44
IRFD1Z3	IR	1.56	1.28
IRFD9120	IR	5.69	4.67
IRFD9121	IR	4.56	3.74
IRFD9122	IR	4.83	3.96
IRFD9123	IR	4.26	3.49
IRFE110	IR	17.50	14.35
IRFE111	IR	13.98	11.46
IRFE112	IR	16.33	13.39
IRFE113	IR	12.97	10.63
IRFE5110	IR	23.88	19.58
IRFE5111	IR	19.09	15.65
IRFE5112	IR	22.68	18.60
IRFE5113	IR	18.43	15.11
IRFE9120	IR	30.24	24.80
IRFE9121	IR	24.19	19.84
IRFE9122	IR	29.03	23.81
IRFE9123	IR	23.89	19.59
IRFF110	IR	6.94	5.69

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr.	1-99	100+
IRFF111	IR	5.56	4.56
IRFF112	IR	5.91	4.85
IRFF113	IR	5.20	4.26
IRFF120	IR	10.67	8.75
IRFF121	IR	8.54	7.00
IRFF122	IR	9.07	7.44
IRFF123	IR	8.00	6.56
IRFF130	IR	14.07	11.54
IRFF131	IR	11.26	9.23
IRFF132	IR	11.96	9.81
IRFF133	IR	10.56	8.66
J116B5	IR	50.82	44.49
KBP02	GEIN	1.22	0.92
KBPC602	GEIN	2.96	2.62
KBPC2504	GEIN	3.64	2.82
KBPC2506	GEIN	4.24	3.29
L8U	GE	8.61	6.90
L14F1	GE	2.20	1.85
L14F2	GE	1.65	1.32
L14G1	GE	1.70	1.45
L14G2	GE	1.60	1.35
L14G3	GE	1.80	1.55
L14H2	MOTO	.50	.40
LED558	GE	1.45	1.10
LED55C	GE	1.50	1.15
LED55CF	GE	1.50	1.15
LED56	GE	1.45	1.16
MAC10-4	MOTO	2.15	1.93
MAC10-6	MOTO	2.95	2.76
MAC11-4	MOTO	2.00	1.87
MAC11-6	MOTO	2.90	2.72
MAC15-6	MOTO	2.61	1.90
MAC92-4	MOTO	.51	.45
MAC-228-2	MOTO	1.10	.88
MAC-228-3	MOTO	1.15	.92
MAC228A6	MOTO	1.33	1.06
MAN1A	MONS	11.00	9.70
MAN10A	MONS	11.00	9.70
MAN1001A	MONS	11.00	9.70
MAN2A	MONS	6.30	5.35
MAN3610A	MONS	2.85	2.25
MAN3630A	MONS	2.85	2.25
MAN3640A	MONS	2.85	2.25
MAN4540A	MONS	3.05	2.40
MAN4610A	MONS	3.05	2.40
MAN4640A	MONS	3.05	2.40
MAN4710A	MONS	2.10	1.60
MAN4740A	MONS	2.10	1.60
MAN54A	MONS	3.05	2.40
MAN6610	MONS	4.60	3.65
MAN6630	MONS	4.60	3.65
MAN6640	MONS	4.60	3.65
MAN6660	MONS	3.15	2.50
MAN6680	MONS	3.15	2.50
MAN6710	MONS	3.55	2.80
MAN6740	MONS	3.55	2.80
MAN6760	MONS	2.20	1.75
MAN6780	MONS	2.20	1.75
MAN71A	MONS	1.48	1.27
MAN72A	MONS	1.48	1.27
MAN73A	MONS	1.48	1.27
MAN74A	MONS	1.48	1.27
MAN82A	MONS	3.05	2.40
MAN8610	MONS	3.55	2.85
MAN8640	MONS	3.55	2.85
MBD101	MOTO	.50	.35
MBD102	MOTO	.60	.40
MBR3535	MOTO	5.50	3.70
MBR3545	MOTO	5.90	3.95
MBR6035	MOTO	6.40	4.70
MBR6045	MOTO	7.50	5.50
MBS4991	MOTO	.56	.50
MBS4992	MOTO	1.21	1.06
MCA230	MONS	1.20	.90
MCA231	MONS	1.70	1.30
MCA255	MONS	1.50	1.10
MCA7	MONS	4.30	3.35
MCA8	MONS	2.50	1.90
MCA81	MONS	2.25	1.75
MCL601	MONS	8.95	6.45
MCL611	MONS	8.95	6.45
MCS2	MONS	1.65	1.30
MCS2400	MONS	2.20	1.75
MCS6200	MONS	5.50	4.60
MCT2	MONS	.99	.75
MCT2E	MONS	1.10	.79
MCT26	MONS	.90	.63
MCT272	MONS	1.45	1.20
MCT274	MONS	1.85	1.60
MCT6	MONS	1.90	1.45
MCT66	MONS	1.85	1.40
MCT8	MONS	2.35	1.80
MCT81	MONS	2.10	1.60
ME7021	MONS	2.10	1.55
ME7024	MONS	2.10	1.55
ME7121	MONS	1.65	1.30
ME7124	MONS	1.65	1.30
MID400	MONS	4.60	3.45
MP52	MONS	.05	—
MT2	MONS	6.15	4.85
MV108	MONS	1.70	1.55
MV50	MONS	.29	.25
MV5020	MONS	.55	.50
MV5021	MONS	.55	.50
MV5022	MONS	.55	.50
MV5023	MONS	.49	.45
MV5024	MONS	.49	.45
MV5025	MONS	.49	.45
MV5026	MONS	.50	.46
MV5050	MONS	.38	.32
MV5053	MONS	.27	.21
MV5054A-1	MONS	.27	.22
MV5054A-2	MONS	.33	.28
MV5054A-3	MONS	.45	.39
MV5055	MONS	.31	.25
MV5074C	MONS	.30	.26
MV5075C	MONS	.30	.26
MV5094	MONS	1.95	1.50
MV5152	MONS	.55	.45
MV5153	MONS	.55	.45
MV5154	MONS	.55	.45
MV52	MONS	.45	.38
MV5252	MONS	.55	.45
MV5253	MONS	.55	.45
MV5254	MONS	.55	.45
MV5274C	MONS	.47	.42
MV53124	MONS	.60	.55
MV5352	MONS	.55	.45
MV5353	MONS	.55	.45
MV5354	MONS	.55	.45
MV54	MONS	.29	.25
MV5491	MONS	3.00	2.50
MV55A	MONS	.45	.38
MV57124	MONS	.60	.55
MV57164	MONS	3.75	3.35
MV57173	MONS	1.75	1.55
MV5752	MONS	.55	.45
MV5753	MONS	.39	.32
MV5754	MONS	.39	.32
MV5774C	MONS	.47	.42
MCA230	MOTO	1.20	1.00
MCA255	GE	1.20	1.00
MCA255	MOTO	1.20	1.00
MCL1301	MOTO	2.30	1.55
MCR102	MOTO	.51	.45
MCR103	MOTO	.54	.48
MCR104	MOTO	.61	.54
MCR120	MOTO	.69	.60
MCR106-1	MOTO	.64	.56
MCR106-2	MOTO	.69	.60
MCR106-3	MOTO	.70	.61
MCR106-4	MOTO	.79	.69
MCR106-5	MOTO	.96	.84
MCR106-6	MOTO	1.10	.96
MCR106-8	MOTO	1.87	1.63
MCR-220-5	MOTO	1.65	1.18
MCR649AP1	MOTO	4.09	2.86
MCR649P2	MOTO	4.81	3.17
MCR3918-2	MOTO	2.56	1.87
MCR39184	MOTO	2.81	2.04
MCR3935-6	MOTO	6.27	4.56
MCT2	MOTO	.96	.72
MCT2	TI	.87	.69
MCT2E	TI	.93	.74
MD2219	MOTO	9.00	6.49
MD2369	MOTO	3.40	2.43
MD2905	MOTO	9.00	6.45
MD5000	MOTO	12.70	9.10
MD8002	MOTO	2.50	1.80
MDA100A	MOTO	1.40	1.03
MDA101A	MOT	1.51	1.11
MDA102A	MOTO	1.62	1.19
MDA104A	MOTO	1.73	1.28
MDA106A	MOTO	1.93	1.42
MDA108A	MOTO	2.26	1.66
MDA110A	MOTO	2.59	1.90
MDA200	MOTO	1.51	1.11
MDA202	MOTO	1.73	1.28
MDA204	MOTO	1.82	1.34
MDA206	MOTO	2.04	1.59
MDA208	MOTO	2.48	1.82
MDA210	MOTO	2.79	2.05
MDA800	MOTO	5.60	4.30
MDA801	MOTO	6.20	4.77
MDA802	MOTO	6.80	5.23
MDA804	MOTO	8.00	6.15
MDA806	MOTO	10.00	7.69
MDA920A1	MOTO	1.58	1.34
MDA920A2	MOTO	1.87	1.58
MDA920A3	MOTO	2.16	1.83
MDA920A4	MOTO	2.58	2.18
MDA920A5	MOTO	2.67	2.26
MDA920A6	MOTO	2.75	2.32
MDA920A7	MOTO	3.58	3.03
MDA920A9	MOTO	4.69	3.97
MDA942A1	MOTO	2.90	2.25
MDA942A2	MOTO	3.30	2.55
MDA942A3	MOTO	3.80	2.95
MDA942A4	MOTO	4.40	3.40
MDA942A5	MOTO	4.80	3.70
MDA942A6	MOTO	5.50	4.25
MDA970A1	MOTO	3.15	2.30
MDA970A2	MOTO	3.55	2.65
MDA970A3	MOTO	4.00	2.95
MDA970A5	MOTO	5.00	3.70
MDA970A6	MOTO	6.00	4.40
MDA980-1	MOTO	2.30	1.70
MDA980-2	MOTO	2.55	1.90
MDA980-3	MOTO	3.40	2.50
MDA980-4	MOTO	3.45	2.55
MDA980-5	MOTO	3.45	2.55
MDA980-6	MOTO	4.75	3.50
MDA990-1	MOTO	2.30	1.70
MDA990-2	MOTO	2.55	1.90
MDA990-3	MOTO	3.40	2.50
MDA990-4	MOTO	3.45	2.55
MDA990-5	MOTO	3.45	2.55
MDA990-6	MOTO	4.75	3.50
MDA1200	MOTO	5.55	4.70
MDA1201	MOTO	5.80	4.90
MDA1202	MOTO	6.35	5.40
MDA1204	MOTO	7.20	6.10
MDA1206	MOTO	8.35	7.10
MDA2501	MOTO	3.00	2.54
MDA2502	MOTO	3.09	2.62
MDA2504	MOTO	3.28	2.77
MDA2506	MOTO	4.37	3.70
MDA3500	MOTO	3.19	2.70
MDA3501	MOTO	3.28	2.78
MDA3502	MOTO	3.37	2.85
MDA3504	MOTO	3.46	2.93
MDA3506	MOTO	4.74	4.00
MDA3508	MOTO	5.64	4.78
MDA3510	MOTO	7.20	6.08
MFE3001	MOTO	2.25	1.75
MFE3002	MOTO	3.35	2.25
MFE3003	MOTO	3.00	2.05
MFOD102F	MOTO	12.90	12.20
MFOD202F	MOTO	12.90	12.20
MFOE102F	MOTO	9.30	8.80
MHQ2222	MOTO	7.90	6.08
MHQ6002	MOTO	9.80	7.54
MJ410	MOTO	2.50	1.85
MJ411	MOTO	2.75	2.05
MJ413	MOTO	2.55	1.87
MJ423	MOTO	4.15	3.06

Key	Mfr.
GE	General Electric
GI	General Instrument
GIO	General Instruments Optoelectronics
IDI	International Devices Inc.
INT	Intersil
IR	International Rectifier
LAN	Lansdale
MOT	Motorola
NAT	National Electronics
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
MJ431	MOTO	5.35	3.95
MJ802	MOTO	3.04	2.25
MJ900	MOTO	1.69	1.25
MJ1000	MOTO	1.49	1.10
MJ1001	MOTO	1.76	1.30
MJ2500	MOTO	3.38	2.50
MJ2501	MOTO	3.78	2.80
MJ2955	MOTO	1.06	.77
MJ3000	MOTO	2.77	2.05
MJ3001	MOTO	3.24	2.40
MJ3029	MOTO	2.45	1.81
MJ3030	MOTO	3.75	2.76
MJ3041	MOTO	6.70	4.95
MJ4030	MOTO	5.06	3.75
MJ4031	MOTO	5.60	4.15
MJ4032	MOTO	6.55	4.85
MJ4033	MOTO	4.39	3.25
MJ4034	MOTO	4.86	3.60
MJ4035	MOTO	5.67	4.20
MJ4502	MOTO	3.04	2.25
MJ4647	MOTO	13.57	10.05
MJ9000	MOTO	7.30	5.40
MJ10000	MOTO	5.94	4.40
MJ10001	MOTO	7.22	5.35
MJ10002	MOTO	4.39	3.25
MJ10003	MOTO	5.40	4.00
MJ10004	MOTO	8.44	6.25
MJ10005	MOTO	10.33	7.65
MJ10012	MOTO	3.71	2.75
MJ10015	MOTO	18.63	13.80
MJ10016	MOTO	22.75	16.85
MJ10025	MOTO	13.16	9.75
MJ11011	MOTO	6.08	4.50
MJ11012	MOTO	5.40	4.00
MJ11013	MOTO	6.62	4.90
MJ11014	MOTO	5.87	4.35
MJ11015	MOTO	7.56	5.60
MJ11016	MOTO	6.68	4.95
MJ11028	MOTO	6.75	4.00
MJ11030	MOTO	7.22	5.35
MJ11031	MOTO	7.97	5.90
MJ14001	MOTO	16.20	12.00
MJ14002	MOTO	7.22	5.35
MJ15003	MOTO	4.30	3.20
MJ15011	MOTO	3.24	2.40
MJE105	MOTO	2.36	1.75
MJE171	MOTO	.80	.59
MJE172	MOTO	.88	.65
MJE180	MOTO	.70	.52
MJE181	MOTO	.73	.54
MJE182	MOTO	.80	.59
MJE200	MOTO	.95	.70
MJE205	MOTO	1.96	.145
MJE210	MOTO	1.05	.78
MJE223	MOTO	1.16	.86
MJE240	MOTO	1.30	.96
MJE243	MOTO	1.38	1.02
MJE244	MOTO	1.24	.92
MJE250	MOTO	1.40	1.04
MJE253	MOTO	1.50	1.11
MJE340	MOTO	1.07	.79
MJE350	MOTO	1.49	1.10
MJE370	MOTO	.96	.71
MJE371	MOTO	1.22	.90
MJE520	MOTO	.86	.64
MJE521	MOTO	1.11	.82
MJE700	MOTO	1.38	1.02

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr.	1-99	100+
MJE701	MOTO	1.53	1.13
MJE702	MOTO	1.59	1.18
MJE703	MOTO	1.84	1.36
MJE721	MOTO	.80	.59
MJE800	MOTO	1.20	.89
MJE801	MOTO	1.32	.98
MJE802	MOTO	1.39	1.03
MJE803	MOTO	1.59	1.18
MJE1090	MOTO	2.90	2.15
MJE1092	MOTO	3.35	2.48
MJE1093	MOTO	3.67	2.72
MJE1100	MOTO	2.07	1.53
MJE1101	MOTO	2.23	1.65
MJE1102	MOTO	2.46	1.82
MJE1103	MOTO	2.69	1.99
MJE2801	MOTO	1.80	1.33
MJE2901	MOTO	2.50	1.85
MJE2955	MOTO	2.50	1.85
MJE3055	MOTO	1.80	1.33
MJE3439	MOTO	.90	.67
MJE3440	MOTO	.76	.56
MJE6043	MOTO	1.82	1.35
MJE13007	MOTO	3.51	2.60
MJE13009	MOTO	5.33	3.95
MLED60	MOTO	2.00	1.60
MLED910	MOTO	6.30	5.30
MLED930	MOTO	1.25	.98
MLM308G	MOTO	1.28	.95
MM3005	MOTO	1.85	1.30
MM3007	MOTO	2.90	2.05
MM3009	MOTO	2.05	1.45
MM3904	MOT	1.50	1.05
MM4002	MOTO	2.08	1.45
MM4003	MOTO	2.30	1.65
MM4049	MOTO	3.45	3.00
MM5007	MOTO	1.70	1.20
MMT74	MOTO	1.17	1.08
MMT918	MOTO	1.42	1.31
MOC1005	MOTO	1.60	1.30
MOC1006	MOTO	1.30	1.05
MOC3002	MOTO	—	—
MOC3003	MOTO	—	—
MOC3007	MOTO	—	—
MOC3010	MOTO	1.30	1.08
MOC3011	MOTO	1.55	1.28
MOC3020	MOTO	1.50	1.24
MOC3021	MOTO	1.65	1.35
MOC3041	MOTO	3.20	2.75
MOC3030	MOTO	1.60	1.30
MOC3031	MOTO	2.00	1.64
MOC8050	MOTO	1.60	1.25
MP2400B	LAND	10.13	9.20
MPQ300	GE	1.93	1.28
MPF102	MOTO	.45	.30
MPF256	MOTO	.80	.53
MPN3401	MOTO	.52	.35
MPQ2222	MOTO	1.96	—
MPQ2906	MOTO	1.80	1.16
MPQ2907	MOT	2.00	1.29
MPQ3725	MOTO	1.78	1.14
MPQ6002	MOT	2.93	1.89
MPS404	MOTO	.37	.25
MPS404A	MOTO	.45	.30
MPS834	MOTO	.52	.35
MPS2222	MOT	.32	.20
MPS2369	MOTO	.53	.35
MPS2907	MOT	.39	.23
MPS3638A	MOTO	.31	.20
MPS3640	MOTO	.29	.18
MPS3646	MOTO	.28	.17
MPS3702	MOTO	.34	.28
MPS3704	MOTO	.34	.29
MPS3705	MOTO	.29	.25
MPQ3724	MOTO	1.56	1.00
MPS4356	MOTO	.43	.27
MPS5172	MOTO	.19	.12
MPS6507	MOTO	.53	.35
MPS6514	MOTO	.46	.33
MPS6515	MOTO	.44	.32
MPS6517	MOTO	.54	.35
MPS6518	MOTO	.59	.36
MPS6519	MOTO	.71	.45
MPS6521	MOTO	.54	.38
MPS6522	MOTO	.52	.37
MPS6523	MOTO	.58	.39
MPS6530	MOTO	.44	.32
MPS6531	MOTO	.52	.37
MPS6531	GE	.54	.38
MPS6534	MOTO	.55	.39
MPS6560	MOTO	.48	.32
MPS6562	MOTO	.54	.36
MPS6568A	MOTO	.70	.47
MPS8098	MOTO	.35	.25
MPS8099	MOTO	.39	.27
MPS8599	MOT	.41	.29
MPSA05	MOTO	.48	.28
MPSA05	GE	.50	.29
MPSA06	MOTO	.50	.29
MPSA06	GE	.53	.30
MPSA09	MOTO	.54	.36
MPSA12	MOTO	.58	.35
MPSA13	MOTO	.42	.29
MPSA14	MOTO	.51	.31
MPSA18	MOTO	.72	.46
MPSA20	MOTO	.26	.16
MPSA42	MOTO	.53	.37
MPSA43	MOTO	.68	.42
MPSA55	MOTO	.52	.33
MPSA55	GE	.55	.35
MPSA56	MOTO	.60	.37
MPSA56	GE	.63	.38
MPSA63	MOT	.42	.30
MPSA64	MOT	.51	.32
MPSA70	MOTO	.30	.19
MPSA92	MOTO	.58	.38
MPSA93	MOTO	.53	.35
MPSD54	MOTO	.99	.47
MPSL01	MOTO	.54	.33
MPSL51	MOTO	.61	.42
MPSU01	MOTO	.68	.50
MPSU01A	MOTO	.74	.55
MPSU02	MOTO	.72	.53
MPSU03	MOTO	.81	.60
MPSU04	MOTO	.85	.63
MPSU05	MOTO	.68	.50
MPSU06	MOTO	.74	.55
MPSU07	MOTO	.81	.60
MPSU10	MOTO	.84	.62
MPSU45	MOTO	.85	.63
MPSU51	MOTO	.70	.52
MPSU51A	MOTO	.77	.57
MPSU52	MOTO	.74	.55
MPSU55	MOTO	.68	.50
MPSU56	MOTO	.74	.56
MPSU57	MOTO	.81	.60
MPSU60	MOTO	1.55	1.15
MPSU95	MOTO	1.15	.85
MPSW01	MOTO	.41	.27
MPSW01A	MOTO	.44	.29
MPSW05	MOTO	.44	.29
MPSW06	MOTO	.47	.31
MPSW10	MOTO	.54	.36
MPSW13	MOTO	.48	.32
MPSW14	MOTO	.51	.34
MPSW42	MOTO	.54	.36
MPSW43	MOTO	.71	.47
MPSW45	MOTO	.65	.43
MPSW51	MOTO	.48	.32
MPSW51A	MOTO	.51	.34
MPSW55	MOTO	.48	.32
MPSW56	MOTO	.54	.36
MPSW60	MOTO	.75	.50
MPSW63	MOTO	.60	.40
MPSW64	MOTO	.65	.43
MPSW92	MOTO	.65	.43
MPSW93	MOTO	.71	.47
MPU131	MOTO	.62	.54
MPU133	MOTO	.78	.62
MPX500	MOTO	26.00	21.50
MPX100A	MOTO	26.00	21.50
MPX200A	MOTO	26.00	21.50
MR1-1600	MOTO	.76	.65
MR250-2	MOTO	1.85	1.36
MR331	MOTO	5.58	4.29
MR501	MOTO	.26	.22
MR502	MOTO	.30	.25
MR504	MOTO	.33	.28
MR506	MOTO	.40	.34
MR508	MOTO	.48	.40
MR510	MOTO	.66	.56
MR750	MOTO	.60	.50
MR751	MOTO	.76	.63
MR752	MOTO	.80	.67
MR754	MOTO	.90	.75
MR756	MOTO	1.50	1.25
MR811	MOTO	.33	.28
MR818	MOTO	.53	.45
MR821	MOTO	1.19	.87
MR822	MOTO	1.33	.98
MR826	MOTO	1.91	1.40
MR850	MOTO	.55	.40
MR851	MOTO	.62	.46
MR852	MOTO	.69	.51
MR856	MOTO	.98	.72
MR876	MOTO	10.18	8.62
MR1120	MOTO	1.22	.94
MR1121	MOTO	1.40	1.17
MR1122	MOTO	1.50	1.25
MR1124	MOTO	1.86	1.55
MR1126	MOTO	3.30	2.75
MR1128	MOTO	6.27	5.23
MR1130	MOTO	8.89	7.40
MR1209FL	MOTO	13.95	10.30
MR1209FLR	MOTO	13.95	10.30
MR1215SL	MOTO	12.00	8.85
MR1215SLR	MOTO	12.00	8.85
MR1245FL	MOTO	49.50	42.90
MR1366	MOTO	4.10	3.45
MR1376	MOTO	5.25	4.45
MR1815SL	MOTO	15.65	13.25
MR2004S	MOTO	1.20	.88
MR2004SR	MOTO	1.20	.88
MPX1000	MOTO	26.00	21.50
MR2508	MOTO	.86	.58
MR5040	MOTO	3.80	2.92
MRD150	MOTO	2.00	1.60
MRD300	MOTO	2.50	1.75
MRD310	MOTO	1.13	.82
MRD360	MOTO	3.35	2.25
MRD450	MOTO	3.00	2.25
MRD500	MOTO	3.50	2.75
MRD510	MOTO	3.50	2.75
MRD604	MOTO	9.50	8.00
MRF237	MOTO	3.15	2.75
MRF260	MOTO	4.60	4.00
MRF261	MOTO	5.20	4.50
MRF262	MOTO	9.20	8.00
MRF264	MOTO	10.35	9.00
MRF323	MOTO	23.00	20.00
MRF340	MOTO	5.20	4.50
MRF342	MOTO	9.20	8.00
MRF344	MOTO	12.65	11.00
MRF421	MOTO	36.80	32.00
MRF450A	MOTO	13.80	12.00
MRF454	MOT	19.00	16.50
MRF455A	MOT	16.00	14.00
MRF475	MOTO	2.90	2.50
MRF476	MOTO	2.00	1.75
MRF477	MOTO	11.50	10.00
MRF479	MOTO	6.90	6.00
MRF485	MOTO	3.45	3.00
MRF486	MOTO	13.80	12.00
MRF497	MOTO	11.50	10.00
MRF511	MOT	8.65	7.50
MRF901	MOTO	2.15	1.85
MSD6100	MOTO	.36	.24
MTM4N45	MOTO	9.76	7.23
MTM4N50	MOTO	8.10	6.00
MTM5N35	MOTO	9.02	6.68
MTM5N40	MOTO	8.10	6.00
MTM10N12	MOTO	9.76	7.23
MTM10N15	MOTO	11.19	8.29
MTM12N08	MOTO	9.69	7.18
MTM12N10	MOTO	7.43	5.50
MTM814	MOTO	9.76	7.23
MTM815	MOTO	11.19	8.29
MTP4N45	MOTO	8.63	6.39
MTP4N50	MOTO	7.83	5.80
MTP5N35	MOTO	7.83	5.80
MTP5N40	MOTO	7.83	5.80
MTP10N12	MOTO	9.54	7.07
MTP10N15	MOTO	9.79	7.25
MTP12N08	MOTO	7.97	5.90
MTP12N10	MOTO	7.83	5.80
MTP814	MOTO	9.76	7.23
MTP815	MOTO	11.19	8.29
MTS102	MOTO	.90	.86
MTS103	MOTO	.70	.66
MTS105	MOTO	.50	.47
MU20	MOTO	.47	.42
MU4893	MOTO	.81	.71
MU4894	MOTO	.88	.77
MUR105	MOTO	.90	.75
MUR110	MOTO	1.00	.83
MUR115	MOTO	1.20	1.00
MUR805	MOTO	1.32	1.10
MUR810	MOTO	1.52	1.27
MUR815	MOTO	1.62	1.35
MV840	MOTO	1.65	1.17
MV1401	MOTO	8.75	6.30
MV1403	MOTO	8.75	6.30
MV1404	MOTO	8.75	6.30
MV1405	MOTO	8.75	6.30
MV1628	MOTO	1.42	1.00
MV1650	MOTO	1.42	1.00
MV2115	MOTO	1.55	1.10
MWA110	MOTO	7.45	6.45
MZ2361	MOTO	.57	.38
P101W	IR	18.50	16.00
P102KW	IR	34.64	24.66
P102W	IR	31.49	22.80
RCA411	RCA	2.55	2.05
RCA423	RCA	3.90	3.06
RCA3055	RCA	.93	.70
RM4136J	TI	4.55	3.90
S2062M	RCA	1.24	.90
S2600B	RCA	1.41	1.02
S2600M	RCA	2.03	1.48
S2800B	RCA	1.06	.77
S2800D	MOTO	1.37	1.11
S6220D	RCA	6.32	4.61
S6220M	RCA	8.28	6.05
S6420D	RCA	8.05	5.88
S6420M	RCA	9.78	7.14
SC141B	GE	1.62	1.24
SC141B	MOTO	1.20	.85
SC141D	MOTO	1.35	.98
SC141D	GE	1.65	1.26
SC141M	MOTO	2.50	1.83
SC142B	GE	1.87	1.43
SC142D	GE	1.94	1.48
SC146B	GE	1.65	1.26
SC146D	MOTO	1.75	1.30
SC146D	GE	1.70	1.30
SC146M	MOTO	3.10	2.32
SC150D	GE	3.57	2.73
SC151B	GE	2.92	2.24
SC151D	GE	3.11	2.38
SC151M	GE	3.59	2.74
SC240B	GE	5.28	3.73
SC240D	GE	5.49	3.88
SC245B	GE	5.49	3.88

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr.	1-99	100+
SC2458	MOTO	3.57	2.61
SC245D	GE	5.76	4.07
SC245D2	GE	7.69	5.43
SC2450	MOTO	4.13	3.01
SC250B	GE	5.76	4.07
SC250B2	GE	7.69	5.43
SC250D	GE	6.00	4.23
SC250D2	GE	8.03	5.66
SC250D3	MOTO	4.33	3.15
SC250E3	MOTO	4.76	3.42
SC250M	MOTO	4.90	3.37
SC250M3	MOTO	5.48	3.79
SC251D	MOTO	3.55	2.51
SC260B	GE	6.79	4.78
SC260B2	GE	8.72	6.16
SC260D	GE	7.08	4.99
SC260D	MOTO	4.63	3.57
SC26002	GE	9.05	6.39
SC26003	MOTO	5.58	4.30
SC260E	GE	7.36	5.21
SC260E2	GE	9.46	6.68
SC260M	MOTO	5.69	4.39
SC260M2	GE	10.88	7.67
SC260M3	MOTO	6.63	5.12
SC265B	GE	8.72	6.16
SC265D	GE	9.07	6.41
SC265D2	GE	11.04	7.80
SC265D3	GE	11.04	7.80
SC265D4	GE	11.04	7.80
SC265D5	GE	9.07	6.41
SC265M-5	GE	10.88	7.67
S051	MOTO	6.00	4.00
S61009A	RCA	2.26	2.03
S61010A	RCA	2.40	2.13
SK3003	RCA	1.30	1.04
SK3004	RCA	1.60	1.28
SK3005	RCA	1.79	1.44
SK3006	RCA	2.65	2.12
SK3007	RCA	2.09	1.68
SK3007A	RCA	4.85	3.88
SK3009	RCA	3.75	3.00
SK3010	RCA	2.15	1.72
SK3011	RCA	5.70	4.56
SK3012	RCA	11.40	9.12
SK3013	RCA	7.50	6.00
SK3014	RCA	6.75	5.40
SK3017B	RCA	.75	.60
SK3018	RCA	2.00	1.60
SK3019	RCA	2.25	1.80
SK3020	RCA	1.05	.84
SK3021	RCA	2.20	1.76
SK3024	RCA	1.75	1.40
SK3025	RCA	1.85	1.48
SK3026	RCA	2.95	2.36
SK3027	RCA	3.65	2.92
SK3031A	RCA	.70	.56
SK3032A	RCA	1.55	1.24
SK3034	RCA	7.35	5.88
SK3035	RCA	13.30	10.64
SK3036	RCA	8.55	6.84
SK3039	RCA	3.45	2.76
SK3041	RCA	2.80	2.24
SK3044	RCA	3.30	2.64
SK3045	RCA	6.50	5.20
SK3047	RCA	3.70	2.96
SK3048	RCA	5.80	4.64
SK3051	RCA	1.30	1.04
SK3053	RCA	6.00	4.80
SK3054	RCA	2.70	2.16
SK3055	RCA	.90	.72
SK3058	RCA	.90	.72
SK3062	RCA	.90	.72
SK3081	RCA	.80	.64
SK3083	RCA	2.50	2.00
SK3087	RCA	.50	.40
SK3100	RCA	.90	.72
SK3103A	RCA	3.05	2.44
SK3104A	RCA	2.10	1.68
SK3111	RCA	10.15	8.12
SK3112	RCA	2.10	1.68
SK3114	RCA	1.25	1.00
SK3115	RCA	13.15	10.52
SK3116	RCA	1.75	1.40
SK3118	RCA	.95	.76
SK3122	RCA	1.55	1.24
SK3123	RCA	6.65	5.32
SK3124	RCA	1.25	1.00
SK3137	RCA	1.80	1.44
SK3164	RCA	1.30	1.04
SK3173	RCA	6.20	4.96
SK3188A	RCA	4.55	3.64
SK3194	RCA	9.65	7.72
SK3199	RCA	2.25	1.80
SK3207	RCA	4.35	3.48
SK3216	RCA	6.40	5.12
SK3313	RCA	.65	.52
SK3327	RCA	1.05	.84
SK3328/740A	RCA	5.15	4.12
SK3438	RCA	8.95	7.16
SK3444	RCA	1.25	1.00
SK3467	RCA	9.85	7.88
SK3500	RCA	4.05	3.24
SK3501	RCA	7.15	5.72
SK3503	RCA	3.55	2.84
SK3504	RCA	10.15	8.12
SK3505	RCA	14.75	11.80
SK3506	RCA	2.75	2.20
SK3507	RCA	3.95	3.16
SK3509	RCA	9.65	7.72
SK3512	RCA	5.20	4.16
SK3513	RCA	5.75	4.60
SK3514	RCA	1.70	1.36
SK3517	RCA	3.60	2.88
SK3518	RCA	7.15	5.72
SK3535	RCA	7.15	5.72
SK3345	RCA	.92	.74
SK3559	RCA	8.45	6.76
SK3565	RCA	2.95	2.36
SK3574	RCA	4.50	3.60
SK3595/989	RCA	3.80	3.04
SK3648	RCA	2.40	1.92
SK3836	RCA	10.10	8.08
SK3848	RCA	1.45	1.16
SK3724	RCA	1.95	1.56
SK7240	RCA	12.95	10.36
SK9093	RCA	2.63	2.11
ST2	GE	.66	.44
ST4	GE	.60	.46
T2300A	RCA	1.18	.91
T2300B	RCA	1.30	1.00
T2300D	RCA	1.63	1.25
T2301B	RCA	1.15	.89
T2301D	RCA	1.54	1.18
T2302B	RCA	1.12	.87
T2302D	RCA	1.42	1.10
T2310D	RCA	1.75	1.37
T2500B	RCA	1.29	.94
T2500B	MOTO	1.25	.88
T2500D	MOTO	1.40	1.01
T2700B	RCA	1.57	1.14
T2700D	RCA	1.89	1.37
T2710D	RCA	2.05	1.49
T2800B	RCA	1.45	1.06
T2800B	MOTO	1.30	.95
T2800D	RCA	1.72	1.25
T2800D	MOTO	1.62	1.20
T2800M	MOTO	2.30	1.53
T2802D	MOTO	2.31	1.54
T2806B	RCA	1.62	1.18
T2806D	RCA	2.18	1.58
T2850B	RCA	1.62	1.18
T2850D	RCA	1.88	1.37
T41208	MOTO	3.79	3.10
T41200	RCA	5.38	3.91
T4121B	RCA	4.54	3.30
T4121D	RCA	5.15	3.74
T4700B	RCA	2.07	1.50
T4700D	RCA	2.48	1.80
T4706D	RCA	3.27	2.38
T6401M	MOTO	5.41	4.18
T6411D	RCA	5.74	4.18
T6411D	MOTO	4.59	3.55
T6411M	RCA	7.10	5.16
T6416D	RCA	7.26	5.28
T6417D	RCA	5.91	4.30
T6420D	RCA	8.25	6.00
T6420D	MOTO	6.60	5.10
T6420M	MOTO	7.96	6.15
T6420N	MOTO	10.37	9.06
T6421B	MOTO	4.80	3.71
T6421D	MOTO	5.52	4.26
T6420M	RCA	9.95	7.24
T6421D	RCA	6.90	5.02
T6421M	MOTO	6.60	5.10
T6421M	RCA	8.25	6.00
T6427M	RCA	8.42	6.12
TD101	SPRA	2.10	1.40
TIC106C	TI	1.03	.69
TIC206B	TI	1.01	.67
TIC216A	TI	1.74	1.16
TIC216B	TI	1.76	1.17
TIC216D	TI	1.78	1.19
TIC226D	TI	1.40	.93
TIC263D	TI	3.01	2.00
TIL23	TI	1.33	1.11
TIL24	TI	2.39	1.99
TIL31A	TI	1.43	1.14
TIL32	TI	.36	.30
TIL78	TI	.36	.27
TIL81	TI	1.36	1.14
TIL99	TI	1.41	1.17
TIL102	TI	4.92	4.10
TIL103	TI	8.10	6.75
TIL111	TI	.86	.68
TIL111	MOTO	.90	.80
TIL112	TI	.51	.41
TIL113	TI	.90	.72
TIL116	TI	.75	.59
TIL117	TI	.79	.63
TIL118	TI	.84	.67
TIL119	TI	.86	.68
TIL133	TI	66.24	56.78
TIL138	TI	1.83	1.52
TIL139	TI	1.83	1.52
TIL143	TI	2.39	1.99
TIL145	TI	2.39	1.99
TIL148	TI	5.92	4.94
TIL149	TI	1.83	1.52
TIL154	TI	.93	.74
TIL209A	TI	.21	.17
TIL220	TI	.24	.20
TIL228-1	TI	.30	.24
TIL228-2	TI	.46	.37
TIL302	TI	6.05	4.85
TIL303	TI	6.05	4.85
TIL305	TI	5.71	4.58
TIL306	TI	11.51	9.15
TIL307	TI	11.51	9.15
TIL308	TI	11.51	9.15
TIL309	TI	11.51	9.15
TIL311	TI	11.82	9.40
TIL312	TI	1.46	1.20
TIL313	TI	1.46	1.20
TIL321A	TI	1.48	1.22
TIL322A	TI	1.48	1.22
TIL602	TI	1.46	1.16
TIL604	TI	1.79	1.42
TIP29	TI	.59	.44
TIP29	RCA	.55	.41
TIP29A	TI	.61	.46
TIP29B	TI	.64	.48
TIP29C	TI	.71	.53
TIP29C	MOTO	.70	.52
TIP30	TI	.64	.48
TIP30	RCA	.59	.44
TIP30A	TI	.66	.50
TIP30B	TI	.68	.51
TIP30C	TI	.75	.56
TIP31	TI	.63	.48
TIP31A	TI	.68	.51
TIP31B	TI	.73	.54
TIP31C	TI	.77	.58
TIP32	TI	.68	.51
TIP32A	TI	.71	.53
TIP32B	TI	.77	.58
TIP32C	TI	.84	.63

Key	Mfr.
GE	General Electric
GI	General Instrument
GIO	General Instruments Optoelectronics
IDI	International Devices Inc.
INT	Intersil
IR	International Rectifier
LAN	Lansdale
MOT	Motorola
NAT	National Electronics
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
TIP33	TI	.97	.69
TIP33A	TI	.99	.74
TIP33B	TI	1.07	.79
TIP33C	TI	1.23	.92
TIP34	TI	1.05	.77
TIP34A	TI	1.15	.85
TIP34C	TI	1.39	1.03
TIP35	TI	2.08	1.53
TIP35A	TI	2.24	1.65
TIP35B	TI	2.40	1.77
TIP35C	TI	2.75	2.04
TIP35E	TI	3.84	2.85
TIP36	TI	2.24	1.65
TIP36A	TI	2.40	1.77
TIP36B	TI	2.59	1.92
TIP36C	TI	2.81	2.09
TIP41	TI	.86	.65
TIP41	MOTO	.81	.60
TIP41A	TI	.91	.68
TIP41A	MOTO	.88	.65
TIP41B	TI	.98	.73
TIP41B	MOTO	.92	.68
TIP41C	TI	1.11	.83
TIP41C	MOTO	1.07	.79
TIP42	TI	.93	.70
TIP42A	TI	1.02	.76
TIP42A	MOTO	.99	.73
TIP42B	TI	1.11	.83
TIP42C	TI	1.25	.93
TIP42C	MOTO	1.20	.89
TIP47	TI	.84	.63
TIP48	TI	.91	.68
TIP50	TI	1.09	.82
TIP51	TI	2.00	1.48
TIP52	TI	2.32	1.72
TIP53	TI	2.65	1.97
TIP54	TI	2.97	2.20
TIP73	TI	1.16	.87
TIP106	MOTO	1.21	.90
TIP110	TI	.93	.70
TIP111	TI	.98	.73
TIP112	TI	1.05	.78
TIP115	TI	.98	.73
TIP116	TI	1.02	.76
TIP120	TI	.91	.68
TIP120	MOTO	1.16	.86
TIP121	MOTO	1.30	.96
TIP121	TI	1.05	.78
TIP121	RCA	1.30	.96
TIP122	MOTO	1.49	1.10
TIP125	MOTO	1.24	.92
TIP125	TI	1.05	.78
TIP126	TI	1.14	.85
TIP126	MOTO	1.39	1.03
TIP127	MOTO	1.59	1.18
TIP140	TI	2.04	1.52
TIP141	TI	2.32	1.72
TIP142	MOTO	2.77	2.05
TIP145	TI	2.36	1.76
TIP146	TI	2.65	1.97
TIP147	TI	3.15	2.34
TIP552	TI	2.75	2.39
TIP2955	TI	1.11	.82
TIP3055	TI	.97	.72
TIS97	TI	.51	.34
V18ZA3	GE	1.75	1.20

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr.	1-99	100+
V22ZA1	GE	1.04	.73
V22ZA3	GE	1.29	1.12
V24ZA1	GE	1.04	.73
V24ZA4	GE	1.29	1.12
V24ZA50	GE	2.22	1.52
V27ZA1	GE	1.04	.73
V27ZA4	GE	1.29	1.12
V33MA1A	GE	.75	.45
V33MA1B	GE	.83	.50
V33ZA1	GE	1.04	.73
V33ZA5	GE	1.29	1.12
V36ZA80	GE	2.22	1.52
V39MA2B	GE	.83	.50
V39ZA1	GE	1.04	.73
V39ZA6	GE	1.29	1.12
V47MA2B	GE	.83	.50
V47ZA1	GE	1.04	.73
V47ZA7	GE	1.29	1.12
V56ZA2	GE	1.04	.73
V56ZA8	GE	1.75	1.20
V68ZA2	GE	1.04	.73
V68ZA10	GE	1.29	1.12
V82ZA2	GE	1.04	.73
V82ZA12	GE	1.29	1.12
V95LA7A	GE	1.29	1.12
V95LA7B	GE	1.42	1.23
V100ZA3	GE	1.04	.73
V100ZA15	GE	1.29	1.12
V120ZA1	GE	1.04	.73
V120ZA6	GE	1.29	1.12
V130HE150	GE	24.75	22.50
V130LA1	GE	1.11	.97
V130LA2	GE	1.22	1.07
V130LA10A	GE	1.29	1.12
V130LA20A	GE	1.63	1.42
V130LA20B	GE	1.79	1.56
V130PA10A	GE	3.94	2.63
V130PA20A	GE	4.70	3.14
V130PA20C	GE	5.18	3.45
V150HE150	GE	24.75	22.50
V150LA1	GE	1.11	.97
V150LA2	GE	1.22	1.07
V150LA10A	GE	1.29	1.12
V150LA20A	GE	1.63	1.42
V150LA20B	GE	1.79	1.56
V150PA10A	GE	3.94	2.63
V150PA20A	GE	4.70	3.14
V150PA20B	GE	4.95	3.30
V150PA20C	GE	5.18	3.45
V150ZA8	GE	1.29	1.12
V180ZA1	GE	1.04	.73
V180ZA10	GE	1.29	1.12
V220MA2A	GE	1.22	.75
V220MA4B	GE	1.34	.83
V250HE250	GE	30.91	28.10
V250LA2	GE	1.09	.95
V250LA4	GE	1.20	1.05
V250LA15A	GE	1.50	1.30
V250LA20A	GE	1.50	1.30
V250LA40A	GE	1.90	1.66
V250LA40B	GE	2.09	1.83
V250PA20A	GE	4.70	3.14
V250PA40A	GE	6.23	4.16
V250PA40C	GE	6.86	4.57
V275HE250	GE	30.91	28.10
V275LA15A	GE	1.71	1.47
V275LA20A	GE	1.71	1.47
V275LA40A	GE	1.90	1.66
V275LA40B	GE	2.09	1.83
V275PA40A	GE	6.23	4.16
V275PA40B	GE	6.55	4.37
V320LA15A	GE	1.71	1.47
V320LA40A	GE	1.90	1.66
V320LA40B	GE	2.09	1.83
V320PA40A	GE	6.23	4.16
V320PA40C	GE	6.86	4.57
V420LA20A	GE	3.34	2.53
V420LA40A	GE	5.02	3.82
V420LA40B	GE	5.52	4.19
V460LA20A	GE	3.34	2.53
V460LA40A	GE	5.02	3.82
V460LA40B	GE	5.52	4.19
V460PA40C	GE	8.66	5.78
V480LA20A	GE	3.34	2.53
V480LA40A	GE	5.02	3.82
V480LA80A	GE	6.32	4.26
V480LA80B	GE	7.18	5.00
V480PA40A	GE	7.88	5.25
V480PA80A	GE	10.94	7.29
V480PA80C	GE	12.04	8.03
V510HE500	GE	41.14	37.40
V510LA20A	GE	3.57	2.71
V510LA40A	GE	5.27	4.01
V510LA80A	GE	7.40	5.62
V510LA80B	GE	8.14	6.18
V510PA80A	GE	11.21	7.47
V510PA80C	GE	12.33	8.22
V550LA40A	GE	5.27	4.01
V550LA80A	GE	7.40	5.62
V550LA80B	GE	8.14	6.18
V550PA80C	GE	12.33	8.22
V575LA40A	GE	5.90	4.49
V575LA80B	GE	9.11	6.93
V575PA80A	GE	11.21	7.47
V660HE600	GE	41.14	37.40
V1000LA80A	GE	10.20	6.80
V1000LA160A	GE	16.00	12.16
V1000LA160B	GE	17.60	13.38
W005M	GEIN	1.12	.84
W02M	GEIN	1.20	.90
W04M	GEIN	1.22	.92
WV2AA50C	GE	28.50	22.80
WV2AA50E	GE	33.75	27.00
WV2BE25C	GE	34.35	27.50
WV2BE25E	GE	47.25	37.80
WV28H25E	GE	61.05	48.80
W2BE25C	GE	32.10	25.70
Z15L271	IR	1.64	1.12
Z21L821	IR	4.77	3.63
1KAB10	IR	.41	.34
1KAB20E	IR	.00	.00
1KAB40	IR	.43	.35
1M200ZS10	MOTO	2.26	1.70
10D1	IR	.34	.28
10D2	IR	.36	.29
10D6	IR	.40	.32
10D8	IR	.42	.33
10D10	IR	.45	.36
35MB40A	IR	3.45	2.95
35MB60A	IR	4.70	4.00
35MB120A	IR	9.80	8.20
35MB20A	IR	3.35	2.85
35MB80A	IR	5.68	4.80
12F5B	IR	2.09	1.94
12F10	IR	2.09	1.94
12F10B	IR	2.09	1.94
12F20B	IR	2.25	2.09
12F40	IR	1.86	1.63
12F40B	IR	1.95	1.71
12F60	IR	3.30	2.75
12F60B	IR	3.46	2.89
12F80	IR	5.30	4.42
12F80B	IR	5.80	4.83
12F100	IR	7.00	5.83
12F100B	IR	7.60	6.33
12FR5	IR	2.09	1.94
12FR5B	IR	2.09	1.94
12FR10	IR	2.09	1.94
12FR10B	IR	2.09	1.94
12FR20	IR	2.25	2.09
12FR20B	IR	2.25	2.09
12FR40	IR	2.35	2.18
12FR40B	IR	2.35	2.18
12FR60	IR	3.30	2.75
12FR60B	IR	3.46	2.89
12FR80	IR	4.70	4.35
12FR80B	IR	5.80	4.83
12FR100	IR	7.00	5.83
12FR100B	IR	7.60	6.33
16F5	IR	2.11	1.95
16F10	IR	2.11	1.95
16F20	IR	2.80	2.25
16F40	IR	4.60	3.85
16F60	IR	6.40	5.35
16F80	IR	7.80	6.78
16F100	IR	8.80	7.55
16FR5	IR	2.11	1.95
16FR10	IR	2.11	1.95
16FR20	IR	2.80	2.25
16FR40	IR	4.60	3.85
16FR60	IR	6.40	5.35
16FR80	IR	7.80	6.78
16FR100	IR	8.80	7.55
16RIA10	IR	5.13	3.52
16RIA20	IR	6.56	4.75
16RIA40	IR	8.56	6.20
16RIA60	IR	10.10	7.27
16RIA80	IR	11.51	8.21
16RIA100	IR	13.81	9.76
16RIA120	IR	17.09	12.07
18DB05A	IR	1.20	1.04
18DB1A	IR	1.20	1.04
18DB2A	IR	1.20	1.04
18DB4A	IR	1.25	1.09
18DB6A	IR	1.33	1.16
18DB8A	IR	1.40	1.22
18DB10A	IR	1.43	1.24
20D05	IR	.34	.28
20D1	IR	.42	.34
20D6	IR	.60	.48
20D10	IR	.90	.72
22DB2A	IR	1.26	1.09
22RC5	IR	5.41	3.94
22RC10	IR	5.41	3.94
22RC20	IR	6.91	5.00
22RC30	IR	9.01	6.53
22RC40	IR	9.01	6.53
22RC50	IR	10.60	7.65
22RC60	IR	10.60	7.65
22RIA10	IR	5.15	3.66
22RIA20	IR	6.91	5.00
22RIA40	IR	9.01	6.53
22RIA60	IR	10.60	7.65
22RIA80	IR	12.10	8.60
22RIA100	IR	14.55	10.29
22RIA110	IR	15.65	11.05
22RIA120	IR	17.60	12.40
25RIA10	IR	5.68	3.94
25RIA20	IR	7.26	5.25
25RIA40	IR	9.46	6.86
25RIA60	IR	11.16	8.03
25RIA80	IR	12.73	9.07
25RIA100	IR	15.27	10.78
25RIA110	IR	16.44	11.59
25RIA120	IR	18.48	13.05
30CTQ030	IR	5.50	3.80
30S1	IR	.32	.25
30S2	IR	.35	.28
30S3	IR	.39	.38
30S6	IR	.55	.45
30S10	IR	1.09	.85
35MB10A	IR	3.30	2.80
36RC10A	IR	24.47	14.70
36RC20A	IR	29.73	17.79
36RC30A	IR	35.21	19.61
36RC40A	IR	40.71	24.41
36RC60A	IR	50.97	32.16
36RC80A	IR	61.52	38.82
37RC20A	IR	29.73	17.79
40HF5	IR	2.33	1.81
40HF10	IR	2.33	1.81
40HF20	IR	3.10	2.32
40HF30	IR	3.50	2.62
40HF40	IR	4.22	3.16
40HF50	IR	4.93	3.70
40HF60	IR	5.57	4.17
40HF80	IR	7.23	5.42
40HF100	IR	9.40	7.05
40HF120	IR	9.69	7.87
40HFR5	IR	2.22	1.66
40HFR10	IR	2.33	1.81
40HFR20	IR	3.10	2.32
40HFR30	IR	3.50	2.62
40HFR40	IR	4.22	3.16
40HFR50	IR	4.93	3.70
40HFR60	IR	5.57	4.17
40HFR80	IR	7.23	5.42
40HFR100	IR	9.40	7.05
40RCS5	IR	11.21	8.62
40RCS10	IR	17.60	10.60
40RCS20	IR	18.00	11.00
40RCS30	IR	15.00	9.38
40RCS40	IR	20.30	12.20
40RCS60	IR	26.00	15.60
40RCS80	IR	35.00	21.00
40RCS100	IR	44.00	26.45
40RCS110	IR	35.00	21.88
40RCS120	IR	53.10	31.90
50RCS5	IR	17.60	10.60
50RCS5S60	IR	17.60	10.60
50RCS10	IR	17.60	10.60
50RCS10S60	IR	26.00	15.60
50RCS20	IR	18.00	11.00
50RCS20S60	IR	26.00	15.60
50RCS30	IR	26.00	15.60
50RCS30S60	IR	20.30	12.20
50RCS40	IR	20.30	12.20
50RCS40S60	IR	20.30	12.20
50RCS60S60	IR	26.00	15.60
50RCS80	IR	35.00	21.00
50RCS80S60	IR	35.00	21.00
50RCS100	IR	44.00	26.45
50RCS100S60	IR	44.00	26.45
50RCS110	IR	41.42	25.88
50RCS110S60	IR	43.60	27.25
50RCS120	IR	53.10	31.90
50RCS120S60	IR	48.00	30.00
60HF10	IR	2.58	1.90
60HF20	IR	3.45	2.58
60HF30	IR	3.88	2.91
60HF40	IR	4.68	3.51
60HF50	IR	5.48	4.11
60HF60	IR	6.18	4.64
60HFR10	IR	2.58	1.90
60HFR20	IR	3.45	2.58
60HFR30	IR	3.88	2.91
60HFR40	IR	4.68	3.51
60HFR50	IR	5.48	4.11
60HFR60	IR	6.18	4.64
60S05	IR	.67	.51
60S1	IR	.71	.55
60S2	IR	.78	.61
60S4	IR	.86	.67
60S8	IR	1.41	1.09
60S10	IR	2.07	1.60
70H5A/	IR	5.59	3.97
70H10A/	IR	5.71	4.04
70H20A/	IR	6.12	4.32
70H30A/	IR	7.42	5.24
70H40A/	IR	8.74	6.17
70H50A/	IR	9.87	6.97
70H60A/	IR	11.00	7.76
70H80A/	IR	14.16	10.00
70H100A/	IR	17.50	12.35

NEW TYPES STOCKED AS SOON AS RELEASED

DISCRETE DEVICES

Type	Mfr.	1-99	100+
70HR5A/	IR	5.59	3.97
70HR10A/	IR	5.71	4.04
70HR20A/	IR	6.12	4.32
70HR30A/	IR	7.42	5.24
70HR40A/	IR	8.74	6.17
70HR50A/	IR	9.87	6.97
70HR60A/	IR	11.00	7.76
70HR80A/	IR	14.16	10.00
70HR100A/	IR	17.50	12.35
70HR120A	IR	27.62	20.71
71RA30/	IR	40.77	26.67
71RA50/	IR	46.03	27.60
71RA60/	IR	51.20	30.72
71RA80/	IR	64.02	38.43
71RA100/	IR	76.87	46.15
71RA120/	IR	88.50	53.10
71RC5A/	IR	22.18	13.32
71RC10A/	IR	24.47	14.70
71RC30A/	IR	35.21	19.61
71RC40A/	IR	40.71	24.41
71RC60A/	IR	50.97	32.16
71RC80A/	IR	61.52	38.82
75HQ045	IR	7.85	6.00
80SQ030	IR	3.10	2.25
80SQ035	IR	3.35	2.40
80SQ040	IR	3.50	2.55
80SQ045	IR	3.95	2.80
100JB05L	IR	2.90	2.48
100JB1L	IR	3.00	2.51
100JB2L	IR	3.05	2.60
100JB4L	IR	3.20	2.70
100JB6L	IR	4.20	3.50
101RA10	IR	42.74	34.19
101RA20	IR	45.60	36.47
101RA40	IR	52.91	42.33
101RA50	IR	58.30	46.64
101RA60	IR	65.84	52.67
101RA80	IR	89.10	71.28
101RA100	IR	105.71	84.57
101RA110	IR	111.87	89.49
101RA120	IR	120.84	96.67
101RC10	IR	37.60	30.12
150K5A	IR	17.92	10.72
150K10A	IR	18.30	10.94
150K15A	IR	22.66	18.13
150K20A	IR	18.68	11.17
150K30A	IR	21.29	12.74
150K40A	IR	23.90	14.31
150K60A	IR	27.62	16.62
150K80A	IR	31.70	18.93
150K100A	IR	35.21	21.20
150KR5A	IR	17.92	10.72
150KR10A	IR	18.30	10.94
150KR15A	IR	22.66	18.13
150KR20A	IR	18.68	11.17
150KR30A	IR	21.29	12.74
150KR40A	IR	23.90	14.31
150KR60A	IR	27.62	16.62
150KR80A	IR	31.70	18.43
150KR100A	IR	35.21	21.20
150L5A	IR	18.22	11.02
150L10A	IR	18.98	11.24
150L15A	IR	23.05	18.43
150L20A	IR	21.59	11.47
150L30A	IR	24.20	13.04
150L40A	IR	28.21	14.61
150L60A	IR	30.10	16.92
150L80A	IR	32.00	19.23
150L100A	IR	35.51	21.50
150L120A	IR	38.60	23.70
150LR5A	IR	18.22	11.02
150LR10A	IR	18.98	11.24
150LR15A	IR	23.05	18.43
150LR20A	IR	21.59	11.47
150LR30A	IR	24.20	13.04
150LR40A	IR	28.21	14.61
150LR60A	IR	30.10	16.92
150LR80A	IR	32.00	19.23
150LR100A	IR	35.51	21.50
151RA60	IR	83.56	50.17
151RA80	IR	101.79	61.05
151RA100	IR	119.93	72.16
151RA120	IR	135.14	81.54
151RA160	IR	206.80	124.35
151RC10A	IR	45.14	27.07
151RC20A	IR	48.49	29.11
151RC30A	IR	53.09	31.88
151RC40A	IR	58.73	35.22
151RC60A	IR	74.51	44.73
151RC80A	IR	104.92	62.96
250JB1L	IR	3.05	2.55
250JB2L	IR	3.10	2.65
250JB4L	IR	3.30	2.75
250JB05L	IR	2.90	2.48
250JB6L	IR	4.35	3.65
250JB10L	IR	6.27	5.31
250PA120	IR	120.50	72.36
300RA10	IR	101.88	78.37
300RA20	IR	79.20	49.50
300RA30	IR	93.13	56.10
300RA40	IR	106.26	64.90
300RA60	IR	144.21	84.70
300RA80	IR	171.05	102.41
300RA100	IR	197.01	118.80
300RA120	IR	228.80	138.60
300U5A	IR	22.83	17.13
300U10A	IR	22.90	17.17
300U20A	IR	23.60	17.68
300U30A	IR	24.58	18.43
300U40A	IR	26.43	19.80
300U60A	IR	32.99	24.76
300U80A	IR	38.14	28.57
300U100A	IR	41.83	31.40
300UR5A	IR	22.83	17.13
300UR10A	IR	22.90	17.17
300UR20A	IR	23.60	17.68
300UR30A	IR	24.58	18.43
300UR40A	IR	26.43	19.80
300UR60A	IR	32.99	24.76
300UR80A	IR	38.14	28.57
300UR100A	IR	41.83	31.40
301U120	IR	81.34	53.60
301U140	IR	98.52	63.91
301U160	IR	125.14	79.88
301UR120	IR	81.34	53.60
301UR140	IR	98.52	63.91
301UR160	IR	125.14	79.88
471PDA120	IR	53.35	31.90
1000HB3U	IR	53.32	45.42
501V80	IR	65.32	0.00
550PB160	IR	214.23	128.48
5082-4655	TI	.93	.74
40250	RCA	1.24	.87
40250V1	RCA	1.44	1.00
40251	RCA	1.71	1.13
40314	RCA	.64	.47
40319	RCA	.76	.55
40322	RCA	1.57	1.14
40327	RCA	1.17	.81
40347	RCA	1.12	.78
40347V1	RCA	1.16	.84
40348	RCA	1.06	.77
40349	RCA	1.37	1.00
40362	RCA	.81	.59
40372	RCA	1.44	1.00
40406	RCA	.81	.59
40409	RCA	.94	.68
40410	RCA	.97	.71
40411	RCA	3.47	2.52
40673	RCA	1.40	1.16
40841	RCA	.84	.69
40852	RCA	6.12	4.45
MMBTS102	MOTO	1.10	1.05
MMBTS103	MOTO	.92	.87
MMBTS105	MOTO	.73	.70
2N4001	IDI	8.70	6.00
2N4014	MOTO	2.15	1.55
2N4033	MOTO	1.00	.71
2N4036	RCA	.97	.71
2N4037	RCA	.78	.56

Key	Mfr.
GE	General Electric
GI	General Instrument
GIO	General Instruments Optoelectronics
IDI	International Devices Inc.
INT	Intersil
IR	International Rectifier
LAN	Lansdale
MOT	Motorola
NAT	National Electronics
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

INTEGRATED CIRCUITS

Type	Mfr.	1-99	100+
AD590JH	INT	2.95	2.35
AD7520JN	INT	6.00	4.80
AD7523JN	INT	3.75	3.00
AD7541JN	INT	14.25	11.40
AD7541KN	INT	15.75	12.60
AM26LS31CN	TI	2.68	2.41
AM26LS32ACN	TI	2.68	2.41
AM26LS32AN	TI	2.68	2.41
AM26LS32CN	TI	2.60	2.37
CA3396	RCA	.90	.72
CA723CT	RCA	.81	.56
CA723E	RCA	.75	.54
CA723T	RCA	1.60	1.28
CA741CT	RCA	.73	.60
CA741S	RCA	1.38	1.02
CA741T	RCA	1.10	.80
CA747CT	RCA	.94	.83
CA748CT	RCA	.67	.56
CA1458S	RCA	1.11	.91
CA2111AE	RCA	1.73	1.26
CA3000	RCA	3.56	2.85
CA3001	RCA	4.20	3.36
CA3002	RCA	3.26	2.61
CA3005	RCA	2.10	1.68
CA3006	RCA	4.10	3.28
CA3012	RCA	1.92	1.49
CA3015	RCA	1.88	1.51
CA3018	RCA	.80	.75
CA3018A	RCA	1.75	1.35
CA3019	RCA	1.06	.85
CA3020	RCA	2.34	1.87
CA3020A	RCA	2.64	2.17
CA3022	RCA	3.00	2.40
CA3026	RCA	1.04	.91
CA3028A	RCA	1.42	1.14
CA3028B	RCA	1.66	1.32
CA3030	RCA	1.44	1.26
CA3030A	RCA	1.68	1.47
CA3036	RCA	3.38	2.63
CA3038A	RCA	5.78	4.20
CA3039	RCA	1.07	.85
CA3040	RCA	4.20	3.36
CA3045	RCA	3.40	2.72
CA3045F	RCA	1.50	1.05
CA3046	RCA	1.00	.70
CA3049T	RCA	2.70	2.16
CA3051	RCA	2.38	1.96
CA3052	RCA	1.92	1.68
CA3053	RCA	.82	.66
CA3054	RCA	1.00	.82
CA3058	RCA	5.80	4.77
CA3059	RCA	2.44	1.95
CA3060E	RCA	2.55	2.10
CA3065	RCA	1.40	1.02
CA3075	RCA	2.80	2.24
CA3076	RCA	7.00	5.60

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr.	1-99	100+
CA3078AT	RCA	1.95	1.56
CA3078T	RCA	1.50	1.23
CA3079	RCA	1.60	1.28
CA3080	RCA	1.10	.88
CA3080A	RCA	3.18	2.55
CA3080E	RCA	.97	.78
CA3081	RCA	1.10	.80
CA3082	RCA	1.15	.85
CA3083	RCA	1.15	.85
CA3084	RCA	3.83	3.15
CA3085	RCA	1.10	.88
CA3085A	RCA	1.50	1.20
CA3085B	RCA	6.52	5.38
CA3086	RCA	.68	.44
CA3089E	RCA	1.91	1.39
CA3091D	RCA	10.70	7.80
CA3094AE	RCA	1.44	1.23
CA3094AT	RCA	1.95	1.55
CA3094E	RCA	1.10	.88
CA3094T	RCA	1.30	1.05
CA3096AE	RCA	2.05	1.55
CA3096E	RCA	1.87	1.25
CA3097E	RCA	1.75	1.25
CA3099E	RCA	1.35	1.12
CA3100S	RCA	2.82	2.25
CA3100T	RCA	2.65	2.12
CA3102E	RCA	3.65	2.92
CA3127E	RCA	2.38	1.90
CA3130AE	RCA	1.70	1.36
CA3130AS	RCA	2.86	2.28
CA3130AT	RCA	2.38	1.90
CA3130BS	RCA	13.95	12.00
CA3130E	RCA	1.14	.91
CA3130S	RCA	1.78	1.42
CA3130T	RCA	1.64	1.31
CA3131EM	RCA	7.00	5.60
CA3140AE	RCA	1.08	.86
CA3140AS	RCA	1.64	1.34
CA3140AT	RCA	1.54	1.24
CA3140E	RCA	.60	.47
CA3140S	RCA	1.06	.85
CA3140T	RCA	1.00	.80
CA3146AE	RCA	1.85	1.57
CA3146E	RCA	1.39	1.18
CA3160AE	RCA	1.50	1.20
CA3160E	RCA	.98	.81
CA3160S	RCA	1.48	1.08
CA3160T	RCA	1.50	1.20
CA3161E	RCA	1.57	1.20
CA3162E	RCA	6.00	4.80
CA3183AE	RCA	1.62	1.30
CA3183E	RCA	1.35	1.05
CA3240AE1	RCA	2.80	2.24
CA3240E	RCA	1.68	1.34
CA3600E	RCA	3.50	2.69
CA6741T	RCA	1.95	1.60
CD4001AD	RCA	3.99	3.30
CD4001AE	RCA	.45	.37
CD4001BD	RCA	3.99	3.30
CD4001BE	RCA	.45	.37
CD4001BF	RCA	.63	.53
CD4001UBE	RCA	.45	.37
CD4002AE	RCA	.39	.33
CD4002BE	RCA	.39	.33
CD4004AE	RCA	2.37	2.01
CD4006AE	RCA	1.41	1.18
CD4007AE	RCA	.39	.33
CD4008AE	RCA	1.24	1.04
CD4008BE	RCA	1.24	1.04
CD4009UBE	RCA	.84	.71
CD4010BE	RCA	.84	.71
CD4011AD	RCA	3.99	3.30
CD4011AE	RCA	.45	.37
CD4011AF	RCA	.63	.53
CD4011BD	RCA	3.99	3.30
CD4011BE	RCA	.45	.37
CD4011BF	RCA	.63	.53
CD4011UBE	RCA	.45	.37
CD4012AE	RCA	.39	.33
CD4012BD	RCA	3.99	3.30
CD4013AD	RCA	5.73	4.75
CD4013AE	RCA	.77	.64
CD4013AF	RCA	1.30	1.08
CD4013BD	RCA	6.58	5.46
CD4013BE	RCA	.77	.64
CD4014AE	RCA	1.24	1.04
CD4015AE	RCA	1.66	1.39
CD4016AD	RCA	6.24	5.15
CD4016AE	RCA	.77	.64
CD4016AF	RCA	1.30	1.08
CD4016BE	RCA	.77	.64
CD4016BF	RCA	1.30	1.08
CD4017AD	RCA	12.76	10.60
CD4017AE	RCA	1.24	1.04
CD4017AF	RCA	2.39	2.00
CD4017BE	RCA	1.24	1.04
CD4017BF	RCA	2.39	2.00
CD4018AE	RCA	1.13	.95
CD4019AE	RCA	.79	.66
CD4019BF	RCA	2.17	1.81
CD4020AE	RCA	1.46	1.22
CD4020AF	RCA	2.56	2.12
CD4020BE	RCA	1.46	1.22
CD4021AE	RCA	1.24	1.04
CD4022AE	RCA	1.24	1.04
CD4023AE	RCA	.45	.37
CD4023BE	RCA	.45	.37
CD4024AD	RCA	8.70	7.20
CD4024AE	RCA	1.14	.95
CD4024AF	RCA	1.80	1.49
CD4024BF	RCA	1.14	.95
CD4025AE	RCA	.45	.37
CD4025BE	RCA	.45	.37
CD4026AE	RCA	2.48	1.98
CD4027AE	RCA	.77	.64
CD4027AF	RCA	1.30	1.08
CD4027BE	RCA	.77	.64
CD4028AD	RCA	9.56	7.92
CD4028AE	RCA	1.01	.85
CD4029AE	RCA	1.42	1.19
CD4029AF	RCA	4.48	3.58
CD4029BE	RCA	1.42	1.19
CD4029BF	RCA	4.48	3.58
CD4030AE	RCA	.92	.78
CD4030BE	RCA	.92	.78
CD4031AE	RCA	3.24	2.43
CD4031BE	RCA	3.24	2.43
CD4032AE	RCA	2.18	1.83
CD4033AE	RCA	2.08	1.76
CD4034AE	RCA	3.49	2.91
CD4034BE	RCA	3.49	2.91
CD4035AE	RCA	1.85	1.55
CD4040AE	RCA	1.66	1.39
CD4040AF	RCA	2.39	2.00
CD4041AE	RCA	1.38	1.16
CD4041UBE	RCA	1.38	1.16
CD4042AE	RCA	1.05	.89
CD4042BE	RCA	1.05	.89
CD4043AE	RCA	.98	.83
CD4043BE	RCA	.98	.83
CD4044AE	RCA	.98	.83
CD4044BE	RCA	.98	.83
CD4045AE	RCA	1.96	1.56
CD4046AD	RCA	9.43	7.80
CD4046AE	RCA	1.56	1.31
CD4046BE	RCA	1.56	1.31
CD4047AE	RCA	1.78	1.49
CD4047BE	RCA	1.78	1.49
CD4048BE	RCA	1.14	.95
CD4049AD	RCA	5.73	4.74
CD4049AE	RCA	.77	.64
CD4049AF	RCA	1.33	1.12
CD4049UBE	RCA	.77	.64
CD4050AE	RCA	.77	.64
CD4050BE	RCA	.77	.64
CD4051BE	RCA	1.29	1.08
CD4051BF	RCA	1.90	1.58
CD4052BE	RCA	1.42	1.19
CD4053BE	RCA	1.42	1.19
CD4054BE	RCA	2.10	1.68
CD4055BE	RCA	2.10	1.68
CD4056BE	RCA	2.10	1.68
CD4059AE	RCA	6.00	5.00
CD4060AE	RCA	1.96	1.56
CD4060AF	RCA	3.68	2.91
CD4060BE	RCA	1.96	1.56
CD4061AD	RCA	27.76	19.29
CD4063BE	RCA	1.64	1.37
CD4066AE	RCA	.83	.69
CD4066AF	RCA	2.55	2.13
CD4066BE	RCA	.83	.69
CD4067BD	RCA	17.40	14.40
CD4067BE	RCA	2.86	2.28
CD4068BE	RCA	.39	.33
CD4069UBE	RCA	.45	.37
CD4070BE	RCA	.45	.37
CD4071BD	RCA	5.09	4.21
CD4071BE	RCA	.45	.37
CD4072BE	RCA	.39	.33
CD4073BE	RCA	.39	.33
CD4075BE	RCA	.39	.33
CD4076BE	RCA	1.56	1.31
CD4076BF	RCA	2.70	2.25
CD4077BE	RCA	.39	.33
CD4078BE	RCA	.39	.33
CD4081BD	RCA	5.09	4.21
CD4081BE	RCA	.39	.33
CD4082BE	RCA	.39	.33
CD4085BE	RCA	.92	.73
CD4086BE	RCA	.92	.73
CD4089BE	RCA	2.48	1.98
CD4093BD	RCA	6.53	5.40
CD4093BE	RCA	.77	.65
CD4093BF	RCA	1.15	.94
CD4094BE	RCA	3.00	2.51
CD4097BE	RCA	2.86	2.28
CD4098BD	RCA	9.30	7.60
CD4098BE	RCA	1.64	1.37
CD4098BF	RCA	2.82	2.36
CD4099BE	RCA	1.72	1.44
CD4502BE	RCA	1.78	1.49
CD4508BE	RCA	4.52	3.78
CD4510BE	RCA	1.46	1.22
CD4511BE	RCA	2.00	1.67
CD4514BE	RCA	2.90	2.43
CD4515BE	RCA	2.90	2.43
CD4516BE	RCA	1.58	1.32
CD4518BD	RCA	7.39	6.12
CD4518BE	RCA	1.46	1.22
CD4520BE	RCA	1.46	1.22
CD4527BE	RCA	1.58	1.33
CD4532BE	RCA	3.00	2.51
CD4555BE	RCA	1.14	.96
CD4556BE	RCA	1.14	.96
CD40102BE	RCA	2.02	1.61
CD40103BE	RCA	2.02	1.61
CD40105BE	RCA	1.44	1.19
CD40106BD	RCA	5.73	4.74
CD40106BE	RCA	.84	.71
CD40107BE	RCA	1.00	.80
CD40109BE	RCA	1.61	1.35
CD40174BE	RCA	1.27	1.06
CD40192BE	RCA	1.84	1.47
CD40193BE	RCA	1.84	1.47
CD40257BE	RCA	1.66	1.32
CDP1802CD	RCA	27.46	20.60
CDP1802D	RCA	34.32	25.74
CDP1822CD	RCA	20.68	15.51
CDP1824CD	RCA	20.68	15.51
CDP1852CD	RCA	21.28	15.96
CDP1854ACD	RCA	28.78	21.58
CDP1854AD	RCA	43.16	32.37
CDP1856CD	RCA	11.80	8.85
CDP1861CD	RCA	28.98	21.74
CDP1867CE	RCA	2.20	1.60
D2114L3	INT	3.45	2.75
DG200BA	INT	4.30	3.45
DG201CJ	INT	5.95	4.75
HC2000H	RCA	104.82	76.24
H2500	RCA	120.37	87.55
ICM8520IKA	INT	34.75	27.80
ICL71C03ACPI	INT	13.80	11.05
ICL7104-14CPL	INT	33.90	27.15
ICL7104-16CPL	INT	38.10	30.50
ICL7106CPL	INT	12.00	9.60
ICL7106EV/KIT	INT	34.45	—
ICL7107CPL	INT	12.00	9.60
ICL7107EV/KIT	INT	28.70	—
ICL7109CPL	INT	18.00	14.40
ICL7117CPL	INT	12.75	10.20
ICL7126CPL	INT	12.00	9.60
ICM7227CIPI	INT	10.50	8.40
ICL7600CPD	INT	9.75	7.80
ICL7605CJN	INT	18.00	14.40
ICL7606CJN	INT	18.00	14.40
ICL7611ACPA	INT	7.05	6.05
ICL7611ACTV	INT	7.75	6.65
ICL7621DCPA	INT	2.00	1.75
ICL7641BCPD	INT	10.00	8.55
ICL7641CCPD	INT	7.55	6.45
ICL7650CTV	INT	4.60	3.70
ICL7650CPD	INT	4.15	3.30
ICL7660CPA	INT	3.00	2.40
ICL7660CTV	INT	3.45	2.75
ICL8007CTV	INT	37.90	30.30
ICL8007CTY	INT	11.25	9.00
ICL8013CCTZ	INT	5.85	4.70
ICL8038BCJD	INT	10.95	8.80
ICL8038CCJD	INT	4.80	3.85
ICL8048CCPE	INT	21.60	17.30
ICL8049CCPE	INT	21.60	17.30
ICL8063CPE	INT	4.05	3.25
ICL8068ACDD	INT	12.90	10.35
ICL8068CDD	INT	10.90	8.70
ICL8069ACSQ	INT	15.05	12.05
ICL8069BCSQ	INT	6.80	5.45
ICL8069DCSQ	INT	2.20	1.75
ICL8069CCSQ	INT	2.55	2.05
ICL8211CPA	INT	2.55	2.05
ICL8212CPA	INT	2.55	2.05
ICM7045AIPI	INT	15.60	12.50
ICM7045IPI	INT	15.60	12.50
ICM7206AJPE	INT	5.20	4.15
ICM7206BJPE	INT	5.20	4.15
ICM7206DJPE	INT	5.20	4.15
ICM7207AIPD	INT	6.15	4.95
ICM7207EV/KIT	INT	9.60	0.00
ICM7207IPD	INT	6.15	4.95
ICM7208IPI	INT	18.00	14.40
ICM7211IPL	INT	8.50	6.80
ICM7211MIPL	INT	8.50	6.80
ICM7212IPL	INT	6.10	4.90
ICM7213IPD	INT	5.40	4.35
ICM7215IPG	INT	14.05	11.25
ICM7216AIJI	INT	32.15	25.75
ICM7217AIPI	INT	9.85	7.85
ICM7217BIJI	INT	11.25	9.00
ICM7217CIPI	INT	9.85	7.85
ICM7217IJI	INT	11.25	9.00
ICM7218AIJI	INT	10.90	8.70
ICM7223AIPL	INT	9.00	7.20
ICM7223IPL	INT	7.80	6.25
ICM7223VFIPL	INT	9.00	7.20
ICM7224IPL	INT	11.30	9.05
ICM7225IPL	INT	8.69	6.90
ICM7226AEV/KIT	INT	74.95	0.00
ICM7226AIJL	INT	32.00	25.60
ICM7240IJE	INT	4.15	3.30
ICM7250IJE	INT	4.15	3.30
ICM7260IJE	INT	4.15	3.30

NEW TYPES STOCKED AS SOON AS RELEASED

Type	Mfr.	1-99	100+
ICM7555IPA	INT	1.20	0.95
ICM7556IPD	INT	1.85	1.25
IH5009CPD	INT	4.90	3.90
IH5010CPD	INT	4.90	3.90
IH5011CPE	INT	4.50	3.60
IH5012CPE	INT	4.50	3.60
IH5014CPD	INT	4.45	3.55
IH5017CPA	INT	4.05	3.25
IH5019CPA	INT	3.75	3.00
IH5043CPE	INT	6.10	4.90
IH5045CPE	INT	6.60	5.30
IH5143CPE	INT	8.10	6.50
IH5200CPD	INT	3.75	3.00
IH5201CPE	INT	6.55	5.25
IH6108CPE	INT	10.45	8.35
IH6116CPI	INT	18.75	15.00
IH6208CPE	INT	10.45	8.35
IM65X08AIPE	INT	15.05	12.05
IM665X08CPE	INT	7.80	6.25
IM65X18AIPN	INT	15.00	12.00
IM65X51AIPF	INT	16.20	12.95
IM665X61AIPN	INT	14.90	11.95
IM4702IPE	INT	11.25	9.00
IM4712IPE	INT	11.25	9.00
IM5603ACPE	INT	7.30	5.85
IM5604CJE	INT	17.55	14.05
IM5610CPE	INT	4.05	3.25
IM5624CJE	INT	17.55	14.05
IM6402AIPL	INT	9.70	7.75
IM6402IPL	INT	6.00	4.80
IM6402-1IPL	INT	6.60	5.30
IM6403AIPL	INT	12.60	10.10
IM6403IPL	INT	7.85	6.30
IM6403-1IPL	INT	8.55	6.85
IM6512AIJN	INT	19.55	15.65
IM6512CJN	INT	12.40	9.90
IM6653-1IJG	INT	22.65	18.15
IM6658AIJG	INT	60.15	48.15
IVN5001TNF	INT	3.10	2.05
IVN5200TNE	INT	10.15	6.75
IVN6000KNT	INT	8.25	5.50
IVN6000TNT	INT	7.90	5.25
IVN6300SNP	INT	1.95	1.30
IVN6300SNT	INT	2.05	1.35
LD110CJ	INT	8.35	6.70
LD111CJ	INT	7.50	6.00
LLF155H	MOTO	5.72	4.79
LF156H	MOTO	5.72	4.79
LF157H	MOTO	5.72	4.79
LF256N	MOTO	2.65	2.20
LF355BN	MOTO	1.60	1.35
LF355H	MOTO	1.85	1.55
LF355N	MOTO	1.31	1.10
LF356BN	MOTO	1.60	1.35
LF356H	MOTO	1.85	1.55
LF356N	MOTO	1.31	1.10
LF357BH	MOTO	2.49	2.09
LF357BN	MOTO	1.60	1.35
LF357H	MOTO	1.85	1.55
LF357N	MOTO	1.31	1.10
LH0042CH	INT	12.50	10.00
LM100H	INT	6.15	4.55
LM111J	TI	5.43	4.65
LM117H	MOTO	15.05	12.60
LM124J	IT	4.90	4.20
LM139J	TI	4.90	4.20
LM208H	MOTO	3.65	3.06
LM209K	MOTO	5.90	4.90
LM211H	MOTO	4.43	3.71
LM258P	TI	1.42	1.28
LM301AH	MOTO	.97	.81
LM301AN	TI	.47	.43
LM301AN	MOTO	.75	.00
LM301AP	TI	.37	.33
LM308P	TI	1.46	1.32
LM307H	MOTO	1.07	.90
LM307JG	TI	1.03	.93
LM307P	TI	.41	.37
LM308AH	MOTO	4.41	3.69
LM308AN	MOTO	3.25	2.72
LM308H	MOTO	1.53	1.28
LM308N	MOTO	.82	.68
LM309H	MOTO	3.01	2.52
LM309K	MOTO	2.05	1.70
LM311H	MOTO	1.30	1.08
LM310N	INT	3.75	3.00
LM311N	MOTO	.70	.61
LM311P	TI	.62	.56
LM317KC	TI	1.96	1.76
LM317T	MOTO	2.78	1.30
LM318P	TI	1.55	1.39
LM324J	TI	1.34	1.20
LM324N	MOTO	.97	.81
LM324N	TI	.74	.67
LM339AN	MOTO	2.19	1.84
LM339J	TI	1.24	1.11
LM339N	MOTO	.61	.50
LM339N	TI	.62	.56
LM340-5KC	TI	1.13	1.02
LM340-6KC	TI	1.13	1.02
LM340-8KC	TI	1.13	1.02
LM340-10KC	TI	1.13	1.02
LM340-12KC	TI	1.13	1.02
LM340-15KC	TI	1.13	1.02
LM340-18KC	TI	1.13	1.02
LM340-24KC	TI	1.13	1.02
LM348N	MOTO	1.31	1.10
LM348N	TI	.82	.74
LM358H	MOTO	1.10	.92
LM358N	MOTO	.73	.61
LM358P	TI	.56	.50
LM565CN	MOTO	1.40	1.20
LM723CN	MOTO	.67	.56
LM741CN	MOTO	.56	.47
LM2901N	TI	.93	.83
LM2902N	TI	.93	.83
LM2903P	TI	.93	.83
LM2904P	TI	1.63	1.46
LM3302N	TI	.78	.70
LM3900N	TI	.82	.74
MC14561BCP	MOTO	1.57	1.31
MC8T26AP	MOTO	1.50	1.25
MC8T28P	MOTO	1.50	1.25
MC8T95P	MOTO	1.43	1.18
MC78L05ACG	MOTO	1.40	1.17
MC78L05ACP	MOTO	.43	.36
M78L05CG	MOTO	1.29	1.08
MC78L05CP	MOTO	.39	.32
MC78L08ACP	MOTO	.47	.40
MC78L12ACP	MOTO	.43	.36
MC78L12CP	MOTO	.39	.32
MC78M05CG	MOTO	1.72	1.44
MC78M05CT	MOTO	1.05	.88
MC78M12CG	MOTO	1.72	1.44
MC78M12CT	MOTO	1.05	.88
MC78M15CG	MOTO	1.72	1.44
MC78M15CT	MOTO	1.05	.88
MC79L05ACP	MOTO	1.25	1.04
MC79L05CG	MOTO	1.61	1.35
MC79L05CP	MOTO	.73	.61
MC79L12ACP	MOTO	1.25	1.04
MC79L12CP	MOTO	.73	.61
MC79L15ACG	MOTO	2.22	1.86
MC79L15ACP	MOTO	1.25	1.04
MC79L15CG	MOTO	1.61	1.35
MC79L15CP	MOTO	.73	.61
MC8T97P	MOTO	1.43	1.18
MC661P	MOTO	2.30	1.77
MCI306P	MOTO	1.27	1.06
MCI310P	MOTO	4.29	3.30
MCI330A1P	MOTO	1.50	1.15
MCI349P	MOTO	1.17	.90
MC1350P	MOTO	.98	.75
MC1355P	MOTO	1.43	1.10
MC1357P	MOTO	1.49	1.15
MC1358P	MOTO	1.30	1.00
MC1372P	MOTO	4.42	2.95
MC1373P	MOTO	3.54	2.35
MC1391P	MOTO	.98	.75
MC1393AP	MOTO	1.76	1.35
MC1403AU	MOTO	6.24	5.22
MC1403U	MOTO	2.71	2.27
MC11404U5	MOTO	2.73	2.29
MC1405L	MOTO	10.94	9.16
MC1406L	MOTO	7.29	6.10
MC1408L-6	MOTO	2.75	2.30
MC1408L-8	MOTO	4.69	3.92
MC1408P6	MOTO	2.10	1.75
MC1413P	MOTO	1.20	1.01
MC1414L	MOTO	1.83	1.53
MC1414P	MOTO	1.29	1.08
MC1416P	MOTO	1.20	1.01
MC1436CG	MOTO	4.09	3.71
MC1436G	MOTO	6.88	5.76
MC1437L	MOTO	2.86	2.39
MC1437P	MOTO	2.25	1.87
MC1438R	MOTO	16.51	13.82
MC1439G	MOTO	3.57	2.99
MC1439P1	MOTO	2.84	2.38
MC1445G	MOTO	3.01	2.52
MC1445L	MOTO	2.97	2.48
MC1454G	MOTO	4.51	3.78
MC1455G	MOTO	1.03	.86
MC1455P1	MOTO	.71	.59
MC1456CG	MOTO	1.40	1.17
MC1456G	MOTO	1.61	1.35
MC1456P1	MOTO	1.40	1.18
MC1458CG	MOTO	.97	.81
MC1458CL	MOTO	1.03	.86
MC1458CP1	MOTO	.77	.65
MC1458CP2	MOTO	.80	.67
MC1458G	MOTO	1.08	.90
MC1458L	MOTO	1.14	.95
MC1458P	TI	.49	.44
MC1458P1	MOTO	.77	.64
MC1458SP1	MOTO	2.40	2.00
MC1458U	MOTO	1.01	.85
MC1463G	MOTO	4.32	3.62
MC1463R	MOTO	7.70	6.44
MC1466L	MOTO	10.08	8.44
MC1468G	MOTO	5.27	4.41
MC1468L	MOTO	5.33	4.46
MC1468R	MOTO	7.46	6.25
MC1469G	MOTO	4.30	3.60
MC1469R	MOTO	5.65	4.73
MC1472P1	MOTO	1.66	1.39
MC1488L	MOTO	1.20	.95
MC1489AL	MOTO	1.35	1.13
MC1489L	MOTO	1.20	.95
MC1489P	MOTO	1.05	.85
MC1494L	MOTO	6.11	5.11
MC1495L	MOTO	5.35	4.48
MC1496G	MOTO	1.48	1.24
MC1496L	MOTO	1.44	1.21
MC1496P	MOTO	1.16	.97
MC1505L	MOTO	17.50	14.65
MC1514L	MOTO	4.92	4.12
MC1536G	MOTO	16.34	13.68
MC1537L	MOTO	3.18	2.66
MC1538R	MOTO	31.67	26.50
MC1539G	MOTO	5.40	4.52
MC1545G	MOTO	10.64	8.91
MC1545L	MOTO	10.60	8.87
MC1555G	MOTO	3.55	2.97
MC1555U	MOTO	3.96	3.31
MC1556G	MOTO	2.04	1.71
MC1558G	MOTO	1.91	1.60
MC1558L	MOTO	1.68	1.40
MC1563G	MOTO	8.08	6.77
MC1563R	MOTO	13.61	11.39
MC1566L	MOTO	13.09	10.96
MC1568L	MOTO	6.08	5.09
MC1568R	MOTO	9.61	8.05
MC1569G	MOTO	6.88	5.76
MC1569R	MOTO	10.49	8.78
MC1590G	MOTO	6.99	5.85
MC1594L	MOTO	9.12	7.63
MC1595L	MOTO	7.61	6.37
MC1596G	MOTO	1.83	1.53
MC1596L	MOTO	1.94	1.62
MC1650L	MOTO	19.90	15.20
MC1709CG	MOTO	.97	.81
MC1709CL	MOTO	1.03	.86
MC1709CP1	MOTO	.73	.61
MC1709CP2	MOTO	.77	.65
MC1709G	MOTO	1.50	1.26

Key	Mfr.
INT	Intersil
MOT	Motorola
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
MC1709L	MOTO	1.46	1.22
MC1710CG	MOTO	1.18	.99
MC1710CP	MOTO	.64	.54
MC1710G	MOTO	1.79	1.48
MC1723CG	MOTO	1.18	.99
MC1723CL	MOTO	1.14	.95
MC1723CP	MOTO	.62	.52
MC1723G	MOTO	2.11	1.76
MC1723L	MOTO	2.00	1.67
MC1733CG	MOTO	1.50	1.26
MC1733CL	MOTO	1.35	1.13
MC1733L	MOTO	2.43	2.03
MC1741CG	MOTO	1.01	.85
MC1741CP1	MOTO	.56	.47
MC1741CP2	MOTO	.75	.63
MC1741G	MOTO	1.50	1.26
MC1741NCG	MOTO	1.42	1.19
MC1741SCG	MOTO	1.76	1.48
MC1741SCP1	MOTO	1.35	1.13
MC1741SG	MOTO	2.13	1.78
MC1741U	MOTO	1.35	1.13
MC1747CG	MOTO	1.25	1.04
MC1747CL	MOTO	1.27	1.06
MC1747CP2	MOTO	1.04	.86
MC1747G	MOTO	2.49	2.09
MC1747L	MOTO	2.45	2.05
MC1748CG	MOTO	.90	.76
MC1776CG	MOTO	1.76	1.47
MC1776G	MOTO	5.14	4.30
MC3242AP	MOTO	7.87	6.57
MC3301P	MOTO	.88	.74
MC3302L	MOTO	1.46	1.21
MC3302P	MOTO	.80	.67
MC3303L	MOTO	4.54	3.80
MC3303P	MOTO	4.15	3.47
MC3340P	MOTO	1.50	1.25
MC3344P	MOTO	2.40	2.00
MC3357P	MOTO	2.55	2.15
MC3358P1	MOTO	1.55	1.28
MC3370P	MOTO	2.66	2.20
MC3386P	MOTO	.80	.67
MC3401P	MOTO	.86	.72
MC3403L	MOTO	1.89	1.58
MC3403P	MOTO	1.27	1.06
MC3405P	MOTO	2.58	2.16
MC3420P	MOTO	6.79	5.69
MC3438L	MOTO	3.10	2.59
MC3441AP	MOTO	3.20	2.70
MC3446N	TI	3.09	2.78
MC3447P	MOTO	4.73	3.93
MC3448AL	MOTO	4.00	3.32
MC3456L	MOTO	1.29	1.08
MC3456P	MOTO	.97	.81
MC3459P	MOTO	3.30	2.75
MC3467L	MOTO	6.86	5.74
MC3480L	MOTO	10.73	8.98
MC3486L	MOTO	3.05	2.54
MC3486P	MOTO	2.52	2.09
MC3487L	MOTO	3.05	2.54
MC3487P	MOTO	2.52	2.09
MC3503L	MOTO	13.33	11.16
MC3558U	MOTO	4.06	3.40
MC4558CP1	MOTO	.80	.67
MC4558CU	MOTO	1.16	.97
MC4741CL	MOTO	3.40	2.84
MC4741CP	MOTO	1.40	1.20

NEW TYPES STOCKED AS SOON AS RELEASED

FOR PRICES ON LARGER QUANTITIES CONTACT YOUR NEWARK FACILITY

Type	Mfr.	1-99	100+
MC4741L	MOTO	6.08	5.09
MC6800L	MOTO	13.50	12.00
MC6800P	MOTO	6.25	5.30
MC6802CL	MOTO	19.50	16.90
MC6802CP	MOTO	9.10	7.90
MC6802L	MOTO	13.30	11.75
MC6802P	MOTO	7.25	6.40
MC6821CP	MOTO	4.25	3.70
MC6821L	MOTO	10.00	9.15
MC6821P	MOTO	3.25	2.90
MC6840L	MOTO	12.00	10.75
MC6840P	MOTO	6.25	5.50
MC6845L	MOTO	26.50	23.50
MC6845P	MOTO	14.25	12.25
MC6847P	MOTO	12.00	10.75
MC6847YP	MOTO	12.00	10.75
MC6850L	MOTO	8.10	7.50
MC6850P	MOTO	3.15	2.75
MC6860P	MOTO	9.25	8.00
MC68701L	MOTO	59.00	53.00
MC68705P3L	MOTO	32.50	29.50
MC6875L	MOTO	9.66	8.02
MC6885L	MOTO	1.65	1.37
MC6887P	MOTO	1.43	1.18
MC6889P	MOTO	1.50	1.25
MC7805ACK	MOTO	3.76	3.15
MC7805CK	MOTO	2.21	1.85
MC7805CT	MOTO	1.18	.99
MC7805K	MOTO	11.69	9.38
MC7806CK	MOTO	2.25	1.88
MC7806CT	MOTO	1.18	.99
MC7808CK	MOTO	2.25	1.88
MC7808CT	MOTO	1.18	.99
MC7812CK	MOTO	2.21	1.85
MC7812CT	MOTO	1.18	.99
MC7815CK	MOTO	2.21	1.85
MC7815CT	MOTO	1.18	.99
MC7815CTS	MOTO	1.35	1.13
MC7818CK	MOTO	2.25	1.88
MC7818CT	MOTO	1.18	.99
MC7824CK	MOTO	2.25	1.88
MC7824CT	MOTO	1.18	.99
MC7905CK	MOTO	3.01	2.52
MC7905CT	MOTO	1.50	1.26
MC7906CK	MOTO	3.01	2.52
MC7906CT	MOTO	1.50	1.26
MC7908CK	MOTO	3.01	2.52
MC7908CT	MOTO	1.50	1.26
MC7912CK	MOTO	3.01	2.52
MC7912CT	MOTO	1.50	1.26
MC7915CK	MOTO	3.01	2.52
MC7915CT	MOTO	1.50	1.26
MC7918CT	MOTO	1.50	1.26
MC7924CK	MOTO	3.01	2.52
MC7924CT	MOTO	1.50	1.26
MC14001BAL	MOTO	.60	.50
MC14001BCL	MOTO	.52	.43
MC14001BCP	MOTO	.40	.33
MC14001UBCP	MOTO	.40	.33
MC14002BCP	MOTO	.40	.33
MC14006BCP	MOT	1.42	1.18
MC14011BCL	MOTO	.52	.43
MC14007UBCP	MOTO	.40	.33
MC14008BCP	MOTO	1.25	1.04
MC14011BAL	MOTO	.60	.50
MC14011BCP	MOTO	.40	.33
MC14011UBCP	MOTO	.40	.33
MC14012BAL	MOTO	.60	.50
MC14012BCP	MOTO	.40	.33
MC14012UBCP	MOTO	.40	.33
MC14013BAL	MOTO	1.08	.90
MC14013BCL	MOTO	.93	.78
MC14013BCP	MOTO	.72	.60
MC14014BCP	MOTO	1.25	1.04
MC14015BAL	MOTO	2.20	1.83
MC14015BCP	MOTO	1.47	1.22
MC14016BCP	MOTO	.72	.60
MC14017BAL	MOTO	1.88	1.56
MC14017BCP	MOTO	1.25	1.04
MC14018BCP	MOTO	1.14	.95
MC14020BCL	MOTO	1.91	1.59
MC14020BCP	MOTO	1.47	1.22
MC14021BCP	MOTO	1.25	1.04
MC14022BAL	MOTO	1.88	1.56
MC14022BCP	MOTO	1.25	1.04
MC14023BAL	MOTO	.60	.50
MC14023BCP	MOTO	.40	.33
MC14024BAL	MOTO	1.60	1.33
MC14024BCP	MOTO	1.06	.89
MC14025BCP	MOTO	.40	.33
MC14027BAL	MOTO	1.08	.90
MC14027BCL	MOTO	.93	.78
MC14027BCP	MOTO	.72	.60
MC14028BAL	MOTO	1.52	1.27
MC14028BCL	MOTO	1.32	1.10
MC14028BCP	MOTO	1.02	.85
MC14029BCP	MOTO	1.42	1.19
MC14032BCP	MOTO	2.19	1.83
MC14034BCP	MOTO	3.50	2.91
MC14035BCP	MOTO	1.86	1.55
MC14040BAL	MOTO	2.20	1.83
MC14040BCL	MOTO	1.91	1.59
MC14040BCP	MOTO	1.47	1.22
MC14042BCP	MOTO	1.06	.89
MC14043BAL	MOTO	1.49	1.24
MC14043BCP	MOTO	.99	.83
MC14044BCP	MOTO	.99	.83
MC14046BCP	MOTO	1.57	1.31
MC14049UBAL	MOTO	1.08	.90
MC14049UBCL	MOTO	.93	.78
MC14049UBCP	MOTO	.72	.60
MC14050BAL	MOTO	1.08	.90
MC14050BCL	MOTO	.93	.78
MC14050BCP	MOTO	.72	.60
MC14051BAL	MOTO	1.95	1.62
MC14051BCP	MOTO	1.30	1.08
MC14052BCP	MOTO	1.30	1.08
MC14053BCP	MOTO	1.30	1.08
MC14066BAL	MOTO	1.20	1.00
MC14066BCP	MOTO	.80	.66
MC14068BCP	MOTO	.40	.33
MC14069UBAL	MOTO	.60	.50
MC14069UBCP	MOTO	.40	.33
MC14070BAL	MOTO	.60	.50
MC14070BCP	MOTO	.40	.33
MC14071BAL	MOTO	.60	.50
MC14071BCP	MOTO	.40	.33
MC14072BCP	MOTO	.40	.33
MC14073BCP	MOTO	.40	.33
MC14075BCP	MOTO	.40	.33
MC14076BCP	MOTO	1.57	1.31
MC14077BCP	MOTO	.40	.33
MC14078BCP	MOTO	.40	.33
MC14081BAL	MOTO	.60	.50
MC14081BCL	MOTO	.52	.43
MC14081BCP	MOTO	.40	.33
MC14082BCP	MOTO	.40	.33
MC14093BCP	MOTO	.78	.65
MC14099BCP	MOTO	1.73	1.44
MC14160BCP	MOTO	1.28	1.06
MC14161BCP	MOTO	1.28	1.06
MC14162BCP	MOTO	1.28	1.06
MC14163BCP	MOTO	1.28	1.06
MC14174BAL	MOTO	1.91	1.59
MC14174BCP	MOTO	1.28	1.06
MC14175BCP	MOTO	1.28	1.06
MC14194BCP	MOTO	1.42	1.18
MC14408P	MOTO	13.41	11.17
MC14409P	MOTO	13.41	11.17
MC14410P	MOTO	11.77	9.81
MC14411L	MOTO	15.29	12.74
MC14411P	MOTO	11.77	9.81
MC14412VP	MOTO	10.59	8.82
MC14415VP	MOTO	5.65	4.71
MC14419P	MOTO	7.79	6.49
MC14433L	MOTO	18.50	15.42
MC14433P	MOTO	14.24	11.86
MC14435FP	MOTO	7.86	6.55
MC14435VP	MOTO	5.89	4.91
MC14490FL	MOTO	5.19	4.32
MC14490FP	MOTO	3.80	3.18
MC14490VP	MOTO	2.89	2.40
MC14495P1	MOTO	2.70	2.25
MC14500BCP	MOTO	5.46	4.55
MC14501UBAL	MOTO	.60	.50
MC14501UBCP	MOTO	.40	.33
MC14502BAL	MOTO	2.60	2.16
MC14502BCP	MOTO	1.73	1.44
MC14503BCP	MOTO	.84	.70
MC14508BCP	MOTO	4.53	3.78
MC14510BCL	MOTO	1.91	1.59
MC14510BCP	MOTO	1.47	1.22
MC14511BCL	MOTO	1.87	1.56
MC14511BCP	MOTO	1.44	1.20
MC14512BCL	MOTO	1.84	1.54
MC14512BCP	MOTO	1.42	1.18
MC14513BCP	MOTO	1.91	1.59
MC14514BCP	MOTO	2.92	2.43
MC14515BCP	MOTO	2.91	2.43
MC14516BCL	MOTO	2.07	1.72
MC14516BCP	MOTO	1.59	1.32
MC14517BCP	MOTO	7.03	5.86
MC14518BAL	MOTO	2.20	1.83
MC14518BCL	MOTO	1.91	1.59
MC14518BCP	MOTO	1.47	1.22
MC14519BCP	MOTO	.80	.66
MC14520BAL	MOTO	2.20	1.83
MC14520BCP	MOTO	1.47	1.22
MC14521BCP	MOTO	3.56	2.97
MC14522BCL	MOTO	2.35	1.96
MC14522BCP	MOTO	1.81	1.51
MC14526BCL	MOTO	2.35	1.96
MC14526BCP	MOTO	1.81	1.51
MC14527BCP	MOTO	1.59	1.33
MC14528BAL	MOTO	2.71	2.26
MC14528BCL	MOTO	2.35	1.96
MC14528BCP	MOTO	1.81	1.51
MC14529BCP	MOTO	1.96	1.63
MC14530BCP	MOTO	1.22	1.02
MC14531BCP	MOTO	1.42	1.19
MC14532BAL	MOTO	4.52	3.77
MC14532BCP	MOTO	3.01	2.51
MC14534BAL	MOTO	13.74	11.45
MC14534BCP	MOTO	9.16	7.63
MC14536BAL	MOTO	7.29	6.07
MC14536BCP	MOTO	4.86	4.05
MC14538BAL	MOTO	2.71	2.26
MC14538BCP	MOTO	1.81	1.51
MC14539BCP	MOTO	1.44	1.20
MC14541BAL	MOTO	2.70	2.25
MC14541BCP	MOTO	1.80	1.50
MC14543BCP	MOTO	2.63	2.19
MC14549BCP	MOTO	7.55	6.29
MC14553BCP	MOTO	3.95	3.29
MC14555BCP	MOTO	1.15	.96
MC14556BAL	MOTO	1.72	1.44
MC14556BCP	MOTO	1.15	.96
MC14557BCP	MOTO	3.95	3.29
MC14558BCP	MOTO	1.77	1.47
MC14559BCP	MOTO	7.55	6.29
MC14560BCP	MOTO	3.80	3.17
MC14562BCP	MOTO	5.06	4.22
MC14566BCP	MOTO	2.38	1.98
MC14568BCP	MOTO	4.32	3.60
MC14569BAL	MOTO	3.72	3.10
MC14569BCP	MOTO	2.48	2.07
MC14572UBAL	MOTO	1.16	.97
MC14572UBCP	MOTO	.78	.65
MC14583BCP	MOTO	1.69	1.41
MC14584BAL	MOTO	1.28	1.06
MC14584BCP	MOTO	.85	.71
MC14585BAL	MOTO	2.70	2.25
MC14585BCP	MOTO	1.80	1.50
MC14599BCP	MOTO	3.72	3.10
MC145107P	MOTO	3.52	2.93
MC34002P	MOTO	1.33	1.12
MC68000L8	MOTO	97.55	70.00
MC68000L10	MOTO	114.90	81.80
MC68705P3S	MOTO	24.50	21.50
MC68705R3S	MOTO	50.60	44.00
MC68705U3S	MOTO	46.75	39.27
MC75107L	MOTO	1.85	1.54
MC75108P	MOTO	1.46	1.21
MC75492P	MOTO	1.20	1.00
MCM27A08C	MOTO	14.65	12.15
MCM68A10P	MOTO	3.80	3.40
MCM68B10L	MOTO	13.00	11.50
MCM2114P25	MOTO	2.90	2.60
MCM2114P45	MOTO	2.55	2.30
MCM2708C	MOTO	12.20	10.10
MCM4116BP15	MOTO	4.45	3.55
MCM4116BP20	MOTO	4.00	3.20
MCM4116BP25	MOTO	3.90	3.15
MCM4116BP30	MOTO	3.80	3.05
MCM6664AL20	MOTO	15.35	13.80
MCM6665AL15	MOTO	18.95	17.00
MCM6674P	MOTO	8.00	7.10
MCM6810L	MOTO	8.50	7.65
MCM6810P	MOTO	3.20	2.85
MCM14537AL	MOTO	31.10	25.91
MCM14537ALD	MOTO	31.60	26.33
MCM14552CP	MOTO	16.17	13.48
MK4027J-3	INT	6.75	5.40
MK4027N-3	INT	4.85	3.90
MK4027J-2	INT	7.30	5.85
MMH0026CP1	MOTO	1.87	1.57
N8T28N	MOTO	1.50	1.25
N8T95B	MOTO	1.43	1.18
N8T96B	MOTO	1.43	1.18
N8T97B	MOTO	1.43	1.18
NE555JG	TI	.58	.52
NE555P	TI	.41	.37
NE555V	MOT	.71	.59
NE556A	MOTO	1.42	1.19
NE556N	TI	.72	.65
NE592N	MOTO	1.42	1.18
NE5534AP	TI	3.01	2.70
NE5534P	TI	1.85	1.67
RC4136J	TI	1.63	1.46
RC4136N	TI	1.34	1.20
RC4558P	TI	.49	.44
SG3524J	TI	4.23	3.80
SG3524N	TI	3.61	3.24
SN5400J	TI	1.13	.90
SN5404J	TI	1.22	.97
SN5406J	TI	1.42	1.13
SN5416J	TI	1.42	1.13
SN5432J	TI	1.22	.97
SN54123J	TI	2.91	2.32
SN54155J	TI	3.78	3.01
SN54170J	TI	14.55	11.60
SN54181J	TI	10.47	8.35
SN54199J	TI	9.16	7.31
SN54H101J	TI	6.19	4.92
SN54LS02J	TI	.69	.59
SN54LS13J	TI	.74	.63
SN54LS27J	TI	.69	.59
SN54LS30J	TI	.69	.59
SN54LS175J	MOTO	1.30	1.05
SN54LS290J	TI	1.80	1.54
SN54LS490J	TI	2.59	2.22
SN54S138J	TI	13.67	10.90
SN54S139J	TI	5.24	4.17
SN54S280J	TI	34.48	27.49
SN55461J6	TI	4.02	3.45
SN7400J	TI	.67	.53
SN7400N	TI	.42	.36
SN7401N	TI	.42	.36
SN7402J	TI	.67	.53
SN7402N	TI	.42	.36
SN7403N	TI	.42	.36
SN7404J	TI	.81	.65
SN7404N	TI	.45	.37

NEW TYPES STOCKED AS SOON AS RELEASED

INTEGRATED CIRCUITS

Type	Mfr.	1-99	100+
SN7405N	TI	.45	.37
SN7406J	TI	1.22	.97
SN7406N	TI	.54	.45
SN7407J	TI	1.22	.97
SN7407N	TI	.54	.45
SN7408J	TI	.78	.62
SN7408N	TI	.42	.36
SN7409N	TI	.42	.36
SN7410J	TI	.67	.53
SN7410N	TI	.42	.36
SN7412N	TI	.42	.36
SN7413J	TI	1.86	1.48
SN7413N	TI	.54	.45
SN7414J	TI	3.49	2.78
SN7414N	TI	.65	.54
SN7416J	TI	1.22	.97
SN7416N	TI	.51	.43
SN7417N	TI	.51	.43
SN7420J	TI	.67	.53
SN7420N	TI	.42	.36
SN7422N	TI	.54	.45
SN7423N	TI	.54	.45
SN7425N	TI	.47	.39
SN7426N	TI	.47	.39
SN7427J	TI	.93	.74
SN7427N	TI	.47	.39
SN7428N	TI	.56	.47
SN7430J	TI	.67	.53
SN7430N	TI	.42	.36
SN7432J	TI	1.02	.81
SN7432N	TI	.47	.39
SN7433N	TI	.49	.41
SN7437N	TI	.51	.43
SN7438J	TI	1.16	.93
SN7438N	TI	.51	.43
SN7440N	TI	.42	.36
SN7442AJ	TI	2.47	1.97
SN7442AN	TI	.60	.51
SN7443AN	TI	1.36	1.14
SN7445N	TI	1.12	.94
SN7446AN	TI	1.12	.94
SN7447AJ	TI	3.49	2.78
SN7447AN	TI	1.12	.94
SN7448N	TI	1.07	.96
SN7450N	TI	.42	.36
SN7451N	TI	.42	.36
SN7453N	TI	.42	.36
SN7454N	TI	.42	.36
SN7460N	TI	.42	.35
SN7470N	TI	.49	.41
SN7472N	TI	.49	.41
SN7473J	TI	1.13	.90
SN7473N	TI	.51	.43
SN7474J	TI	1.13	.90
SN7474N	TI	.51	.43
SN7475J	TI	1.74	1.39
SN7475N	TI	.58	.49
SN7476J	TI	1.13	.90
SN7476N	TI	.51	.43
SN7480N	TI	.83	.69
SN7481AN	TI	1.64	1.42
SN7482N	TI	1.61	1.35
SN7483AN	TI	.78	.66
SN7484AN	TI	1.76	1.51
SN7485N	TI	.87	.73
SN7486J	TI	1.13	.90
SN7486N	TI	.51	.43
SN7489J	TI	3.30	2.63
SN7489N	TI	3.00	2.39
SN7490AJ	TI	1.89	1.51
SN7490AN	TI	.54	.52
SN7491AN	TI	.78	.66
SN7492AJ	TI	1.89	1.51
SN7492AN	TI	.56	.47
SN7493AJ	TI	1.89	1.51
SN7493AN	TI	.56	.47
SN7495AJ	TI	2.62	2.09
SN7495AN	TI	.63	.52
SN7496J	TI	2.62	2.09
SN7496N	TI	.74	.62
SN7497N	TI	2.91	2.44
SN74100N	TI	1.79	1.50
SN74107N	TI	.58	.49
SN74109N	TI	.58	.49
SN74111N	TI	.76	.64
SN74116N	TI	1.59	1.33
SN74120N	TI	1.68	1.41
SN74121J	TI	1.13	.90
SN74121N	TI	.56	.47
SN74122N	TI	.69	.58
SN74123J	TI	1.80	1.44
SN74123N	TI	.69	.58
SN74125N	TI	.69	.58
SN74126N	TI	.69	.58
SN74128N	TI	.74	.62
SN74132N	TI	.74	.62
SN74136N	TI	.74	.62
SN74141J	TI	4.01	3.20
SN74141N	TI	1.34	1.12
SN74142N	TI	4.16	3.49
SN74143N	TI	4.47	3.75
SN74144N	TI	4.47	3.75
SN74145N	TI	.98	.82
SN74147N	TI	1.83	1.54
SN74148N	TI	1.23	1.03
SN74150N	TI	1.90	1.59
SN74151AJ	TI	2.62	2.09
SN74151AN	TI	.65	.54
SN74153N	TI	.65	.54
SN74154J	TI	4.86	3.87
SN74154N	TI	1.79	1.50
SN74155N	TI	.64	.54
SN74156N	TI	.78	.66
SN74157J	TI	2.59	2.06
SN74157N	TI	.65	.54
SN74159N	TI	1.74	1.46
SN74160N	TI	.80	.67
SN74161N	TI	1.01	.84
SN74162N	TI	1.01	.84
SN74163N	TI	1.01	.84
SN74164N	TI	1.01	.84
SN74165N	TI	1.01	.84
SN74166N	TI	1.01	.84
SN74167N	TI	3.58	3.00
SN74170N	TI	2.46	2.06
SN74172N	TI	5.59	4.68
SN74173N	TI	1.23	1.03
SN74174J	TI	6.43	5.12
SN74174N	TI	.85	.71
SN74175J	TI	2.62	2.09
SN74175N	TI	.78	.66
SN74176N	TI	1.07	.90
SN74177N	TI	1.07	.90
SN74178N	TI	1.45	1.22
SN74179N	TI	1.45	1.22
SN74180N	TI	1.01	.84
SN74181N	TI	2.68	2.25
SN74182N	TI	1.12	.94
SN74184N	TI	2.77	2.36
SN74185AJ	TI	4.71	3.76
SN74185AN	TI	2.77	2.36
SN74190N	TI	.96	.81
SN74191N	TI	.96	.81
SN74192N	TI	.96	.81
SN74193J	TI	3.49	2.78
SN74193N	TI	.96	.81
SN74194N	TI	.96	.81
SN74195N	TI	.67	.56
SN74196N	TI	1.07	.90
SN74197N	TI	1.07	.90
SN74198N	TI	1.79	1.50
SN74199N	TI	1.79	1.50
SN74221N	TI	1.07	.90
SN74251N	TI	1.12	.94
SN74259N	TI	2.46	2.06
SN74265N	TI	.89	.75
SN74273N	TI	2.58	2.20
SN74276N	TI	3.63	2.88
SN74278N	TI	3.11	2.60
SN74279N	TI	.85	.71
SN74283N	TI	1.45	1.22
SN74290N	TI	1.07	.90
SN74298N	TI	1.12	.94
SN74365AN	TI	.78	.66
SN74366AN	TI	.78	.66
SN74367AN	TI	.78	.66
SN74368AN	TI	.78	.66
SN74390N	TI	1.45	1.22
SN74393N	TI	1.85	1.56
SN74490N	TI	2.35	1.97
SN75160N	TI	5.67	5.09
SN74H00N	TI	.74	.62
SN74H01N	TI	.74	.62
SN74H04N	TI	.74	.62
SN74H10N	TI	.74	.62
SN74H11N	TI	.74	.62
SN74H20N	TI	.74	.62
SN74H21N	TI	.74	.62
SN74H30N	TI	.74	.62
SN74H40N	TI	.74	.62
SN74H52N	TI	.74	.62
SN74H55N	TI	.74	.62
SN74H62N	TI	.74	.62
SN74H74N	TI	1.03	.86
SN74H87N	TI	5.59	4.68
SN74H103N	TI	1.05	.88
SN74H106N	TI	1.01	.84
SN74H183N	TI	4.69	3.94
SN74LS00J	TI	.86	.65
SN74LS00N	TI	.38	.28
SN74LS00N	MOTO	.40	.32
SN74LS01N	TI	.38	.28
SN74LS02N	TI	.40	.30
SN74LS02N	MOTO	.40	.32
SN74LS03N	TI	.38	.28
SN74LS04J	TI	.86	.65
SN74LS04N	TI	.40	.30
SN74LS04N	MOTO	.42	.34
SN74LS05N	TI	.40	.30
SN74LS08N	TI	.40	.30
SN74LS08N	MOTO	.40	.32
SN74LS09N	TI	.40	.30
SN74LS10N	TI	.40	.30
SN74LS10N	MOTO	.42	.34
SN74LS11N	TI	.40	.30
SN74LS12N	TI	.40	.30
SN74LS13N	TI	.49	.37
SN74LS14N	TI	.76	.57
SN74LS14N	MOTO	.67	.54
SN74LS20N	TI	.38	.28
SN74LS21N	TI	.40	.30
SN74LS26N	TI	.40	.30
SN74LS27N	TI	.40	.30
SN74LS30N	TI	.40	.30
SN74LS30N	MOTO	.40	.32
SN74LS32J	MOTO	.58	.47
SN74LS32N	TI	.40	.30
SN74LS32N	MOTO	.40	.32
SN74LS33N	TI	.40	.30
SN74LS37N	TI	.44	.33
SN74LS38N	TI	.44	.33
SN74LS42N	MOTO	.83	.67
SN74LS42N	TI	.66	.50
SN74LS47N	TI	1.33	1.00
SN74LS48N	TI	1.20	.90
SN74LS49N	TI	1.00	.75
SN74LS51N	TI	.40	.30
SN74LS73AN	TI	.51	.38
SN74LS74AN	TI	.51	.38
SN74LS74AN	MOTO	.58	.47
SN74LS75N	MOTO	.71	.60
SN74LS75N	TI	.56	.42
SN74LS76AN	TI	.51	.38
SN74LS83AN	TI	.87	.65
SN74LS85N	TI	1.13	.85
SN74LS85N	MOTO	.94	.76
SN74LS86N	TI	.51	.38
SN74LS86N	MOTO	.53	.43
SN74LS90N	MOTO	.67	.54
SN74LS90N	TI	.66	.50
SN74LS91N	TI	1.44	1.08
SN74LS92N	TI	.66	.50
SN74LS93N	MOTO	.67	.54
SN74LS93N	TI	.66	.50
SN74LS95BN	TI	.78	.64
SN74LS96N	TI	.87	.65

Key	Mfr.
INT	Intersil
MOT	Motorola
RCA	Radio Corp. of America RCA—SK
SPR	Sprague
TI	Texas Instruments

Type	Mfr.	1-99	100+
SN74LS107AN	TI	.51	.38
SN74LS109AN	TI	.51	.38
SN74LS109N	TI	.51	.38
SN74LS112AN	TI	.51	.38
SN74LS122N	TI	.69	.52
SN74LS123N	TI	1.00	.75
SN74LS123N	MOTO	.96	.77
SN74LS125AN	TI	.60	.45
SN74LS125N	MOTO	.74	.60
SN74LS125AN	MOTO	.74	.60
SN74LS126AN	TI	.60	.45
SN74LS132N	MOTO	.71	.57
SN74LS132N	TI	.91	.68
SN74LS133N	MOTO	.53	.43
SN74LS136N	TI	.51	.38
SN74LS138N	TI	.87	.55
SN74LS138N	MOTO	.76	.61
SN74LS139N	TI	.87	.55
SN74LS145N	TI	1.56	1.17
SN74LS147N	TI	2.16	1.62
SN74LS148N	MOTO	1.72	1.38
SN74LS148N	TI	2.16	1.62
SN74LS151N	TI	.66	.50
SN74LS151N	MOTO	.65	.53
SN74LS153N	TI	.69	.52
SN74LS155N	TI	.98	.73
SN74LS156N	TI	.89	.67
SN74LS157N	TI	.64	.48
SN74LS157N	MOTO	.65	.53
SN74LS158N	TI	.66	.50
SN74LS160AN	TI	.99	.73
SN74LS160N	TI	1.10	.88
SN74LS161AJ	TI	1.53	1.16
SN74LS161AN	TI	.99	.73
SN74LS161AN	MOTO	.87	.70
SN74LS161N	MOTO	.87	.70
SN74LS162AN	TI	1.00	.75
SN74LS163AN	MOTO	.89	.71
SN74LS163AN	TI	.99	.73
SN74LS164N	TI	.93	.70
SN74LS165AN	TI	1.44	1.08
SN74LS164AN	MOTO	.87	.70
SN74LS166N	MOTO	1.77	1.43
SN74LS170N	MOTO	1.95	1.57
SN74LS174N	TI	.73	.55
SN74LS174N	MOTO	.74	.60
SN74LS175N	TI	.76	.57
SN74LS175N	MOTO	.74	.60
SN74LS181N	TI	2.67	2.00
SN74LS183N	TI	3.84	3.12
SN74LS190N	TI	1.00	.75
SN74LS191N	TI	1.00	.75
SN74LS192N	TI	.96	.72
SN74LS193N	TI	.96	.72
SN74LS194AN	MOTO	.98	.79
SN74LS194AN	TI	.78	.58
SN74LS195AN	TI	.73	.55
SN74LS196N	TI	1.22	.92
SN74LS197N	TI	1.22	.92
SN74LS221N	TI	1.31	1.07
SN74LS221N	MOTO	1.12	.90
SN74LS240N	MOTO	1.57	1.27
SN74LS240N	TI	1.53	1.15
SN74LS241N	MOTO	1.57	1.27
SN74LS241N	TI	1.53	1.15
SN74LS242N	TI	1.44	1.08

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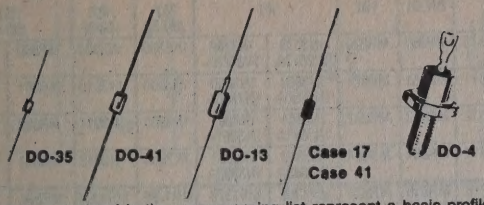
Type	Mfr.	1-99	100+
SN74LS243N	TI	1.44	1.08
SN74LS244N	MOTO	1.57	1.27
SN74LS244N	TI	1.53	1.15
SN74LS245N	MOTO	2.02	1.63
SN74LS245N	TI	2.20	1.65
SN74LS247N	TI	1.33	1.00
SN74LS251N	TI	.69	.52
SN74LS251N	MOTO	.67	.54
SN74LS253N	TI	.69	.52
SN74LS257AN	MOTO	.67	.54
SN74LS257N	TI	.66	.50
SN74LS258AN	MOTO	.67	.54
SN74LS258N	TI	.69	.52
SN74LS259N	TI	1.38	1.03
SN74LS259N	MOTO	1.23	.99
SN74LS260N	MOTO	.53	.43
SN74LS266N	TI	.51	.38
SN74LS273N	MOTO	1.57	1.27
SN74LS273N	TI	1.56	1.17
SN74LS279N	TI	.58	.43
SN74LS280N	TI	2.84	2.13
SN74LS283N	TI	.98	.73
SN74LS290N	TI	.93	.70
SN74LS293N	MOTO	.94	.76
SN74LS295N	TI	1.18	.88
SN74LS298N	TI	1.18	.88
SN74LS299N	TI	3.22	2.42
SN74LS323N	TI	6.11	4.58
SN74LS348N	TI	2.16	1.62
SN74LS353N	TI	1.42	1.07
SN74LS365AN	MOTO	.74	.60
SN74LS365AN	TI	.60	.45
SN74LS367AN	TI	.60	.45
SN74LS367AN	MOTO	.74	.60
SN74LS367N	TI	.59	.48
SN74LS368AN	TI	.60	.45
SN74LS373N	MOTO	1.70	1.37
SN74LS373N	TI	2.11	1.58
SN74LS374N	MOTO	1.70	1.37
SN74LS374N	TI	2.11	1.58
SN74LS375N	TI	.60	.45
SN74LS377N	TI	1.56	1.17
SN74LS378N	TI	1.27	.95
SN74LS379N	TI	1.33	1.00
SN74LS390N	TI	1.60	1.20
SN74LS393N	TI	1.60	1.20
SN74LS393N	MOTO	1.30	1.05
SN74LS395AN	TI	1.56	1.17
SN74LS629N	TI	2.55	1.92
SN74LS424N	TI	6.11	4.58
SN74LS442N	TI	5.00	3.75
SN74LS490N	TI	2.55	1.92
SN74LS630N-3	TI	65.00	57.00
SN74LS640N	TI	2.20	1.65
SN74LS646NT	TI	7.99	5.99
SN74LS669N	TI	1.00	.75
SN74LS670N	MOTO	2.31	1.86
SN74LS90J	TI	1.31	.98
SN74S00N	TI	.51	.43
SN74S02N	TI	.51	.43
SN74S04N	TI	.60	.51
SN74S05N	TI	.60	.51
SN74S08N	TI	.60	.51
SN74S10N	TI	.51	.43
SN74S11N	TI	.51	.43
SN74S20N	TI	.51	.43
SN74S30N	TI	.76	.64
SN74S32N	TI	.78	.66
SN74S37N	TI	1.21	1.01
SN74S38N	TI	1.21	1.01
SN74S74N	TI	.89	.75
SN74S85N	TI	2.68	2.25
SN74S86N	TI	.98	.82
SN74S112N	TI	.87	.73
SN74S113N	TI	.87	.73
SN74S114N	TI	.87	.73
SN74S124N	TI	3.24	2.72
SN74S132N	TI	1.68	1.41
SN74S133N	TI	.51	.43
SN74S138N	TI	1.34	1.12
SN74S139N	TI	1.34	1.12
SN74S140N	TI	.76	.64
SN74S151N	TI	1.34	1.12
SN74S153N	TI	1.34	1.12
SN74S157N	TI	1.34	1.12
SN74S158N	TI	1.34	1.12
SN74S163N	TI	3.91	3.28
SN74S168N	TI	5.03	4.22
SN74S169N	TI	5.03	4.22
SN74S174N	TI	2.12	1.78
SN74S175N	TI	2.12	1.78
SN74S181N	TI	5.36	4.50
SN74S182N	TI	1.90	1.59
SN74S189N	TI	6.76	4.96
SN74S194N	TI	2.01	1.69
SN74S195N	TI	2.12	1.78
SN74S196N	IT	3.04	2.55
SN74S201N	TI	5.10	4.62
SN74S225N	IT	6.75	4.95
SN74S240N	TI	3.65	2.67
SN74S241N	TI	3.65	2.67
SN74S251N	TI	1.45	1.22
SN74S257N	TI	1.34	1.12
SN74S258N	TI	1.34	1.12
SN74S260N	TI	1.01	.84
SN74S280N	TI	2.79	2.34
SN74S374N	IT	3.87	2.84
SN74S38IN	IT	7.12	5.69
SN74S412N	TI	3.91	3.28
SN75107AJ	TI	1.96	1.76
SN75107AN	TI	1.41	1.26
SN75107BN	TI	1.59	1.42
SN75108AN	TI	1.41	1.26
SN75110AN	TI	1.41	1.26
SN75112N	TI	1.94	1.74
SN75113N	TI	2.27	2.04
SN75114N	TI	1.50	1.35
SN75115N	TI	1.50	1.35
SN75116N	TI	3.01	2.70
SN75117P	TI	3.01	2.70
SN75118N	TI	2.88	2.59
SN75121N	TI	1.65	1.48
SN75122N	TI	1.65	1.48
SN75123N	TI	1.65	1.48
SN75138N	TI	3.65	3.27
SN75140P	TI	1.75	1.57
SN75150P	TI	1.69	1.52
SN75152N	TI	4.02	3.61
SN75154J	TI	2.95	2.65
SN75154N	TI	1.90	1.70
SN75158P	TI	3.09	2.78
SN75161AN	TI	6.18	5.55
SN75182N	TI	1.13	1.02
SN75183N	TI	1.13	1.02
SN75188N	TI	.99	.89
SN75189AN	TI	.99	.89
SN75189N	TI	.99	.89
SN75234N	TI	1.34	1.20
SN75322N	TI	3.61	3.24
SN75325N	TI	1.96	1.76
SN75361AP	TI	2.51	2.26
SN754508J	TI	1.24	1.11
SN754508N	TI	1.28	1.15
SN754518P	TI	.45	.41
SN754528P	TI	.45	.41
SN754538P	TI	.45	.41
SN754548P	TI	.45	.41
SN75460N	TI	2.00	1.79
SN75461P	TI	.70	.63
SN75462P	TI	.70	.63
SN75463P	TI	.70	.63
SN75464P	TI	.70	.63
SN75468N	TI	1.75	1.57
SN75469N	TI	1.75	1.57
SN75471P	TI	.78	.70
SN75472P	TI	.78	.70
SN75480N	TI	1.55	1.39
SN75491N	TI	.87	.78
SN75492AN	TI	1.30	1.17
SN76477N	TI	4.16	3.26
SNJ54LS174J	TI	2.29	1.96
MCM66764L	MOTO	55.00	47.20
MCM66766L	MOTO	55.00	47.20
TBP18SA030N	TI	2.65	2.12
TBP18S030N	TI	2.65	2.12
TBP18S22N	TI	6.22	4.29
TBP18S42N	TI	8.48	5.81
TBP24SA10N	TI	4.11	3.44
TBP28S42N	TI	9.62	6.61
TBP24S10J	TI	3.77	3.16
TBP28S46N	TI	8.48	5.81
TL011	TI	.37	.33
TL011CLP	TI	.37	.33
TL022CP	TI	1.40	1.26
TL061CP	TI	.72	.65
TL062CP	TI	1.24	1.11
TL064CN	TI	2.06	1.85
TL071ACP	TI	1.44	1.30
TL071CP	TI	.58	.52
TL072ACP	TI	2.47	2.22
TL072CP	TI	1.09	.98
TL074BCJ	TI	10.71	9.62
TL074CN	TI	1.94	1.74
TL075CN	TI	2.58	2.31
TL081CP	TI	.45	.41
TL082CP	TI	.95	.85
TL083CN	TI	1.34	1.20
TL084CN	TI	1.75	1.57
TL170CLP	TI	.52	.46
TL172CLP	TI	.62	.56
TL173CLP	TI	1.50	1.35
TL182CN	TI	2.88	2.59
TL191CN	TI	2.88	2.59
TL321CP	TI	.37	.33
TL430C	TI	.72	.65
TL430CLP	TI	.72	.65
TL431CP	TI	.82	.74
TL440CN	TI	1.85	1.67
TL441CN	TI	2.58	2.31
TL489CP	TI	.93	.83
TL490CN	TI	1.55	1.39
TL491CN6	TI	1.75	1.57
TL494CN	TI	3.92	3.52
TL495CN	TI	5.15	4.63
TL497ACN	TI	3.09	2.78
TL500CN	TI	7.73	6.94
TL502CN	TI	6.51	5.85
TL580CP	TI	1.30	1.17
TL801CP	TI	1.34	1.20
TL804CP	TI	1.34	1.20
TMS27L08JL	TI	15.63	12.92
TMS211445NL	TI	9.15	7.55
TMS2516JDL	TI	16.25	13.00
TMS251635JL	TI	8.90	7.25
TMS251645JDL	TI	12.00	9.70
TMS2516 45JL	TI	7.75	6.35
TMS253245JL	TI	15.35	12.55
TMS253245JDL	TI	21.53	17.80
TMS256445JL	TI	35.55	29.10
TMS270845JDL	TI	12.34	8.23
TMS270845JL	TI	8.60	7.11
TMS271645JL	TI	14.45	11.80
TMS271645JDL	TI	22.20	18.15
TMS404420NL	TI	11.85	9.80
TMS404445NL	TI	9.70	8.00
TMS411620JDL	TI	17.08	15.76
TMS411625JDL	TI	16.25	15.00
TMS5501NL	TI	14.80	11.50
TMS9900NL	TI	34.70	30.00
TMS9901NL	TI	8.75	6.80
J310	MOT	1.75	1.10
UA78L05ACLP	TI	.37	.33
UA78L08CLP	TI	.33	.30
UA78L09CLP	TI	.33	.30
UA78M05CKC	TI	1.03	.93
UA78M12CKC	TI	1.03	.93
UA78M15CKC	TI	1.03	.93
UA78M24CKC	TI	1.03	.93
UA79M05CKC	TI	1.03	.93
UA79M12CKC	TI	1.03	.93
UA79M15CKC	TI	1.03	.93
UA709CP	TI	.47	.43
UA711CN	TI	.52	.46
UA723CJ	TI	.93	.83
UA723CN	TI	.47	.43
UA733CN	TI	.99	.89
UA741CJG	TI	.58	.52
UA741CP	TI	.37	.33
UA741TC	MOTO	.56	.47
UA747CJ	TI	1.83	1.65
UA747CN	TI	.72	.65
UA747MJ	TI	3.50	3.00
UA748CN	TI	.60	.55
UA748CP	TI	.52	.46
UA7805CKC	TI	1.13	1.02
UA7806CKC	TI	1.13	1.02
UA7808CKC	TI	1.13	1.02
UA7810CKC	TI	1.13	1.02
UA7812CKC	TI	1.13	1.02
UA7815CKC	TI	1.13	1.02
UA7818CKC	TI	1.13	1.02
UA7824CKC	TI	1.13	1.02
UA7905CKC	TI	1.13	1.02
UA7906CKC	TI	1.55	1.39
UA7908CKC	TI	1.55	1.39
UA7912CKC	TI	1.13	1.02
UA7915CKC	TI	1.13	1.02
UA7918CKC	TI	1.55	1.39
UA7924CKC	TI	1.55	1.39
JDN2841B	SPRA	3.50	2.80
JDN2981A	SPRA	3.32	2.66
JDN5707A	SPRA	1.97	1.58
JDN5712M	SPRA	1.38	1.10
JDN6184A	SPRA	3.70	2.96
JDN7180A	SPRA	3.70	2.96
JGN3020T	SPRA	.88	.79
JGN3501M	SPRA	1.88	1.69
JHP400	SPRA	2.72	2.18
JHP402	SPRA	2.72	2.18
JHP407	SPRA	2.72	2.18
JHP408	SPRA	2.72	2.18
JHP500	SPRA	4.73	3.78
JHP506	SPRA	4.73	3.78
JLN2001A	SPRA	1.75	1.40
JLN2001AN	TI	1.13	1.02
JLN2002A	SPRA	1.63	1.30
JLN2003A	SPRA	1.48	1.18
JLN2003AN	TI	1.13	1.02
JLN2004A	SPRA	1.48	1.18
JLN2004AN	TI	1.13	1.02
JLN2064B	SPRA	3.65	2.92
JLN2065B	SPRA	4.70	3.76
JLN2074B	SPRA	3.65	2.92
JLN2803A	SPRA	2.25	1.80
JLN2823A	SPRA	3.25	2.60

MICROPROCESSOR PRODUCTS

M68MM04A	MOTO	465.00	—
M68MM09	MOTO	695.00	—
MEK6802EAE	MOTO	150.00	—
MEX68KECB *FX*	MOTO	495.00	—
MEX68WW*FX*	MOT	62.00	—
MEX68XT*FX*	MOT	110.00	—
TM990-U89	TI	325.00	—
TM990-U89-1	TI	425.00	—
TM990-U89K-1	TI	72.00	—
TM990-302	TI	750.00	—
TM990-511	TI	150.00	—
TM990-518	TI	295.00	—
TM990-519	TI	75.00	—

Pressure Sensors, Temperature Sensors
Zener and Avalanche Regulator Diodes and Transient Suppressors



The devices depicted in the accompanying list represent a basic profile of Motorola's large inventory of zener-diodes. Available tolerances from 20% (low cost) to as tight as 1% for critical applications. Use Plastic (surmetic) and glass for low cost, high reliability and metal for highest power.
NOTE: Also available in 50 watt).

Nominal Zener Voltage	250** Milliwatt	400 Milliwatt**		500 Milliwatt**	
			Glass Case 299 (DO-35)		
1.8	1N4614				
2.0	1N4615				
2.2	1N4616				
2.4	1N4617	1N4370		1N5221	1N5985
2.7	1N4618	1N4371		1N5223	1N5986
3.0	1N4619	1N4372		1N5225	1N5987
3.3	1N4620	1N746	1N5518	1N5226	1N5988
3.6	1N4621	1N747	1N5519	1N5227	1N5989
3.9	1N4622	1N748	1N5520	1N5228	1N5990
4.3	1N4623	1N749	1N5221	1N5229	1N5991
4.7	1N4624	1N750	1N5522	1N5230	1N5992
5.1	1N4625	1N751	1N5523	1N5231	1N5993
5.6	1N4626	1N752	1N5524	1N5232	1N5994
6.2	1N4627	1N753	1N5525	1N5234	1N5995
6.8	1N4099	1N754	1N5526	1N5236	1N5996
		1N957			
7.5	1N4100	1N755	1N5527	1N5236	1N5997
		1N958			
8.2	1N4101	1N756	1N5528	1N5237	1N5998
		1N959			
9.1	1N4103	1N757	1N5529	1N5239	1N5999
		1N960			
10	1N4104	1N758	1N5530	1N5240	1N6000
		1N961			
11	1N4105	1N962	1N5531	1N5241	1N6001
12	1N4106	1N759	1N5532	1N5242	1N6002
		1N963			
13	1N4107	1N964	1N5533	1N5243	1N6003
15	1N4109	1N965	1N5535	1N5245	1N6004
16	1N4110	1N966	1N5536	1N5246	1N6005
18	1N4112	1N967	1N5538	1N5248	1N6006
20	1N4114	1N968	1N5540	1N5250	1N6007
22	1N4115	1N969	1N5541	1N5251	1N6008
24	1N4116	1N970	1N5542	1N5252	1N6009
27	1N4118	1N971		1N5254	1N6010
30	1N4120	1N972	1N5545	1N5256	1N6011
33	1N4121	1N973	1N5546	1N5257	1N6012
36	1N4122	1N974		1N5258	1N6013
39	1N4123	1N975		1N5259	1N6014
43	1N4124	1N976		1N5260	1N6015
47	1N4125	1N977		1N5261	1N6016
51	1N4126	1N978		1N5262	1N6017
56	1N4127	1N979		1N5263	1N6018
62	1N4129	1N980		1N5265	1N6019
68	1N4130	1N981		1N5266	1N6020
75	1N4131	1N982		1N5267	1N6021
82	1N4132	1N983		1N5268	1N6022
91	1N4134	1N984		1N5270	1N6023
100	1N4135	1N985		1N5271	1N6024
110		1N986		1N5272	1N6025
120		1N987*		1N5273*	1N6026
130		1N988*		1N5274*	1N6027
140		1N989*		1N5275*	
150		1N990*		1N5276*	1N6028
160		1N991*		1N5277*	1N6029
170		1N992*		1N5278*	
180				1N5279*	1N6030
200				1N5281*	1N6031

*In 987-IN992 Supplied in 007 Glass Package
(†) Surmetic 30 package.
R, RA, and RB reverse polarity types available.
(**) Cathode = polarity mark (††) cathode to case.
(#) IN3993—Cathode to case, IN2970 anode to case.
(##) For the transient supressors, the first column represents the breakdown voltage V_{DE} Volts Nominal @ 1_T 1.0 mA instead of zener voltage.
JAN, JIX & JIXV Devices available in all power ranges.
*IN5273-IN5281 supplied in surmetic plastic package.

Nom. Zener Volt.	1 W** Glass Case 59 (DO-41)	1 W†† Metal Case 52 (DO-13)	5 W** Surmetic 40 Case 17	10 W# Metal Case 56 (DO-4)	Transient Suppressors Surmetic Case 41##	
3.3	1N4728	1N3821	1N5333			
3.6	1N4729	1N3822	1N5334			
3.9	1N4730	1N3823	1N5335	1N3993&R		
4.3	1N4731	1N3824	1N5336	1N3994&R		
4.7	1N4732	1N3825	1N5337	1N3995&R		
5.1	1N4733	1N3826	1N5338	1N3996&R		
5.6	1N4734	1N3827	1N5339	1N3997&R		
6.2	1N4735	1N3828	1N5341	1N3998&R		
6.8	1N4736	1N3829	1N5342	1N3999&R		
		1N3016		1N2970&R	1N6267	1.5KE6.8
7.5	1N4737	1N3830	1N5343	1N4000&R	1N6268	1.5KE7.5
		1N3017		1N2971&R		
8.2	1N4738	1N3018	1N5344	1N2972&R	1N6269	1.5KE8.2
9.1	1N4739	1N3019	1N5346	1N2973&R	1N6270	1.5KE9.1
10	1N4740	1N3020	1N5347	1N2973&R	1N6271	1.5KE10
11	1N4741	1N3021	1N5348	1N2975&R	1N6272	1.5KE11
12	1N4742	1N3022	1N5349	1N2976&R	1N6273	1.5KE12
13	1N4743	1N3023	1N5350	1N2977&R	1N6274	1.5KE13
15	1N4744	1N3024	1N5352	1N2979&R	1N6275	1.5KE15
16	1N4745	1N3025	1N5353	1N2980&R	1N6276	1.5KE16
18	1N4746	1N3026	1N5355	1N2982&R	1N6277	1.5KE18
20	1N4747	1N3027	1N5357	1N2984&R	1N6278	1.5KE20
22	1N4748	1N3028	1N5358	1N2985&R	1N6279	1.5KE20
24	1N4749	1N3029	1N5359	1N2986&R	1N6280	1.5KE24
27	1N4750	1N3030	1N5361	1N2988&R	1N6281	1.5KE27
30	1N4751	1N3031	1N5363	1N2989&R	1N6282	1.5KE30
33	1N4752	1N3032	1N5364	1N2990&R	1N6283	1.5KE33
36	1N4753	1N3033	1N5365	1N2991&R	1N6284	1.5KE36
39	1N4754	1N3034	1N5366	1N2992&R	1N6285	1.5KE39
43	1N4755	1N3035	1N5367	1N2993&R	1N6286	1.5KE43
47	1N4756	1N3036	1N5368	1N2996&R	1N6287	1.5KE47
51	1N4757	1N3037	1N5369	1N2997&R	1N6288	1.5KE51
56	1N4758	1N3038	1N5370	1N2999&R	1N6289	1.5KE56
62	1N4759	1N3039	1N5372	1N3000&R	1N6290	1.5KE62
68	1N4760	1N3040	1N5373	1N3001&R	1N6291	1.5KE68
75	1N4761	1N3041	1N5374	1N3002&R	1N6292	1.5KE75
82	1N4762	1N3042	1N5375	1N3003&R	1N6293	1.5KE82
91	1N4763	1N3043	1N5377	1N3004&R	1N6294	1.5KE91
100	1N4764	1N3044	1N5378	1N3005&R	1N6295	1.5KE100
110	†1M110ZS10	1N3045	1N5379	1N3007&R	1N6296	1.5KE110
120	†1M120ZS10	1N3046	1N5380	1N3008&R	1N6297	1.5KE120
130	†1M130ZS10	1N3047	1N5381	1N3009&R	1N6298	1.5KE130
150	†1M140ZS10	1N3048	1N5383	1N3011&R	1N6299	1.5KE150
160	†1M160ZS10	1N3049	1N5384	1N3012&R	1N6300	1.5KE160
180	†1M180ZS10	1N3050	1N5386	1N3014&R	1N6302	1.5KE180
200	†1M200ZS10	1N3051	1N5388	1N3015&R	1N6303	1.5KE200

Pressure Sensors

A unique silicon shear stress sensitive piezoresistive element having an output that is ratiometric to the supply voltage. Devices are available with and without signal conditioning.

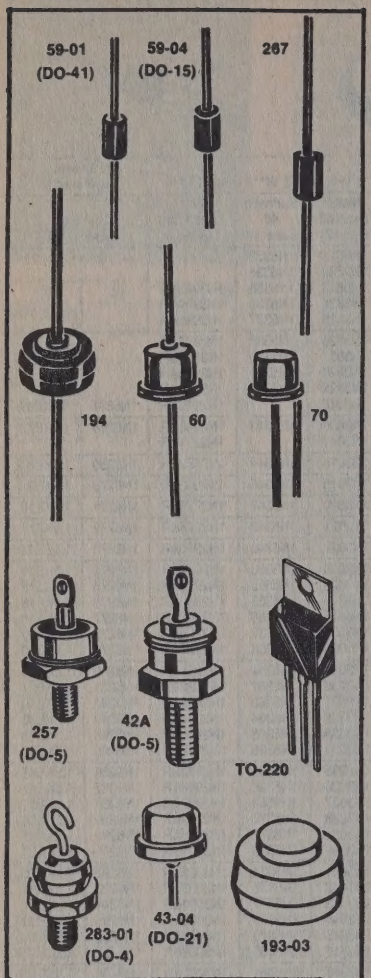
Device	Case	Pressure Range	Pressure Type	Full Scale Output Typ	Sensitivity Typ
MPX100A	344-03	0-100 kPa	Absolute	60 mVdc	0.60 mV/kPa
MPX100D	344-03	0-100 kPa	Differential		
MPX50D	344-03	0-50 kPa	Differential	60 mVdc	1.20 mV/kPa
MPX200A	344-03	0-200 kPa	Absolute	60 mVdc	0.30 mV/kPa

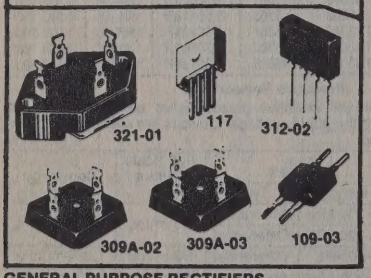
Temperature Sensors

Solid-state temperature sensing devices designed for use in extreme temperature ranges requiring high accuracy and quick response time. All devices have a linear V_{BE} versus temperature curve relationship and negative temperature coefficient.

Device	V_{BE} Typ	Temperature Matching Accuracy	Thermal Time Constant Liquid-to-Liquid	Thermal Time Constant Flowing Air
MTS102	595 mV	±2°C	(TO-92) 3.0 s	8.0 s
MTS103		±3°C		
MTS105		±5°C		
MMBTS102	580 mV	±2°C	(SOT23) 400 ms	3.0 s
MMBTS103		±3°C		
MMBTS105		±5°C		

RECTIFIERS





FAST RECOVERY RECTIFIERS

VRRM (Volts)	Io, AVERAGE RECTIFIED FORWARD CURRENT (Amperes)									
	1.0		3.0	5.0	8.0	12	20	30	40	50
	59-04		267-01	194	(#)		257 (DO-5)	42A (DO-5)	257 (DO-5)	
50	1N4933 †	MR810	MR850	MR820	1N3879 1N3879A	1N3889 1N3889A	1N3899	1N3909	MR860	MR870
100	1N4934 †	MR811	MR851	MR821	1N3880 1N3880A	1N3890 1N3890A	1N3900	1N3910	MR861	MR871
200	1N4935 †	MR812	MR852	MR822	1N3881 1N3681A	1N3891 1N3891A	1N3901	1N3911	MR862	MR872
400	1N4936 †	MR814	MR854	MR824	1N3883 1N3883A	1N3893 1N3893A	1N3903	1N3913	MR864	MR874
600	1N4937	MR816	MR856	MR826	MR1366	MR1376	MR1386	MR1396	MR866	MR876
800	.....	MR817	.....	.....	.....	.....	.....	.....	.....	.....
1000	.....	MR818	.....	.....	.....	.....	.....	.....	.....	.....
IFSM (Amps)	30	30	100	300	150 300*	200 300*	250	300	350	400
TA @ Rated Io (oC)	75	75	90*	55*	.....	.....	.....	.....	.....	.....
TJ (Max)(°C)	150	150	175	175	150	150	150	150	160	160
trr (μs)	0.2	0.75	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

*Must be derated for power dissipation (#) For 1Nxxxx; Case 245 (DO-4). For 1NxxxA; Case 283-01 (DO-4—
†Reverse Polarity (Anode-to-case) indicated with an "R" suffix.

ULTRA-FAST RECOVERY RECTIFIERS

VRRM (VOLTS)	Io, AVERAGE RECTIFIED FORWARD CURRENT (AMPERES)					
	1.0	8.0	8.0	15	15	16
	59-03 (DU-41) GLASS		221B-01 (TO-220 AC) PLASTIC			221A-02 (TO-220AB) PLASTIC
50	MUR 105	MUR 108, R	MUR 805	MUR 1505, R	MUR 1500	MUR 1605 CT. R
100	MUR 110	MUR 810, R	MUR 801	MUR 1510, R	MUR 1501	MUR 1610 CT. R
150	MUR 115	MUR 815, R		MUR 1515, R		MUR 1615 CT. R
200			MUR 802		MUR 1502	
400			MUR 804		MUR 1504	
600			MUR 806		MUR 1506	
IFSM (AMPS)	35	100	100	200	200	100
TA @ Io (°C)	100					
TC @ Io (°C)		150	150	150	150	150
TJ (MAX) (°C)	175	175	175	175	175	175
trr nsec	23/35	25/35	50/100	25/35	50/100	25/35

†Reverse Polarity (Anode-to-case) indicated with an "R" suffix.

RECTIFIER BRIDGES

VRRM Volts	IO, DC OUTPUT CURRENT (Amperes)							
	1.0	1.5	2.0	4.0/8.0*	8.0	12	25	35
	312-02	109-03	312-02	117	321-02	321-01	309A-03	309A-02
50	3N246 MDA100A	MDA920A2	3N253 MDA200	MDA970A1	MDA800	MDA1200	MDA2500	MDA3500
100	3N247 MDA101A	MDA920A3	3N254 MDA201	MDA970A2	MDA801	MDA1201	MDA2501	MDA3501
200	3N248 MDA102A	MDA920A4	3N255 MDA202	MDA970A3	MDA802	MDA1202	MDA2502	MDA3502
400	3N249 MDA104A	MDA920A6	3N256 MDA204	MDA970A5	MDA804	MDA1204	MDA2504	MDA3504
600	3N250 MDA106A	MDA920A7	3N257 MDA206	MDA406	MDA806	MDA1206	MDA2506	MDA3506
800	3N251 MDA108A	MDA920A8	3N258 MDA208	CF	.....	.....	.....	MDA3508
1000	3N252 MDA110A	MDA920A9	3N259 MDA210	CF	.....	.....	.....	MDA3510
FSM (Amp)	30	45	60	100	400	400	400	400
TA@Io(°C)	75	60	66	*	.....	.....	.....	.....
TJ(Max)°C	150	175	175	150	175	175	175	175

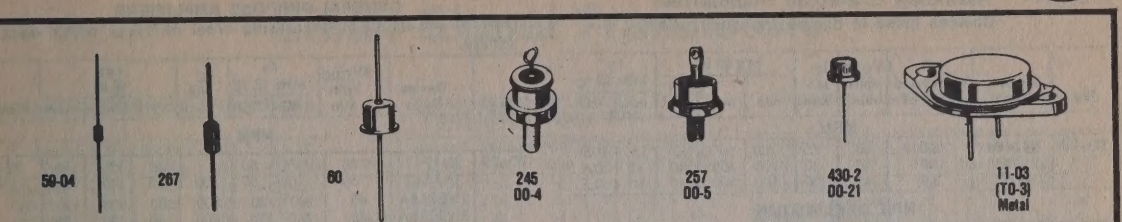
CF: Consult Factory. *4.0A @ TA = 25°C Add "FR" for fast recovery 8.0A @ TC = 53°C
Note: MDA100A, MDA200, MDA800, MDA1200, MDA2500, MDA3500 Series are UL recognized.

GENERAL PURPOSE RECTIFIERS

VRRM Volts	IO, AVERAGE RECTIFIED FORWARD CURRENT (Amperes)																
	1.0	1.5	3.0				6.0	12	15		20	25		30		48	50
	59-01 (DO-41)	59-04 (DO-15)	60	70	267		194	(DO-4)	(DO-4)	(DO-5)	(DO-5)	(DO-4)	193-03	(DO-21)	(DO-21)	(DO-5)	43-04 (DO-21)
50	1N4001	1N5391	1N4719	1N4997	MR500	1N5400	MR750	MR1120	1N1199C	1N3208	1N248B	MR2000S	MR2500	1N3491	1N3659	1N1183A	MR5005
100	1N4002	1N5392	1N4720	1N4998	MR501	1N5401	MR751	MR1121	1N1200C	1N3209	1N249B	MR2001S	MR2501	1N3492	1N3660	1N1184A	MR5010
200	1N4003	1N5393	1N4721	1N4999	MR502*	1N5402	MR752	MR1122	1N1202C	1N3210	1N250B	MR2002S	MR2502	1N3493	1N3661	1N1186A	MR5020
400	1N404	1N5395	1N4722	1N5000	MR504	1N504	MR754	MR1124	1N1204C	1N3212	1N1196	MR2004S	MR2504	1N3495	1N3663	1N1188A	MR5040
600	1N4005	1N5397	1N4723	1N5001	MR506	1N5406	MR756	MR1126	1N1206C	1N3214	1N1198A	MR2006S	MR2506	MR328	CF	1N1190A	CF
800	1N4006	1N5398	1N4724	1N5002	MR508	1N5407	MR758	MR1128	.....	CF	CF	MR2008S	MR2508	MR330	CF	CF	CF
1000	1N4007	1N5399	1N4725	1N5003	MR510	1N5408	MR760	MR1130	.....	CF	CF	MR2010S	MR2510	MR331	CF	CF	CF
FSM Amps	30	50	300	300	100	200	400	300	400	250	350	400	400	300	400	800	600
TJ(Max)°C	175	175	175	175	175	175	175	190	200	175	.....	.....	.....	175	175	190	195

CF: Consult Factory

Rectifiers & Small Signal Metal Transistors



3

SCHOTTKY RECTIFIERS

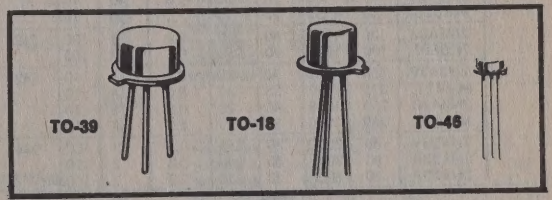
VRRM (volts) case	Io AVERAGE RECTIFIED FORWARD CURRENT (Amperes)											
	1.0		3.0		3.0	5.0	7.5	8.0	15		16	20
	59-04		267		60		TO220AC	194-04	245		TO220AC	
20	IN5817	MBR120P	IN5820	MBR320P	MBR320M	IN5823			IN5826	MBR1520		
30	IN5818	MBR130P	IN5821	MBR330P	MBR330M	IN5824			IN5827	MBR1530		
35		MBR135P		MBR335P	MBR335M		MBR735	MBR835		NBR1535	MBR1635	MBR2035CT
40	IN5819	MBR140P	IN5822	MBR340P	MBR340M	IN5825			IN5828	MBR1540		
45							MBR745	MBR845			MBR1645	MBR2045CT
IFSM	100	50	250	200	500	500	150	500	500	500	300	150
Tc@Io							105		85	80	125	135
Tj (max)	125	125	125	125	125	125	150	175	125	125	150	150
Max. Vf @	0.60*	0.65	0.525*	0.60	0.45 @	0.38	.057 @	.045	0.50*	0.55‡	.60*	.72 @
Ifm=Io*					5A‡	‡	7.5A#		‡		16A	20A#

(*) Values are for the 40 Volt units. The lower voltage parts provide lower limits.
(†) Must be derated for reverse power dissipation.
(‡) Tc = 25C, all others TL= 25C (#) Tc = 125C @ 78.5A.

SCHOTTKY RECTIFIERS (con't.)

VRRM (volts) case	Io AVERAGE RECTIFIED FORWARD CURRENT (Amperes)												
	25		30	35	35	40		50	60	60	65	75	60
	245 (DO-4)		TO-3	TO-3		257 (DO-5)	430-2 (DO-21)		257 (DO-5)	TO-3	257 DO-5		TO-3
20	IN829	MBR2520	MBR3020CT	MBR3520		IN5832	MBR4020	MBR4020BF		MBR6020		MBR7520	
30	IN5830	MBR2530	MBR3030CT	MBR		IN5833	MBR4030	MBR4030PF	IN6097			MBR7530	
35		MBR2535		MBR3535			MBR4035	MBR4035PF		MBR6035	MBR6035CT	MBR7535	MBR8035
40	IN5831	MBR2540	SD241	SD41	MBR3535CT	IN5834	MBR4040		IN6098	SD51		MBR7540	
45			MBR3045CT	MBR3545CT	MBR3545CT					MBR6045	MBR6045CT	MBR6545	MBR7545	MBR8045
Ifsm	800	800	400	600	600	800	800	800	800	800	800	800	1000	1000
Tc@Io	85	85	90	90	120	75	70	50	70	90	120	120	90	120
Tj(max)	125	125		150	175	125	125	125	125	150	175	175	150	175
Max Vf	0.48	0.55	150	0.7 @	.60 @	.60 @	.59	0.63	0.86 @	0.80 @	.65 @	.62 @	0.90 @	.59 @
Ifm=Io			0.70#	78.5A	35A				157A	157A	60A	65A	220A	80A

*Values are for the 40-Volt units. The lower voltage parts provide lower limits.
†Must be derated for reverse power dissipation. ‡Tc=25C, all others TL=25C.
#Tc=125C @ 78.5A.



SMALL-SIGNAL METAL TRANSISTORS

SWITCHING TRANSISTORS

Devices are listed in order of decreasing turn-on time (tON).

Pkg.	Device Type	ton ns Max.	BVCEO volts min.	IC mA max.	hfe @ IC min.	hfe @ IC mA	fT MHz @ Ic min	fT MHz @ Ic mA
				NPN				
TO-18	2N2540	40	30	.....	100	150	250	20
	2N4014	35	50	1000	35	500	300	50
	2N4013	35	30	1000	35	500	300	50
	2N3227	12	20	500	30	100	500	10
	2N2369	12	15	500	20	100	500	10
	2N2369A	12	15	200	40	10	500	10
TO-39	2N3444	50	50	.....	20	500	175	50
	2N3253	50	40	.....	25	500	175	50
	2N3735	48	75	1500	20	1000	250	50
	2N3734	48	50	1500	30	1000	250	50
	2N3252	45	30	.....	30	500	200	50
	2N3507	45	50	3000	30	1500	60	100
	2N3506	45	50	3000	40	1500	60	100
	2N3725	35	50	2000	35	500	300	50
	2N3724	35	30	2000	35	500	300	50
	2N5859	35	40	2000	15	1000	250	50
	MM5262	30	50	2000	25	1000	350	50
	2N5861	25	50	2000	25	500	200	50
TO-46	2N3737	48	50	1500	20	1000	250	50
	2N3736	48	30	1500	30	1000	250	50
	2N3648	16	15	500	30	150	450	15
	2N3508	12	20	500	40	10	500	10
	2N3509	12	20	500	100	10	500	10

Pkg.	Device Type	ton ns Max.	BVCEO volts min.	IC mA max.	hfe @ IC min.	hfe @ IC mA:	fT MHz @ Ic min	fT MHz @ Ic mA
				PNP				
TO-18	2N2894	60	12	200	40	30	400	30
	2N3012	60	12	200	30	30	400	30
	2N869A	50	18	200	40	30	400	10
	2N3546	40	12	.....	25	50	700	10
	2N4208	15	12	200	30	10	700	10
TO-39	2N3636	400	175	1000	50	50	150	30
	2N3635	400	140	1000	100	50	200	30
	2N3634	400	1000	50	50	150	30	.....
	2N4033	100	80	1000	25	100	150	50
	2N4032	100	60	1000	40	100	150	50
	2N4030	100	60	1000	15	100	100	50
	2N4407	75	80	2000	15	1000	150	50
	2N4406	75	80	2000	10	1000	150	50
	MM4036	75	65	1000	20	150	60	50
	MM4037	75	40	1000	50	150	60	50
	2N3245	55	50	1000	30	500	150	50
	2N3244	50	40	1000	50	500	175	50
	2N3763	43	60	1500	20	1000	150	50
	2N3762	43	40	1500	30	1000	180	50
	2N4405	40	80	1000	25	500	200	50
	2N4404	40	80	1000	15	500	200	50
	2N3468	40	50	1000	45	500	150	50
	2N3467	40	40	100	40	500	175	50

Small Signal Metal Transistors

3

HIGH-GAIN LOW-NOISE TRANSISTORS

Devices listed in decreasing order of NF.

Pkg.	Device Type	NF Wideband Max. dB	BVCEO volts min.	IC mA min.	hFE @ IC min.	hFE @ IC max.	IC µA mA*	fT MHz @ IC min.	fT MHz @ IC mA
				NPN					
TO-18	2N2484	8.0	60	50	100	500	10	15	0.05
	2N930A	3.0	45	30	100	300	10	45	0.5
	2N930	3.0	45	30	100	300	10	30	0.5
				NPN DARLINGTON					
TO-18	MM6427	.....	40	300	5000	...	10*	125	100
				PNP					
TO-18	2N3963	10	80	200	100	450	1.0	40	0.5
	2N3964	4.0	45	200	250	600	1.0	50	0.5
	2N3798	3.5	60	50	150	450	500	30	0.5
	2N3799	2.5	60	50	300	900	500	30	0.5
TO-46	2N2604	4.0	45	30	40	120	0.01	30	0.5
	2N2605	4.0	45	30	100	300	0.01	30	0.5

HIGH-VOLTAGE/HIGH-CURRENT AMPLIFIERS

Devices are listed in decreasing order of BVCEO within each family.

Pkg.	Device Type	BVCEO Volts Min	IC mA Max	hFE @ IC Min	hFE @ IC mA	VCEsat Volt: Max	fT MHz @ IC Min	fT MHz @ IC mA	Family
					NPN				
TO-39	MM3009	180	400	40	10	.....	50	20	6
	MM3008	120	400	40	10	.....	50	20	
	2N3501	150	300	100	150	0.4	150	20	26R
	2N3500	150	300	40	150	0.4	150	20	
	2N3114	150	200	30	30	1.0	40	30	
	2N3712	150	200	30	30	2.0	40	30	
	MM3001	150	200	20	10	.....	150	10	
	2N3499	100	500	100	150	0.5	150	20	
	2N3498	100	500	40	150	0.5	150	20	
	2N4924	100	200	40	150	0.4	160	20	
	2N657	100	....	30	200	4.0	...	...	
	MM3007	100	2500	50	250	0.35	50	50	88
	MM3006	80	2500	50	200	0.35	50	50	
	MM3005	60	2500	50	150	0.3	50	50	
	2N5058	300	150	35	30	1.0	30	10	210R
	2N3742	300	50	20	30	1.0	30	10	
	2N5059	250	150	30	30	1.0	30	10	
	2N4927	250	50	20	30	2.0	30	10	
	MM3003	250	50	20	10	.....	150	10	
	2N4926	200	50	20	30	2.0	30	10	
	MM3002	200	50	20	10	.....	150	10	
	2N5682	120	1000	40	250	0.6	30	100	212
	2N5681	100	1000	40	250	0.6	30	100	
	2N3439	350	1000	40	20	0.5	15	10	242
	MM421	325	1000	25	30	5.0	15	10	
	2N3440	250	1000	40	20	0.5	15	10	
	MM420	250	1000	25	30	5.0	15	10	
	2N4239	80	3000	30	250	0.3	2	100	244
	2N4238	60	3000	30	250	0.3	2	100	
	2N4237	40	3000	30	250	0.3	2	100	
					PNP				
TO-39	2N3495	120	100	40	10	0.35	150	20	46
	2N4928	100	100	25	10	0.5	100	20	
	MM4000	100	100	20	10	0.6	...	...	
	2N3494	80	100	40	10	0.3	200	20	
TO-18	2N3497	120	100	40	10	0.35	150	20	47
	2N3496	80	100	40	10	0.3	200	20	
TO-39	2N5680	120	1000	40	250	0.6	30	100	211
	2N5679	100	1000	40	250	0.6	30	100	
	2N4236	80	3000	30	250	0.6	3	100	243
	2N4235	60	3000	30	250	0.6	3	100	
	2N4234	40	3000	30	250	0.6	3	100	
	2N5416	300	1000	30	50	2.5	15	10	247
	MM5416	300	1000	30	50	2.5	15	10	
	2N5415	200	1000	30	50	2.5	15	10	
	MM5415	200	1000	30	50	2.5	15	10	
	2N3743	300	50	25	30	8.0	30	10	452R
	2N4931	250	500	20	20	5.0	20	20	
	MM4003	250	500	20	10	5.0	...	...	
	2N4930	200	500	20	20	5.0	20	20	
	MM4002	200	500	20	10	5.0	...	...	
	2N3637	175	1000	100	50	0.5	200	30	454R
	2N3636	175	1000	50	50	0.5	150	30	
	2N4929	150	500	25	10	0.5	100	20	
	MM4001	150	500	20	10	0.6	...	...	
	2N3635	140	1000	100	50	0.5	200	30	
	2N3634	140	1000	50	50	0.5	150	30	

GENERAL-PURPOSE AMPLIFIERS

Devices are listed in decreasing order of BVCEO within each family.

Pkg.	Device Type	BVCEO Volts Min	fT MHz @ IC Min	fT MHz @ IC mA	IC mA Max	hFE @ IC Min	hFE @ IC Max	hFE @ IC mA	Family
					NPN				
TO-39	2N1711	80	70	50	...	100	300	150	2R
	2N1613	50	60	50	500	40	120	150	
	2N2219A	40	300	20	800	100	300	150	
	2N2218A	40	250	20	800	40	120	150	
	2N697	40	50	50	...	40	120	150	
	2N3300	30	250	50	500	100	300	150	
	2N2218	30	250	20	800	40	120	150	
	2N2219	30	250	20	800	100	300	150	
TO-46	2N5582	40	300	20	800	100	300	150	2S
	2N5581	40	250	20	800	40	120	150	
TO-18	2N956	50	70	50	....	40	120	150	3
	2N2222A	40	300	20	800	100	300	150	
	2N2221A	40	250	20	800	40	120	150	
	2N718	40	50	50	....	40	120	150	
	2N3302	30	250	50	500	100	300	150	
	2N2222	30	250	20	800	100	300	150	
TO-39	2N3019	80	100	50	1000	100	300	150	14R
	2N3020	80	80	50	1000	40	120	150	
	2N656	60	...	..	....	30	90	200	
	2N2193A	50	50	50	1000	40	120	150	
	2N2270	45	100	50	1000	50	200	150	
	2N3053	40	100	50	700	50	250	150	
TO-18	2N915	50	250	10	....	50	200	10	23
	2N3946	40	300	10	200	50	150	10	
	2N3947	40	300	10	200	100	300	10	
	2N916	25	300	10	....	50	200	10	
TO-52	MM3904	40	300	10	200	100	300	10	221
	MM3903	40	250	10	200	50	150	10	
					PNP				
TO-18	2N3251A	60	300	10	200	100	300	10	35
	2N3250A	60	250	10	200	50	150	10	
	2N3251	40	300	10	200	100	300	10	
	2N3250	40	250	10	200	50	150	10	
TO-46	2N3485A	60	200	50	600	40	120	150	48
	2N3486A	60	200	50	600	100	300	150	
	2N3486	40	200	50	600	100	300	150	
TO-39	MM5007	100	30	50	2000	50	250	250	49
	MM5006	80	30	50	2000	50	250	200	
	MM5005	60	30	50	2000	50	250	150	
TO-39	2N4405	80	200	50	1000	100	300	150	50
	2N4404	80	200	50	1000	40	120	150	
	MM4036	65	50	60	1000	20	140	150	
	MM4037	40	60	50	1000	50	250	150	
TO-18	2N2906A	60	200	50	600	40	120	150	333
	2N2907A	60	200	50	600	100	300	150	
	2N2906	40	200	50	600	40	120	150	
	2N2907	40	200	50	600	100	300	150	
	2N2904A	60	200	50	600	40	120	150	
	2N2905A	60	200	50	600	100	300	150	
	2N2904	40	200	50	600	40	120	150	
	2N2905	40	200	50	600	100	300	150	
	2N1132A	40	60	50	600	30	90	150	
	2N1132	35	60	50	600	30	90	150	
TO-52	MM3906	40	250	10	200	100	300	10	271
	MM3905	40	200	10	200	50	150	10	

HIGH-FREQUENCY AMPLIFIERS/OSCILLATORS

Devices are listed in decreasing order of BVCEO within each family.

Pkg.	Device	BVCEO	hFE @ IC Min	hFE @ IC mA	NF dB @ f Max	NF dB @ f MHz	fT MHz @ IC Min	fT MHz @ IC mA	Family
					NPN				
TO-72	2N918	15	20	3.0	6.0	6 0	600	4.0	72
TO-18	MM1914	20	25	10	.....	.....	600	10	75
					PNP				
TO-18	2N3307	35	40	2.0	4.5	200	300	2.0	63
TO-72	2N4261	15	30	10	...	...	1600	10	65
	2N4260	15	30	10	....	...	2000	10	

Plastic-Encapsulated Small-Signal Transistors

LOW-NOISE AMPLIFIER TRANSISTORS

Pkg	Device Type	NF dB	BV CEO volts	hFE min	IC mA	fT MHz
NPN	2N4123	6.0	30	50	2.0	250
	2N4124	5.0	25	120	2.0	300
	2N5209	3.0	50	150	10	30
	2N5088	3.0	30	100	300	50
	MPS6520	3.0	25	200	2.0	390
	MPS6521	3.0	25	300	2.0	390
	2N5210	2.0	5.0	250	10	30
	MPS8097	2.0	40	250	0.1	200
	2N5089	2.0	25	400	10	50
	MPS-A18	1.5	45	500	10	100
	MPS-A09	1.4	50	100	1.0	30
PNP	2N4125	5.0	30	50	2.0	200
	2N4126	4.0	25	120	2.0	250
	2N5086	3.0	50	100	150	40
	MPS6522	3.0	25	200	2.0	340
	MPS6523	3.0	25	300	2.0	340
	MPS4249	3.0	60	100	10	100
	2N5087	2.0	50	250	10	40
	MPS4250	2.0	40	250	10	250
	MPS4250A	2.0	60	250	0.1	250

TO-92 DARLINGTON TRANSISTORS

Type and Pol.		BVCEO	hFE @ IC		IC	fT
NPN	PNP	Volts	Min	mA	Max	MHz
2N6426	.....	40	30000	100	500	150
2N6427	.....	40	20000	100	500	130
MPS-A14	MPS-A64	30	20000	100	500	125
MPS-A13	MPS-A63	30	10000	100	500	125
MPS-D04	MPS-D54	25	1000	100	300	100
MPS-A12	MPS-A62	20	20000	10	500	.....

FIELD-EFFECT TRANSISTORS GENERAL-PURPOSE DEVICES JFET's- N-CHANNEL

Pkg.	Type	Yfs mmhos min/ max	IDSS mA V min/ V max	(BR) GSS (BR)DSS* Volts
TO-92	2N5457	1.0/5.0	1.0/5.0	25
TO-92	2N5458	1.5/5.5	2.0/9.0	25
TO-92	2N5459	2.0/6.0	4.0/16	25
TO-72	2N4220	1.0/4.0	0.5/3.0	30
TO-72	2N4221	2.0/5.0	2.0/6.0	30
TO-72	2N4222	2.5/6.0	5.0/15	30
TO-72	2N3823	3.5/6.5	4.0/20	30
TO-72	2N3824	.....	.....	50

JFET's P-CHANNEL

TO-92	2N5460	1.0/4.0	1.0/5.0	40
TO-92	2N5461	1.5/5.0	2.0/9.0	40
TO-92	2N5462	2.0/6.0	4.0/16	40

MOSFET N-CHANNEL

TO-72	2N4351	1.0/....	10/	25*

MOSFET P-CHANNEL

TO-72	2N4352	1.0/....	−10/....	−25*

GENERAL-PURPOSE AMPLIFIERS JFET N-CHANNEL

TO-92	2N5457	1.0/5.0	1.0/5.0	−25
TO-92	2N5458	1.5/5.5	2.0/9.0	−25
TO-92	2N5459	2.0/6.0	4.0/16	−25
TO-72	2N4220A	1.0/4.0	0.5/3.0	−30
TO-72	2N4221A	2.0/5.0	2.0/6.0	−30
TO-72	2N4222A	2.5/6.0	5.0/15	−30

JFET P-CHANNEL

TO-92	2N5460	1.0/4.0	1.0/5.0	40
TO-92	2N5461	1.5/5.0	2.0/9.0	40
TO-92	2N5462	2.0/6.0	4.0/16.0	40
TO-72	2N3330	1.5/3.0	2.0/6.0	20

MOSFET N-CHANNEL

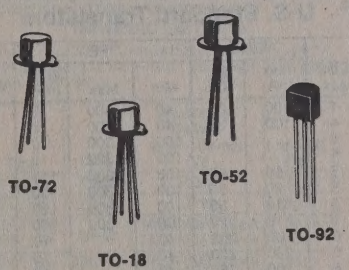
TO-18	MFE824	1.0/....	1.0/15	20*
TO-72	MFE3001	0.7/3.5	0.5/6.0	20*
TO-72	2N3796	0.9/1.8	0.5/6.0	25
TO-72	2N3797	1.5/3.0	2.0/6.0	20

HIGH SPEED SATURATED SWITCHING TRANSISTORS

Pkg.	Device Type	tON ns	BVCEO Volts	hFE min	VCE(sat) Volts	@IC
NPN	MPS706, A	40	15	20	0.6	10
	2N4264	25	15	40	0.22	10
	2N4265	25	12	100	0.22	10
	MPS3646	18	15	30	0.2	30
	MPS2369	12	15	40	0.25	10
PNP	2N5228	75	5	30	0.4	10
	MPS3640	25	12	30	0.2	10
	MPS2639	25	6	30	0.2	10
	MPS4258	15	12	30	0.15	10
	2N5771	15	15	50	0.18	10
	MPS4257	15	6	30	0.15	10

HIGH-VOLTAGE TRANSISTORS

Pkg	Device Type	BVCEO Volts	IC Amp.	hFE min.	hFE @IC	fT MHz
NPN	2N6517	350	0.5	40	30	40
	2N6516	300	0.5	45	30	40
	MPS-A42	300	0.5	40	10	50
	2N6515	250	0.5	50	30	40
	MPSA43	200	0.5	40	10	50
	MPS-D01	200	0.1	20	30	40
	2N5551	160	0.6	80	10	100
	2N5550	140	0.6	60	10	100
	MPS-L01	100	0.5	20	30	40
PNP	2N6520	350	0.5	30	30	40
	2N6519	300	0.5	45	30	40
	MPS-A92	300	0.5	40	10	50
	2N6518	250	0.5	50	30	40
	MPS-D51	200	0.1	20	30	40
	2N5401	150	0.6	60	10	100
	2N5400	120	0.6	40	10	100
	MPS-L51	100	0.6	40	50	60



MOSFET P-CHANNEL

TO-18	MFE823	1.0/....	../−20	25*

CHOPPERS and SWITCHES JFET's N CHANNEL

Pkg.	Type	rds (on) ohms max	ID IDSS* nA	Crss pF max	V (BR) GSS V (BR) DSS* min
TO-92	2N5638	30	1.0	4.0	−30
TO-92	2N5639	60	1.0	4.0	−30
TO-92	2N5640	100	1.0	4.0	−30
TO-18	2N4856	25	0.25	8.0	−40
TO-18	2N4857	40	0.25	8.0	−40
TO-18	2N4858	60	0.25	8.0	−40

JFET's P CHANNEL

TO-92	MPF970	100	10	5.0	30
TO-92	MPF971	250	10	5.0	30
TO-72	2N3993	150	1.2	4.5	25
TO-72	2N3994	300	1.2	5.0	25

MOSFET N CHANNEL

TO-72	2N4351	300	10*	1.3	25*

MOSFET P CHANNEL

TO-72	2N4352	600	−10*	1.3	25*

GENERAL-PURPOSE TRANSISTORS

Device and Polar.		BVCEO	fT	IC	hFE	
NPN	PNP	Volts	MHz	mA	min	@IC
MPS8099	MPS8599	80	150	200	100	1.0
	MPS-A56	80	100	500	50	100
MPS8098	MPS8598	60	150	200	100	1.0
MPS-A05	MPS-A55	60	100	500	50	100
2N3904	2N3906	40	300	200	100	10
2N4401	2N4403	40	250	600	100	150
2N3903	2N3905	40	250	200	50	10
2N4400	2N4402	40	200	600	50	150
MPS-A20	MPS-A70	40	125	100	40	5.0
MPS6531	MPS6534	40	.....	600	100	150
MPS2222	MPS2907	30	250	600	100	150
2N4123	2N4125	30	250	200	50	2.0
MPS3704	MPS3702	30	100	600	100	50
MPS6513	MPS6517	30	330	100	90	2.0
2N4124	2N4126	25	300	300	120	2.0
MPS6514	MPS6518	25	200	200	50	10
MPS6515	MPS6519	25	480	100	250	2.0
MPS5172	MPS6172	25	.....	100	100	10
MPS6560	MPS6562	25	60	500	50	500

RF/UHF/VHF AMPLIFIERS and CATV TRANSISTORS

Device Type	fT MHz	Ccb pF	BVCEO Volts	NF dB Max.	@f MHz
MPS-H10	650	1500	4	0.65	25
MPS-H11	650	0.7	25	.....	.....
MPS6547	600	0.35	25	.....	.....
MPS918	600	1.7	15	6	60
MPS3563	600	1.7	12	.....	.....
MPS-H08	500	0.3	30	3.5	200
MPS-H34	500	0.32	45	.....	.....
MPS6539	500	0.7	20	4.5	100
2N5222	450	1.3	15	.....	.....
MPS-H07	400	0.3	30	3.2	100
MPS-H24	400	0.36	30	.....	.....
MPS-H20	400	0.65	30	.....	.....
MPS-H6540	350	0.65	30	.....	.....
MPS-H32	300	0.22	30	3.3	45
MPS-H30	300	0.65	20	6	45
MPS-H37	300	0.7	40	.....	.....
MPS3639	200	0.2	45	.....	.....
MPS3694	200	0.2	45	4	1
MPS-H04	80	1.6	80	2	1
MPS-H05	80	1.6	80	2	1
PNP					
MPS-H81	600	0.65	20	.....	.....
2N5208	300	1.0	25	3	100
MPS-H54	80	1.6	80	2	1
MPS-H55	80	1.6	80	.....	.....

RF AMPLIFIERS

Pkg.	Type	Test Freq. MHz	Gps Gc* min/ max	Crss Cgd min/ max	NF dB
TO-92	MPF102	100	.....	../3.0	..
TO-92	2N5484	100	16/25	../3.0	3.0
TO-92	MPF256	400	12/..	1.2	4.0
TO-92	2N5485	400	10/20	../1.0	4.0
TO-92	2N5486	400	10/20	../1.0	4.0
TO-72	2N4416	400	10/..	../0.8	4.0
TO-72	2N4416A	400	10/..	../0.8	4.0
TO-52	U310	450	11	../2.5	3.0
TO-92	J310	100	16	../2.5	1.5

MOSFET N CHANNEL

TO-72	3N203	45	20/30	../0.03	6.0
TO-72	MFE130	105	17/..	../05	5.0
TO-72	3N201	200	15/25	- 0.03	4.5
TO-72	MFE131	200	17/..	../.05	5.0
TO-72	3N209	500	10/20	../.05	6.0
TO-72	3N213	45	27/35	../.05	4.0
TO-72	3N211	200	29/37	../.05	3.5
TO-72	MFE521	500	21/..	../.02	3.5
TO-72	3N202	200	15/25*	../.03	..
TO-72	3N212	200	21/28*	../.05	..

Plastic-Encapsulated Small-Signal Transistors

RF POWER TRANSISTORS

Pout	1.5-30 MHZ 12V	1.5-30 MHZ 28V	136-174MHZ 12V	30-200MHZ 28V	220MHZ 12V	407-512MHZ 12V	225-400MHZ 28V
1W	.....	.....	2N4427	2N3866	MRF207	.....	MRF313
1.75W	.....	.....	MRF607	.....	MRF225	.....	.....
2.0W	.....	.....	.....	2N3553	.....	2N5944	.....
3.0W	MRF476	.....	2N6255	.....	MRF227	.....	.....
4.0W	.....	.....	MRF237	.....	.....	2N5945	.....
7.0W	.....	.....	.....	2N5641	.....	.....	.....
9.0W	2N6367	.....	.....	.....	.....	.....	.....
10W	.....	2N6370	.....	.....	MRF208	2N5946	MRF321
12.5W	.....	.....	.....	.....	MRF226	.....	.....
15W	.....	MRF485	2N6081	.....	.....	MRF618	.....
20W	MRF406	.....	.....	.....	.....	.....	MRF323
25W	.....	MRF401	2N6082	.....	MRF209	MRF644	.....
30W	MRF449	.....	2N6083	MRF314	.....	.....	MRF325
40W	MRF460	2N5941	2N6084	.....	.....	.....	MRF326
45W	.....	.....	.....	MRF315	.....	MRF646	.....
50W	MRF450	.....	MRF250	.....	.....	.....	MRF309
60W	MRF455	.....	MRF243	.....	.....	MRF648	2N6439
70W	.....	.....	.....	.....	.....	.....	.....
80W	MRF454	MRF464	MRF245	MRF316	.....	.....	MRF327
100W	MRF421	.....	.....	MRF317	.....	.....	.....
150W	.....	MRF422	.....	.....	.....	.....	.....

RF MODULES

	10—15V Operation
30W	MHW603 VHF
13W	MHW710 UHF

RF LOW DISTORTION WIDEBAND MODULE

10—400MHz	1.0—250MHz
12V, 34dB Gain, MHW593 24V, 34dB Gain, MHW590	12V, 34dB Gain, MHW591 24V, 34dB Gain, MHW592

R.F. POWER TRANSISTORS

Pout	1.5-30MHz	VCC Volts	25-50MHz	VCC Volts	100-150MHz	VCC Volts	136-175MHz	VCC Volts	Pkge.
3	MRF476	12.5	.....	...	.....	...	.....	...	TO220
5	.....	...	.....	...	.....	...	MRF260	12.5	TO220
8	.....	...	.....	...	MRF340	27.0	.....	...	TO220
10	.....	...	.....	...	.....	...	MRF261	12.5	TO220
12	MRF475	13.6	.....	...	.....	...	.....	...	TO220
15	MRF485	28	MRF479	12.5	.....	...	MRF262	12.5	TO220
24	.....	...	.....	...	MRF342	27	.....	...	TO220
30	.....	...	.....	...	.....	...	MRF264	12.5	TO220
40	MRF477	12.5	MRF497	12.5	.....	...	.....	...	TO220
40	MRF486	28	.....	...	.....	...	.....	...	TO220
60	.....	...	.....	...	MRF344	27	.....	...	TO220

TO-39 WIDEBAND, 50 MODULES

Single stage amplifiers designed for broadband linear applications up to 400MHz.

Type	Frequency Range MHz	Gain dB Min/Typ	Supply Voltage Vdc	Output Level 1 dB Compression dBm	Noise Figure dB
MWA110	DC-400	13/14	10	—2.5	4
MWA120	DC-400	13/14	10	+8.2	5.5
MWA130	DC-400	13/14	10	+18.0	7.0

SOT Small Signal Devices

An internationally standardized hybrid assembly already adopted by major European hybrid assemblers. A wide variety of discrete components are available in SOT packages, including Bipolar and Unipolar (Field Effect) transistors, and Switching and Varactor Diodes.

U.S. Standard Transistors

Device	NPN/ PNP	Mark.	V_{CBO} Max	V_{CEO} Max	V_{EBO} Max	I_{CBO} Max (nA)	I_{CBO} @ V_{CB}	h_{FE} Min	h_{FE} Max	h_{FE} @ I_C (mA)	V_{CE}	V_{CEsat} Max	f_T Min MHz	@ I_C (mA)	t_{off} Max (ns)	NF Typ (dB)	ob Max (pF)
MMBTA20	N	1C	...	40	4	100	30	40	400	5	10	.25	125	5	....	...	4
MMBTA70	P	2C	...	40	4	100	30	40	400	5	10	.25	125	5	....	...	4
MMBT3904	N	1A	60	40	6	...	...	100	300	10	1	.2	200	10	....	5(1)	4
MMBT3906	P	2A	40	40	5	...	...	100	300	10	1	.25	250	10	....	4(1)	4.5
MMBT2222	N	1B	60	30	5	50	50	100	300	150	10	.4	250	20	....	...	8
MMBT2907	P	2B	60	40	5	20	50	100	300	150	10	200	200	50	....	...	8
MMBT2222A	N	1P	75	40	6	10	50	100	300	150	10	.3	200	20	....	...	8
MMBT2907A	P	2F	60	60	5	10	50	100	300	150	10	.4	200	50	....	...	8
MMBTA42	N	1D	300	300	6	100	200	40	....	10	10	.5	50	10	....	...	3†
MMBTA92	P	2D	300	300	5	250	200	40	....	10	10	.5	50	10	....	...	6†
MMBTA43	N	1E	200	200	6	100	160	40	....	10	10	.4	50	10	....	...	4†
MMBTA93	P	2E	200	200	5	250	160	40	....	10	10	.4	50	10	....	...	8†
MMBT5550	N	1F	160	140	6	100	100	60	250	10	5	.15	100	10	....	...	6
MMBTA06	N	1G	80	80	4	100	80	50	....	10	1	.25	100	10	....	...	...
MMBTA56	P	2G	80	80	4	100	80	50	....	10	1	.25	100	10	....	...	...
MMBTA05	N	1H	60	60	4	100	60	50	....	10	1	.25	100	10	....	...	...
MMBTA55	P	2H	60	60	4	100	60	50	....	10	1	.25	100	10	....	...	...
MMBT2369	N	1J	40	15	4	400	20	40	120	10	1	.25	...	10	18(2)	...	4
MMBT3640	P	2J	12	12	4	10	...	30	120	10	.3	.2	500	10	35(3)	...	3.5
MMBT6428	N	1K	60	50	6	10	30	250	650	.1	5	.2	100	1	....	3(5)	...
MMBT6429	N	1L	55	45	6	10	30	500	1250	.1	5	.2	100	1	....	...	...
MMBTH24	N	3A	40	30	4	50	15	30	....	8	10	.2	400	8	....	...	.36†
MMBT918	N	3B	30	15	3	50	15	20	....	3	10	.5	600	4	....	...	1.7
MMBTH81	P	3D	20	20	3	100	10	60	....	5	10	.5	600	5	....	...	.85†
MMBTA13	N	1M	30	30	10	100	30	10k	....	100	5	1.5	...	..	....	2(7)	...
MMBTA14	N	1N	30	30	10	100	...	20k	....	100	5	1.5	...	..	....	...	...

†C_{cb}

Metal-Encapsulated Small-Signal Transistors

Device	NPN-PNP	Mark	BV_{CEO} Min	BV_{EBO} Min	I_{CBO} Max	h_{FE} Min	h_{FE} Max	h_{FE} @ I_C	h_{FE} @ V_{CE}	C_{cb} Max	C_{cb} @ V_{cb}	f_T Typ GHz	f_T @ I_C (mA)	f_T @ V_{CE}	NF Typ dB	NF @ I_C (mA)	NF @ V_{CE}	Mag Typ (dB)	Mag @ I_C (mA)	Mag @ V_{CE}	f MHz
MMBR901		7A			50	30	200	5	5	1	10	4	15	10	2.3	5	6	10.5	15	10	1000
MMBR920		7B	15	2	50	25	250	14	10	1	10	5	14	10	2.4	2	10	17	14	10	500
MMBR930		7C	12		50	25	250	30	5	1	10	5.5	30	5	1.9	2	5	15.5	30	5	500
MMBR931	N	7D	5*			30	150	.25	1	.5	1	3.5	1	1	2.7	.5	1	18	1	1	500
MMBR2060		7E	14	4	50	40	185	5	5	1	10	2.5	20	10	2.0	1.5	10	15	20	10	500
MMBR5031		7G	10	3	10	25	300	1	6	1.5	6	2	5	6	1.9	1	6	13.5	5	6	450
MMBR5179		7H	12	2.5	20	25	250	3	1	1	10	1.5	5	6	4.0	1.5	6	11.0	5	6	450
MMBR4957	P	7F	30	3	100	20	150	2	10	.8	10	2	2	10	2.5	2	10	14.5	2	10	450

*I_C = 100 µA

Motorola Selector Guide

OPTICAL COUPLERS/ISOLATORS: TRANSISTOR COUPLER
Isolation Voltage: 7500V (min)

Type	Case	DC Current Transfer Ratio % Min	BVCEO Volts Min
TIL112	730A	2.0	20
TIL115	730A	2.0	20
IL15	730A	6.0	30
IL16	730A	6.0	30
MCT26	730A	6.0	30
TIL111	730A	8.0	30
TIL114	730A	8.0	30
IL12	730A	10	20
4N27	730A	10	30
4N28	730A	10	30
H11A4	730A	10	30
IL74	730A	12.5	20
4N25	730A	20	30
4N26	730A	20	30
H11A2	730A	20	30
H11A3	730A	20	30
H11A520	730A	20	30
IL1	730A	20	30
MCT2	730A	20	30
TIL116	730A	20	30
4N38	730A	20	80
H11A5	730A	30	30
H11A1	730A	50	30
H11A550	730A	50	30
TIL117	730A	50	30
CNY17	730A	62	70
4N35	730A	100	30
4N36	730A	100	30
4N37	730A	100	30
H11A5100	730A	100	30

DARLINGTON TRANSISTOR COUPLER
Isolation Voltage: 7500V (min)

4N31	730A	50	30
H1183	730A	100	25
4N29	730A	100	30
4N30	730A	100	30
MCA230	730A	100	30
H11B255	730A	100	55
MCA255	730A	100	55
H11B2	730A	200	25
MCA231	730A	200	30
MOC119	730A	300	30
TIL119*	730A	300	30
TIL113*	730A	300	30
MOC8030*	730A	300	80
H11B1	730A	500	25
4N32	730A	500	30
4N33	730A	500	30
MOC8020	730A	500	50
MOC8050	730A	500	80
MOC8021	730A	1000	50

(*) Pin 3 and Pin 6 are not connected.

OPTICALLY-ISOLATED AC LINEAR COUPLER
Isolation Voltage: 7500V (min)

Type	Transfer Grain @ VCC = 12V, mV/mA Typ	Single Ended Distortion @ VCC = 12V, Isig = 1.0 mA ½ Typ
MOC5010	200	0.2

INFRARED-EMITTING DIODES

Type	Case	Emission Angle	Instantaneous Power Output
MLED930	209-201	30°	650 μW@ 100 mA
MLED92	29-02	110°	650 μW@ 100 mA
MLED93	29-02	110°	3.0 mW@ 100 mA
MLED94	29-02	100°	5.0 mW@ 100 mA
MLED95	29-02	110°	8.0 mW@ 100 mA
MLED15	173-01	70°	
MLED71	349-01	30°	

PIN PHOTODIODES

Type No.	Case	Light Current @ Typ A	Light Current @ H mW/cm²	BV R Volts Min	Dark Current @ nA Max	Dark Current @V
MRD500	209-01	9.0	5.0	100	2.0	20
MRD510	210-01	2.0	5.0	100	2.0	20

SCR OUTPUT COUPLER

Type	Case	LED Trigger Current mA Max	Peak Blockg. Voltage Volts Min.
MOC3002	730A	30	250
MOC3007	730A	20	250
MOC3007	730A	40	200
H11C1	730A	20	200
H11C2	730A	20	200
H11C3	730A	30	200
H11C9	730A	30	200

TRIAC DRIVER OUTPUT COUPLER
Isolation Voltage: 7500V (min)

Type	Case	LED Trigger Current mA Max	Peak Blockg. Voltage Volts Max.
MOC3009	730A	30	250
MOC3010	730A	15	250
MOC3011	730A	10	250
MOC3020	730A	30	400
MOC3021	730A	15	400
MOC3030**	730A	30	250
MOC3031**	730A	15	250
MOC3022	730A	10	400
MOC3023	730A	5	400
MOC3032	730A	10	250
MOC3040	730A	30	400
MOC3041	730A	15	400

**With Zero-Crossing Detector.

PHOTO TRIAC DRIVERS

Type	Trigger* Sens H mW/cm² Typ	On-State RMS mA Max	Off-State Output Terminal V Peak Min	Peak Black Current nA Typ
MRD3010	1.0	100	250	10
MRD3011	0.5	100	250	10

FIBER OPTIC DEVICES
Provides electrical isolation, EMI/RFI noise immunity, no spark or fire hazard, short ckt. protection and transmission security.

INFRARED EMITTERS
MFOE100/200 compatible w/AMP conn. #227015. MFOE102F/103F compatible w/AMP conn. #227240-1.

Type	Case	Total Power Output @ IF = 50 mA Typ	t on/t off Typ
MFOE100	209-02	550μW	50 ns
MFOE200	209-02	1.6 mW	250 ns
MFOE102F	338-02	140μW@IFh100mA	25 ns
MFOE103F		140μW@IFh100mA	15 ns
MFOE106F	338D-01	900μW@IFh100mA	15 ns
MFOE107F	338D-01	1100μW@IFh100mA	15 ns
MFOE108F	338D-01	1500μW@IFh100mA	15 ns
MFOE110F	338D-01	1500μW@IFh100mA	15 ns

PHOTOTRANSISTORS

Type No.	Case	Light Current mA Typ	Light Current @ H mW/cm²	BV COE Volts Min	Dark Current nA Max	Dark Current @ VCE Volts
MRD701		.025	.5	30		
MRD601		1.5	20	50	25	30
MRD602		3.5	20	50	25	30
MRD603		6.0	20	50	25	30
MRD604		8.5	20	50	25	30
MRD310	82-05	2.5	5.0	50	25	20
MRD300		7.5	5.0	50	25	20
L14H4		0.5	10	30	100	10
L14H1		0.5	10	60	100	10
L14H2	29-02	2.0	10	30	100	10
L14H3		2.0	10	60	100	10
MRD3050		0.2	5.0	30	100	20
MRD3051		0.2	5.0	30	100	20
MRD3054	82-05	1.2	5.0	30	100	20
MRD3055		1.8	5.0	30	100	20
MRD3056		2.5	5.0	30	100	20

PHOTODARLINGTONS

Type No.	Case	Light Current ½A Typ	Light Current @ H mW/cm²	BV COE Volts Min	Dark Current nA Max	Dark Current @ Volts
MRD370	82-05	10	0.5	40	100	10
MRD360		20	0.5	40	100	10
MRD14B		2.0	2.0	12	100	12
2N5777		4.0	2.0	25	100	12
2N5778		4.0	2.0	40	100	10
2N5779	29-02	8.0	2.0	25	100	12
2N5780		8.0	2.0	40	100	12

PHOTO DETECTORS
MFOD100/200/300 compatible w/AMP conn. #227015.
MFOD102F thru 403F compatible w/AMP conn. #227240-1.

Type	Case	Sensitivity @ 900 nM Typ	Response @ 900 nM Typ	t on	t off
Photo PIN Diodes					
MFOD100	209-02	18μA/mW/cm²	25 ns	25 ns	
MFOD102F	338-02	*0.40 μA/μW	25 ns	25 ns	
MFOD104F		*0.40 μA/μW	6.0 ns	6.0 ns	
MFD110F	338-02	.3 μA/μW	1.0 ns	1.0 ns	
Phototransistors					
MFOD200	82-04	5.6mA/mW/cm²	2.5 μS	4.0 μS	
MFOD202F	388A-02	*100 mA/mW	2.5 μS	4.0 μS	
Photodarlingtons					
MFOD300	82-04	75 mA/mW/cm²	40 μS	60 μS	
MFOD302F	388A-02	*6000 mA/mW	40 μS	60 μS	
Monolithic					
MFOD404F	338B-01	30 mV/μV	40 ns	40 ns	
MFOD405F		4.0 mV/μV	10 ns	10 ns	

RECEIVERS
Devices used to convert optical energy to conditioned electrical impulses in fiber optic systems.

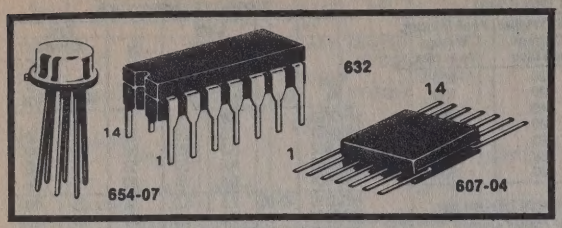
Device Type	Case	Bandwidth	Operating Voltage Volts	AGC	Dynamic Range	Detector	Min Input for 10^{-9} BER
MFOC600	620-06	10 Mhz 10 Mbit (TTL) 20 Mbit (ECL) NRZ	+5.0	yes	>20 dB	IDP or PIN	1.0μW* (−30 dBm)

TUNING DIODES

Type	Case	CT Nom pf @	VR	Cap Ratio @	$V_1 \div V_2$	Function
MVAM108	T092	500	1	15	1 8	AM Radio
MVAM125	T092	500	1	15	1 25	AM Radio
MV104	T092	40	3	2.5	3 30	FM Radio
MV3140		10.5	3	4.5	3 25	UHF TV
MV109	T092	29	3	5.0	3 25	VHF TV
MV2109	T092	33	4	3.0	2 30	AFC
MV1404	D07	120	2	10	2 10	PLL
MBD101	T092	VBR=4Vmin, CT = 1.0pf max, VF = 0.6 Vmax @ 10 mA				Schottky Mixer/ Mixer/Detector
MPN3401		VBR = 35 Vmin, RS = 0.7 Ωmax, CT = 1.0 pf max				PIN Switch

Motorola Selector Guide

MULTIPLE TRANSISTORS AND SMALL DARLINGTON AMPLIFIER TRANSISTORS



NPN-PNP SILICON QUAD TRANSISTORS

Each quad transistor contains four similar transistors that can be used to reduce space requirements. Listed in order of decreasing BV_{CEO} (min.). NPN except as otherwise noted.

PLASTIC DUAL-IN-LINE (CASE 646)

Type	BV CEO V	h_{FE} @ I_C Min.	h_{FE} @ I_C mA	Maximum ton ns	Maximum toff ns	Min. fT MHz
MPQ7043	250	40	30	.....	.....	50
MPQ7053	250	25	30	.....	.....	50
MPQ7093	250	25	30	.....	.....	50
MPQ3799*	60	300	0.1	.....	.....	60
MPQ3762	40	30	500	50	120	150
MPQ3467*	40	20	500	40	90	250
MPQ3725	40	25	500	35	60	250
MPQ2483	40	150	1.0	.....	.....	50
MPQ3798*	40	150	0.1	.....	.....	60
MPQ2484	40	300	1.0	.....	.....	50
MPQ2222	.....	100	150	.....	.....	200
MPQ6001†	30	40	150	30‡	225#	200
MPQ6002†	30	100	150	30‡	225#	200
MPQ3546	12	30	10	25	40	600
MPQ3303	12	40	300	15	20	400

CERAMIC DUAL-IN-LINE (CASE 632)

MHQ2907*	60	100	150	30‡	100#	350
MHQ3799*	60	300	0.1	.....	.....	325
MHQ4013	40	35	500	35	60	200
MHQ2906*	40	40	150	30‡	100#	350
MHQ2221	40	40	150	30	225	350
MHQ2222	40	100	150	25	250	350
MHQ3798*	40	150	0.1	.....	.....	325
MHQ6100†	40	75	1.0	.....	.....	175§
MHQ3467*	40	20	500	40	120	.....
MHQ6001†	30	40	150	.....	.....	400
MHQ6002†	30	100	150	.....	.....	400
MHQ2483	25	150	1.0	.....	.....	175
MHQ2369	15	40	10	9‡	15#	550
MHQ3546*	12	25	50	15‡	25#	1000

FLAT PACK (CASE 607)

MQ2905A*	60	100	150	45	130	225
MQ3799*	60	300	0.1	.....	.....	130
2N5146*	40	20	1000	40	120	200
MQ3467*	40	20	500	40	120	200
MQ3725	40	30	500	45	75	300
MQ2219A	40	100	150	60	350	270
MQ2904*	40	40	150	.....	130	225
MQ3251*	40	100	10	.....	.....	350

*PNP; all other types NPN. †Complementary. ‡Typical. §NPN; 130 MHz, PNP.

HIGH SPEED SWITCHES, HIGH FREQUENCY OSCILLATORS

Type	Case	Polarity	BVceo V	DC Current Gain Ratio h_{FE}^1/h_{FE}^3
MD708A†	654	NPN	15	0.9/1.0
MD918A†	654	NPN	15	10%
MD2369A†	654	NPN	15	
MD708B†	654	NPN	15	0.8/1.0
MD918B	654	NPN	15	20%
MD708†	654	NPN	15	0.8/1.0 > or
MD918†	654	NPN	15	unmatched
MD2369†	654	NPN	15	20%
MD2219A	654	.....	.....	.....
MD2905A	654	.....	.....	.....

†For case 610, add suffix F

SILICON DUAL TRANSISTORS

Devices listed in descending order of magnitude of h_{FE}.

LOW NOISE—HIGH GAIN AMPLIFIERS

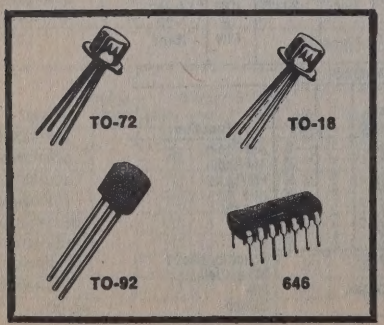
Type	Case	Polarity	BVceo V	DC Current Gain Ratio h_{FE}^1/h_{FE}^2
2N2919	654	NPN	60	
2N2920*	654	NPN	60	0.9/1.0
2N3810	654	PNP	60	10%
2N3811	654	PNP	60	
2N2639	654	NPN	40	
2N2642	654	NPN	40	0.9/1.0
2N2915	654	NPN	40	10%
2N2916	654	NPN	40	
2N3808	654	PNP	60	0.8/1.0
2N3809	654	PNP	60	20%
2N2913	654	NPN	40	0.8/1.0
2N2914	654	NPN	40	> or
2N3806	654	PNP	60	unmatched
2N3807	654	PNP	60	20%

GENERAL PURPOSE AMPLIFIERS AND SWITCHES

Type	Case	Polarity	BVCEO V	DC Current Gain Ratio H_{FE}^1/h_{FE}^2
2N2060*	654	NPN	60	
MD3250A†	654	PNP	40	0.9/1.0
MD3251A†	654	PNP	40	10%
2N2480A	654	NPN	40	
2N2652	654	NPN	60	0.8/1.0
2N4938	654	PNP	40	20%
MD2218†	654	NPN	30	
MD2219†	654	NPN	30	
MD2905†	654	PNP	40	0.8/1.0
MD3251†	654	PNP	40	> or
2N5793	654	NPN	40	unmatched
2N5794	654	NPN	40	20%
2N5795	654	PNP	60	
2N5796	654	PNP	60	
2N4854*	654	‡	40	.....
MD6001†	654	‡	30	.....
MD6002†	654	‡	30	.....

‡Complementary pairs, one NPN/one PNP
†For case 610, add suffix F

SMALL-SIGNAL DARLINGTON AMPLIFIER TRANSISTORS

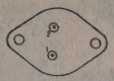


Darlington amplifiers are cascaded transistors used in applications requiring high-current gain and input impedance. Plastic transistors have monolithic construction, metal package transistors are two chip construction.

Device Type NPN	Device Type PNP	BV_{CES}* BV_{CEO} Volts Min	I_C mA Max	h_{FE} @ I_C Min	h_{FE} @ I_C mA	fT MHz Min	Pkg.
MPS A12	.....	20*	500	20,000	10	0.035	TO-92
MPS D04	MPS-D54	25*	300	1000	10	100	TO-92
MPS A13	.....	30*	500	5000	10	125	TO-92
MPS A14	.....	30*	500	10,000	10	125	TO-92
2N2785	.....	40	200	1200	10	10	TO-72
MM6427	.....	40	300	5000	10	.....	TO-18
MPQ6426	.....	40	500	5000	10	.....	646
2N6427	.....	40	500	10,000	10	.....	TO-92
2N2723	.....	60	40	2000	10	100	TO-72

SILICON Power Transistors

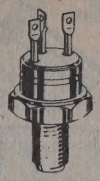
TO-3



STYLE 1:

PIN 1. BASE
2. EMITTER
CASE. COLLECTOR

TO-59



STYLE 1:

PIN 1. BASE
2. EMITTER
3. COLLECTOR

TO-3

TO-3: Case 11-01 40 mil pins. Modified
TO-3: Case 197-01 60 mil pins.

Ic Cont A Max	VCEO (sus) V Min	Device Type NPN	Device Type PNP	hFE @ Ic Min/Max A
2.5	1300*	BU204		2—2
	1500*	BU205		2—2
		MJ12002		1.11—2
3	250	2N5838		8/40—3
	275	2N5839		10/50—2
	350	2N5840		10/50—2
3.5	325	2N3902		30/90—1
4	1500*	MJ12003		2.5—3
5	120	2N4347		15/60—2
	200	MJ410		30/90—1
	250	MJ3029		30—0.4
	300	MJ411		30/90—1
		2N6542		7/35—3
	325	MJ3030		3.75—3
	400	2N6543		7/35—3
	1300*	BU207		2.25—4.5
	1500*	BU208		2.25—4.5
		MJ12004		2.5—4.5
6	100	2N5758	2N6226	25/100—3
	120	2N5759	2N6227	20/80—3
	140	2N5760	2N6228	15/60—3
	250	MJ15011	MJ15012	20/100—2
7.5	60	2N3447		40/120—5
	80	2N3448		40/120—5
8	60	MJ1000	MJ900	1k—3
		2N6055	2N6053	750/18k—4
	80	MJ1001	MJ901	1k—3
		2N6056	2N6054	750/18k—4
	250	2N6306		15/75—3
	300	2N6307		15/75—3
		2N6544		7/35—5
	350	2N6308		12/60—3
	400	2N6545		7/35—5
	1400*	MJ10011		20—4
	1500*	MJ12005		5—5
10	40	2N6383	2N6648	1k/20k—5
	60	2N3713	2N3789	15—3
		2N3715	2N3791	30—3
		2N5877	2N5875	20/100—4
		MJ3000	MJ2500	1k—5
		2N6384	2N6649	1k/20k—5
	80	2N3714	2N3790	15—3
		2N3716	2N3792	30—3
		2N5878	2N5876	20/100—4
		MJ3001	MJ2501	1k—5
		2N6385	2N6650	1k/20k—5
	100	2N5632	2N6229	25/100—5
	120	2N5633	2N6230	20/80—5
	140	2N5634	2N6231	15/60—5
		2N3442		20/70—4
	150	MJ11018	MJ11017	100—10
	200	MJ11020	MJ11019	100—10
	250	MJ11022	MJ11021	100—10
		MJ15011	MJ15012	20/100—2
	325	MJ413		20/80—0.5
		MJ423		30/90—1
		MJ431		15/35—2.5
	350	MJ13014		8/20—5
		MJ10002		3/300—5
		MJ10006		30/300—5
	400	MJ10003		30/300—5
		MJ10007		30/300—5
		MJ10012		100/2k—6
		MJ13015		8/20—5
	450	SDT13304		10/40—5
	500	SDT13305		10/40—5
	950*	MJ12010		4.2—5
12	40	2N6569	2N6594	15/200—4
	60	2N6057	2N6050	750/18k—6
	80	2N6058	2N6051	750/18k—6
	100	2N6059	2N6052	750/18k—6
15	60	2N3055	MJ2955	20/70—4
		2N3055A	MJ2955A	20/70—4
		2N6576		2k/20k—4
		2N5881	2N5879	20/100—6
	80	2N5882	2N5880	20/100—6
	90	2N6577		2k/20k—4
	120	MJ15015	MJ15016	20/70—4
		2N6578		2k/20k—4
	140	MJ15001	MJ15002	25/150—4
	200	2N6249		10/50—10
	275	2N6250		8/50—10
	300	2N6546		6/30—10
	350	2N6251		6/50—10
	400	2N6547		6/30—10
20	40	2N6257		15/75—8
	60	2N3772		15/60—10
		2N6282	2N6285	750/18k—10
	75	2N5039		20/100—10
	80	2N5303	2N5745	15/60—10
		2N6283	2N6286	750/18k—10
	90	2N5038		20/100—12
	100	2N6284	2N6287	750/18k—10
	140	MJ15003	MJ15004	25/150—5
	200	MJ13330		8/40—10
	250	MJ13331		8/40—10
	350	MJ10000		40/400—10
		MJ10004		40/400—10
		MJ13332		10/60—5
	400	MJ10001		40/400—10
		MJ10005		40/400—10
		MJ13333		10/60—5
	450	MJ10008		30/300—10
		MJ13334		10/60—5
	500	MJ10009		30/300—10
		MJ13335		10/60—5
25	60	2N5885	2N5883	—10
	80	2N5886	2N5884	20/100—10
			2N6436	20/80—10
	100	2N6338		30/120—10
			2N6437	20/80—10
	120	2N6339		30/120—10
			2N6438	20/80—10
	140	2N6340		30/120—10
	150	2N6341		30/120—10
30	40	2N3771		15/60—15
		2N5301	2N4398	15/60—15
	60	2N5302	2N4399	15/60—15
		MJ11012	MJ11011	1k—20
		2N6326	2N6329	6/30—30
	80	2N6327	2N6330	6/30—30
	90	MJ11014	MJ11013	1k—20
	100	2N6328	2N6331	6/30—30
		MJ802	MJ4502	25/100—7.5
	120	MJ11016	MJ11015	1k—20
40	350	MJ10022		50/600-10
	400	MJ10023		50/600-10
50	• 60	2N5685	2N5683	15/60—25
		MJ11028	MJ11029	400—50
	• 80	2N5686	2N5684	15/60—25
			2N6377	30/120—20
	90	MJ11030	MJ11031	400—50
	• 100	2N6274	2N6378	30/120—20
	• 120	2N6275	2N6379	30/120—20
		MJ11032	MJ11033	400—50

• Modified TO-3, 60 mil pins
(*) BVCEX (#) $|h_{fe}|$ @ 1MHz

TO-59

TO-59: Case 160-03

Ic Cont A Max	VCEO (sus) V Min	Device Type NPN	Device Type PNP	hFE @ Ic Min/Max A
7	80	2N5347		60/240—2
	100	2N5349		60/240—2
10	60	MJ6700		25/180-2
	80	2N6187		60/240-2
	100	2N6189		60/240-2

TO-66

Ic Cont A Max	VCEO (sus) Volts Min	Device Type NPN	Device Type PNP	hFE @ Ic Min/Max A	fT MHz Min
1	40		2N4898	20/100-0.5	3
	60		2N4899	20/100-0.5	3
	80	2N4912	2N4900	20/100-0.5	3
	175	2N3583	2N6424	40/200-0.5	10
	225	2N3738	2N6424	40/200-0.1	10
	250		2N5344	25/100-0.5	60
	300	2N3739	2N6425	40/200-0.1	10
			2N5345	25/100-0.5	60
1.5	300	MJ4360		5/25-1	4
	400	MJ4361		5/25-1	4
2	125	2N5050		25/100-0.75	10
	150	2N5051		25/100-0.75	10
	200	2N5052		25/100-0.75	10
	225		2N6211	10/100-1	20
	250	2N3584	2N6421	25/100-1	10
	300		2N6212	10/100-1	20
		2N3585	2N6422	25/100-1	10
	350		2N6213	10/100-1	20
3	140	2N3441		25/100-0.5	0.2
4	60				
		2N3766		40/160-0.5	10
		2N6294	2N6296	750/18k-2	4135-
	80				
		2N3767		40/160-0.5	10
		2N6295	2N6297	750/18k-2	4
	300	MJ4380		8/40-2	4
	400	MJ4381		8/40-2	4
5	225	2N6233		25/125-1	20
	275	2N6234		25/125-1	20
	300	MJ4400		12/60-1.5	6
	325	2N6235		25/125-1	20
	400		MJ4401	12/60-1.5	6
7	60	2N6315	2N6317	20/100-2.5	4
	80	2N5428		60/240-2	30
		2N6316	2N6318	20/100-2.5	4
	100	2N5430		60/240-2	30
	150	MJ15014	MJ15013	40-1	10
	250	2N6078		12/70-1.2	1
	275	2N6077		12/70-1.2	1
8	60	2N6300	2N6298	750/18k-4	4#
	80	2N6301	2N6299	750/18k-4	4#
10	80	2N6495		10/60-10	25

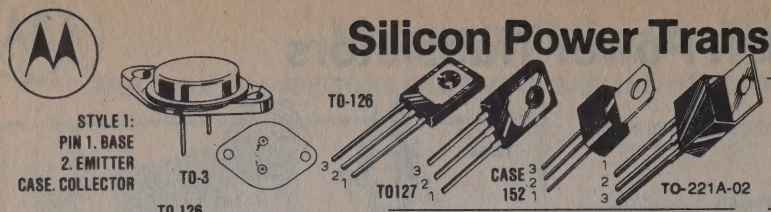
$|h_{fe}|$ @ 1 MHz

TO-126

TO-126: Case 77-03 Plastic. Style 1 (Case 77) Pin 1. Emitter 2. Collector 3. Base. Style 3 (Case 77R) Pin 1. Base 2. Collector 3. Emitter

Ic Cont A Max	VCEO (sus) Volts Min	Device Type NPN	Device Type PNP	hFE @ Ic Min/Max A	fT MHz Min
0.3	250	MJE3440		40/160-0.02	15
	350	MJE3439		40/160-0.02	15
0.5	150	MJE341		25/200-0.05	15
	200	MJE344		30/300-0.05	15
	250	2N5655		30/250-0.1	10

Silicon Power Transistors



3

TO-126

TO-126: Case 77-03 Plastic.Style 1 (Case 77) Pin 1. Emitter 2. Collector 3. Base. Style 3 (Case 77R) Pin 1. Base 2. Collector 3. Emitter

IC Cont A Max.	VCEO (sus) Volts Min.	Device Type NPN	Device Type PNP	HFE @ IC Min/ Max A	fT MHz Min
	300	MJ340	MJE350	30/240-0.05	
	350	2N5657		30/250-0.1	10
1	40	2N4921	2N4918	20/100-0.5	3
	60	2N4922	2N4919	20/100-0.5	3
	80	2N4923	2N4920	20/100-0.5	3
3	30	MJE520	MJE370	25-1	
	40	MJE180	MJE170	50/250-0.1	50
	60	MJE181	MJE171	50/250-0.1	50
	80	MJE182	MJE172	50/250-0.1	50
4	40	2N5190	2N5193	25/100-1.5	2
		MJE521	MJE371	40-1	
		2N6037	2N6034	750/18k-2	25
	60	2N5191	2N5194	25/100-1.5	2
		MJE800	MJE700	750-1.5	1#
		MJE801	MJE701	750-2	1#
		2N6038	2N6035	750/18k-2	25
	80	2N5192	2N5195	25/100-1.5	2
		MJE802	MJE702	750-1.5	1#
		MJE803	MJE703	750-2	1#
		2N6039	2N6036	750/18k-2	25
	100	MJE243	MJE253	40/120-02	40
5	25	MJE200	MJE210	45/180-2	65

• Case 77R (Style 3) (#) Ihfe @ 1 MHz.

TO-127

TO-127: Case 90-05 Plastic. Style 2: Pin 1. Emitter 2. Collector 3. Base

5	50	MJE205	MJE105	25/100-2	
	80	2N5979	2N5976	20/120-2.5	2
8	60	MJE6043	MJE6040	1k/20k-4	4#
	100	MJE6045	MJE6042	1k/20k-4	4#
10	60	MJE3055	MJE2995	20/70-4	2
12	40	2N5989	2N5986	20/120-6	2
	80	2N5991	2N5988	20/120-6	2
15	40	MJE1660	MJE1290	20/100-5	3

Case 152

Case 152: Style 1: Pin 1. Emitter 2. Base 3. Collector.

0.5	300	MPS-U10	MPS-U60	30-0.030	60
0.8	40	MPS-U02	MPS-U52	30-0.5	150
1	120	MPS-U03		40-0.010	100
	180	MPS-U04		40-0.010	100
2	30	MPS-U01	MPS-U51	50-1	50
	40	MPS-U45	MPS-U95	4K1	100
	60	MPS-U05	MPS-U55	60-0.25	50
	80	MPS-U06	MPS-U56	60-0.25	50
	100	MPS-U07	MPS-U57	30-0.25	50

TO-220: Case 221A-02 Plastic. Style 1: Pin 1. Base 2. Collector 3. Emitter 4. Collector.

1	80	TIP29B	TIP308	15/75-1	3
	100	TIP29C	TIP30C	15/75-1	3
	400	TIP50		30/150-0.3	10
2	60	TIP110	TIP115	500-2	25#
	300	TIP48		30/150-0.3	10
3	80	TIP31B	TIP32B	25-1	3
	100	TIP31C	TIP32C	25-1	3
4	45	2N6121	2N6124	25/100-1.5	2.5
	60	2N6122	2N6125	25/100-1.5	2.5
	80	2N6123	2N6126	20/80-1.5	2.5
		MJE802T	MJE702T	750-1.5	1#
		MJE803T	MJE703T	750-2	1#
	300	MJE13004		6/30-3	4
	400	MJE13005		6/30-3	4
5	60	TIP120	TIP125	1k-3	4#
	80	TIP121	TIP126	1k-3	4#
	100	TIP122	TIP127	1k-3	4#
	250	MJE51T		5-5	2.5
		2N6497		10/75-2.5	5
	300	MJE52T		5-5	2.5
		2N6498		10/75-2.5	5
	350	MJE53T		5-5	2.5
		2N6499		10/75-2.5	5
8	80	TIP41B	TIP42B	15/75-3	3
	100	TIP41C	TIP42C	15/75-3	3

#1hfel @ 1MHz

IC Cont A Max.	VCEO (sus) Volts Min.	Device NPN	Device PNP	HFE @ IC Min/ Max A	fT MHz Min
7	30	2N6288	2N6111	30/150-3	4
	50	2N6290	2N6109	30/150-2.5	4
	70	2N6292	2N6107	30/150-3	4
8	40	2N6386	2N6666	1k/20k-3	20#
	60	2N6043	2N6040	1k/10k-4	4#
		TIP100	TIP105	1k/20k-3	4#
	80	2N6044	2N6041	1k/10k-4	4#
		TIP101	TIP106	1k/20k-3	4#
	100	2N6045	2N6042	1k/10k-3	4#
		TIP102	TIP107	1k/20k-3	4#
	120	MJE15028	MJE15029	20-4	30
	150	MJE15030	MJE15031	20-4	30
	300	MJE13006		6/30-5	4
	400	MJE13007		6/30-5	4
10	60	MJE2801T	MJE2901T	25/100-3	
		MJE3055T	MJE2955T	20/70-4	
		2N6387	2N6667	1k/20k-5	20#
		SE9300	SE9400	100-4	1#
	80	2N6388	2N6668	1k/20k-5	20#
		D44H10	D45H10	20-4	50 typ
		D44H11	D45H11	40-4	50 typ
		SE9301	SE9401	100-4	1#
	100	SE9302	SE9402	100-4	1#
12	300	MJE13008		6/30-8	4
	400	MJE13009		6/30-8	4
15	40	2N6486	2N6489	20/150-5	5
	60	2N6487	2N6490	20/150-5	5
	80	2N6488	2N6491	20/150-5	5

TO-3
METAL TMOS POWER FETS

Case 1-04 and 1-05 Style 3: Pin 1. Gate. 2. Source. Case. Drain.

ID Cont Amps Max	VDSS Volts Min.	Device	RDS (on) @ (Ohms) Max	ID Amps	PD @ TC = 25°C Watts
1	1000	MTM1N100	10	0.5	75
	950	MTM1N95	10	0.5	75
2	900	MTM2N90	8	1	75
	850	MTM2N85	8	1	75
	600	MTM2N60	6	1	75
	550	MTM2N55	6	1	75
	500	MTM2N50	4	1	75
	500	MTM2P50**	6	1	75
	450	MTM2N45	4.6	1	75
	450	MTM2P45**	6	1	75
3	600	MTM3N60	2.8	1.5	75
	550	MTM3N55	2.8	1.5	75
	500	IRF432	2.5	1.5	75
	450	IRF433	2.5	1.5	75
	400	MTM3N40	3.3	1.5	75
	350	MTM3N35	3.3	1.5	75
3.5	400	IRF332	1.5	2	75
	350	IRF333	1.5	2	75
4	500	MTM4N50	2	2	75
	450	MTM4N45	2	2	75
5	400	MTM5N40	1.5	2.5	75
	350	MTM5N35	1.5	2.5	75
	200	MTM5N20	1	2.5	75
	180	MTM5N18	1	2.5	75
6	600	MTM6N60	1.5	3	150
	550	MTM6N55	1.5	3	150
7	500	MTM7N50	1.2	3.5	150
	450	MTM7N45	1.2	3.5	150
	200	MTM7N20	0.65	3.5	75
	180	MTM7N18	0.65	3.5	75
	150	MTM7N15	0.70	3.5	75
	120	MTM7N12	0.70	3.5	75
8	400	MTM8N40	0.80	4	150
	350	MTM8N35	0.80	4	150
	150	MTM8N15	0.50	4	75
	120	MTM8N12	0.50	4	75
	100	MTM8P10**	0.40	4	75
	80	MTM8P08**	0.40	4	75
10	150	MTM10N15	0.30	5	75
	120	MTM10N12	0.30	5	75
	100	MTM10N10	0.33	5	75
	100	IRF132	0.25	6	75
	80	MTM10N08	0.33	5	75
	60	IRF133	0.25	6	75

CALL NEWARK FOR ALL OF YOUR TRANSISTOR AND OTHER ELECTRONIC NEEDS.

TO-3 (CONT.)

12	200	MTM12N20	0.35	6	100
	180	MTM12N18	0.35	6	100
	150	MTM12N15	0.26	6	100
	120	MTM12N12	0.26	6	100
	100	MTM12N10	0.18	6	75
	80	MTM12N08	0.18	6	75
	60	MTM12N06	0.20	6	75
	50	MTM12N05	0.20	6	75
15	500	MTM15N50	0.50	7.5	250
	450	MTM15N45	0.50	7.5	250
	400	MTM15N40	0.40	7.5	250
	350	MTM15N35	0.40	7.5	250
	150	MTM15N15	0.22	7.5	125
	120	MTM15N12	0.22	7.5	125
	60	MTM15N06	0.16	7.5	75
	50	MTM15N05	0.16	7.5	75

PLASTIC TMOS POWER FETS

Case 221A-02 Style 5: Pin 1. Gate. 2. Drain. 3. Source. 4. Drain.

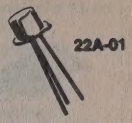
ID Cont Amps Max	VDSS Volts Min.	Device	RDS (on) @ (Ohms) Max	ID Amps	PD @ TC = 25°C Watts
1	1000	MTP1N100	10	0.5	75
	950	MTP1N95	10	0.5	75
	600	MTP1N60	12	0.5	40
	550	MTP1N55	12	0.5	40
	500	MTP1N50	8	0.5	40
	450	MTP1N45	8	0.5	40
2	900	MTP2N90	8	1	75
	850	MTP2N85	8	1	75
	600	MTP2N60	6	1	75
	550	MTP2N55	6	1	75
	500	MTP2N50	4	1	75
	500	MTP2P50**	6	1	75
	450	MTP2N45	4	1	75
	450	MTP2P45**	6	1	75
	400	MTP2N40	3.3	1	40
	350	MTP2N35	3.3	1	40
3	600	MTP3N60	2.5	1.5	75
	550	MTP3N55	2.5	1.5	75
	500	IRF832	2	2	75
	450	IRF833	2	2	75
	400	MTP3N40	3.3	1.5	75
	400	IRF732	1.5	2	75
	350	MTP3N35	3.3	1.5	75
	350	IRF733	1.5	2	75
	200	MTP3N20	2.2	1.5	50
	180	MTP3N18	2.2	1.5	50
4	500	MTP4N50	2	2	75
	450	MTP4N45	2	2	75
	150	MTP4N15	1.5	2	50
	120	MTP4N12	1.5	2	50
	100	MTP4N10	1	2	40
	80	MTP4N08	1	2	40
5	400	MTP5N40	1.5	2.5	75
	350	MTP5N35	1.5	2.5	75
	200	MTP5N20	1	2.5	75
	180	MTP5N18	1	2.5	75
	100	MTP5N10	1	2.5	50
	80	MTP5N08	1	2.5	50
6	60	MTP6N06	0.55	3	40
	50	MTP6N05	0.55	3	40
7	200	MTP7N20	0.65	3.5	75
	180	MTP7N18	0.65	3.5	75
	150	MTP7N15	0.70	3.5	75
	120	MTP7N12	0.70	3.5	75
	60	MTP7N06	.45	3.5	50
	50	MTP7N05	.45	3.5	50
8	200	MTP8N20	0.5	4	75
	180	MTP8N18	0.5	4	75
	150	MTP8N15	0.5	4	75
	120	MTP8N12	0.5	4	75
	100	MTP8N10	0.5	4	75
	100	MTP8P10**	0.40	4	75
	100	IRF532	0.25	4	75
	80	MTP8N08	0.50	4	75
	80	MTP8P08**	0.40	4	75
	80	IRF533	0.25	4	75
10	150	MTP10N15	0.30	5	75
	150	MTP1035	0.30	5	75
	120	MTP10N12	0.30	5	75
	120	MTP1034	0.30	5	75
	100	MTP10N10	0.33	5	75
	80	MTP10N08	0.33	5	75
	60	MTP10N06	0.28	5	75
	50	MTP10N05	0.28	5	75
12	100	MTP12N10	0.18	6	75
	80	MTP12N08	0.18	6	75
	60	MTP12N06	0.20	6	75
	50	MTP12N05	0.20	6	75
15	60	MTP15N06	0.16	7.5	75
	50	MTP15N05	0.16	7.5	75

**Indicates P-Channel

Silicon Controlled Rectifiers

ON-STATE (RMS) CURRENT

	0.8 AMP	1.6 AMPS	4.0 AMPS		8.0 AMPS			12 AMPS	16 AMPS		20 AMPS
	Sensitive Gate	Sensitive Gate	Sensitive Gate				Sensitive Gate				
Case	29-02 TO-92 Style 10	79-02 TO-39 Style 3	77-03 TO-126 Style 2		90-05 Style 1	221-02 TO-220AB Style 1		87L Style 1	221-02 TO-220-AB Style 1	263-03 Style 1	221-02 TO-220AB Style 1	175-02 Style 1
25 V	MCR102	MCR1906-1	MCR106-1	C106Y1	MCR3000-1		MCR72-1	2N4183		2N1842		MCR3918-1
50 V	MCR103	MCR1906-2	MCR106-2	C106F1	2N4441	C122F1	MCR72-2	2N4184	2N6394	2N1843	2N6400	MCR3918-2
100 V	MCR104	MCR1906-3	MCR106-3	C106A1	MCR3000-3	C122A1	MCR72-3	2N4185	2N6395	2N1844	2N6401	MCR3918-3
200 V	MCR120	MCR1906-4	MCR106-4	C106B1	2N4442	C122B1	MCR72-4	2N4186	2N6396	2N1846	2N6402	MCR3918-4
V_{DRM} 300 V	MCR100-5	MCR1906-5	MCR106-5	C106C1	MCR3000-5	C122C1	MCR72-5	2N4187	MCR220-5	2N1848	MCR221-5	MCR3918-5
V_{RRM} 400 V	MCR100-6	MCR1906-6	MCR106-6	C106D1	2N4443	C122D1	MCR72-6	2N4188	2N6397	2N1849	2N6403	MCR3918-6
500 V	MCR100-7	MCR1906-7	MCR106-7	C106E1	MCR3000-7	C122E1	MCR72-7	2N4189	MCR220-7	2N1850	MCR221-7	MCR3918-7
600 V	MCR100-8	MCR1906-8	MCR106-8	C106M1	2N4444	C122M1	MCR72-8	2N4190	2N6398		2N6404	MCR3918-8
700 V			MCR106-9		MCR3000-9	C122S1			MCR220-9		MCR221-9	MCR3918-9
800 V					MCR3000-10	C122N1			2N6399		2N6405	MCR3918-10


22A-01

79-02
TO-39

86

MAXIMUM ELECTRICAL CHARACTERISTICS

I_{TSM} Amps	10	15	25	20	80	C122 90/100	100	100	100	125	160	240
I_{GT} mA	0.2	1.0	0.2	0.2	30	C122 25/15	0.2	30	3.0	80	30	40
V_{GT} V	0.8	10	1.0	0.8	1.5	1.5	1.5	1.5	1.5	20	2.5	b1.5
I_H mA	5.0	5.0	5.0	3.0	40	C122 .30/20	6.0	30	40	—	40	50

ON-STATE (RMS) CURRENT

	25 AMPS		35 AMPS		55 AMPS		
Case	61 TO-41 Style 1	263-03 Style 1	174-03 Style 1	175-02 Style 1	310-01 Style 1	263-03 Style 1	311-01 Style 1
25 V	2N2573	2N681	MCR3835-1	MCR3935-1	MCR63-1	MCR64-1	MCR65-1
50 V	2N2574	2N682	MCR3835-2	MCR3935-2	MCR63-2	MCR64-2	MCR65-2
100 V	2N2575	2N683	2N3870	2N3896	MCR63-3	MCR64-3	MCR65-3
200 V	2N2576	2N685	2N3871	2N3897	MCR63-4	MCR64-4	MCR55-4
V_{DRM} 300 V	2N2577	2N687	MCR3835-5	MCR3935-5	MCR63-5	MCR64-5	MCR65-5
V_{RRM} 400 V	2N2578	2N688	2N3872	2N3898	MCR63-6	MCR64-6	MCR65-6
500 V	2N2579	2N689	MCR3835-7	MCR3935-7	MCR63-7	MCR64-7	MCR65-7
600 V	MCR649A8	2N690	2N3873	2N3899	MCR63-8	MCR64-8	MCR65-8
700 V	MCR649A9	2N691	MCR3835-9	MCR3935-9	MCR63-9	MCR64-9	MCR65-9
800 V	MCR649A10	2N692	MCR3835-10	MCR3935-10	MCR63-10	MCR64-10	MCR65-10

182-02

29-02

77-03

61

90-05

221-02

MAXIMUM ELECTRICAL CHARACTERISTICS

I_{TSM} Amps	260	200	350	350	550	550	550
I_{GT} mA	40	25	40	40	40	40	40
V_{GT} V	3.5	3.0	1.6	1.6	3.0	3.0	3.0
I_H mA	20 Typ	20 Typ	50	50	60	60	60

235-02

175-02

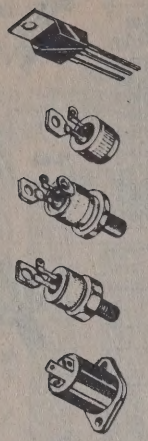
ON-STATE (RMS) CURRENT

	0.6 AMP	3.0 AMPS	4.0 AMPS		6.0 AMPS	8.0 AMPS		10 AMPS		12 AMPS	15 AMPS				
Case	29-02 TO-92 Style 12	TO-126 77-03 Style 7	TO-126 77-03 Style 5		221-02 TO-220AB Style 2			174-03 Style 3	175-02 Style 3	221-02 TO-220AB Style 2	174-03 Style 3	175-02 Style 3	311-01 Style 2	Case 235-02 Style 2	221-02 TO-220AB Style 2
25 V	MAC92-1		2N6068A	2N6068B		MAC222-1									
50 V	MAC92-2		2N6069A	2N6069B		MAC222-2	MAC220-2								
100 V	MAC92-3	SC136A	2N6070A	2N6070B	SC141A	MAC222-3	MAC220-3								
200 V	MAC92-4	SC136B	2N6071A	2N6071B	SC141B	MAC222-4	2N6342	SC246B	SC245B	2N6346A	SC251B	SC250B	2N6145	T4120B	MAC15-4 MAC15-A4
V_{DRM} 300 V	MAC92-5	SC136C	2N6072A	2N6072B	SC141C	MAC222-5	MAC220-5	SC246C	SC245C		SC251C	SC250C		T4120C	MAC15-5 MAC15-A5
400 V	MAC92-6	SC136D	2N6073A	2N6073B	SC141D	MAC222-6	2N6343	SC246D	SC245D	2N6347A	SC251D	SC250D	2N6146	T4120D	MAC15-6 MAC15-A6
500 V	MAC92-7	SC136E	2N6074A	2N6074B	SC141E	MAC222-7	MAC220-7	SC246E	SC245E		SC251E	SC250E		T4120E	MAC15-7 MAC15-A7
600 V	MAC92-8	SC136M	2N6075A	2N6075B	SC141M	MAC222-8	2N6344	SC246M	SC245M	2N6348A	SC251M	SC250M	2N6147	T4120M	MAC15-8 MAC15-A8
700 V					SC141S	MAC222-9	MAC220-9	SC246S	SC245S		SC251S	SC250S		T4120S	MAC15-9 MAC15-A9
800 V					SC141N	MAC222-10	2N6345	SC246N	SC245N	2N6349A	SC251N	SC250N		T4120N	MAC15-10 MAC15-A10

MAXIMUM ELECTRICAL CHARACTERISTICS

I_{TSM} Amps	8	30	30	30	80	80	100	120	100	100	120	100	100	100	100
I_{GT} @ 25°C mA															
MT2(+) G(+)	5.0	25	5.0	3.0	50	50	50	50	50	50	50	50	50	50	50
MT2(+) G(−)	5.0	25	5.0	3.0	50	50	75#	50	50	50	75	50	50	80	80
MT2(−) G(−)	5.0	25	5.0	3.0	50	50	50	50	50	50	50	50	50	50	50
MT2(−) G(+)	—		10	5.0		75#	75#		—	—	75	—	—	50	50
V_{GT} @ 25°C V			@−40°C	@−40°C											
MT2(+) G(+)	2.0	2.0	2.5	2.5	2.5	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
MT2(+) G(−)	2.0	2.0	2.5	2.5	2.5	2.0	2.5#	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
MT2(−) G(−)	2.0	2.0	2.5	2.5	2.5	2.0	2.5	2.5	2.5	2.5	2.0	2.5	2.5	2.5	2.5
MT2(−) G(+)	—		2.5	2.5		2.5#	2.5#		—	—	2.5	—	—	2.5	2.5

Silicon Controlled Rectifiers



ON-STATE (RMS) CURRENT

V_{DRM}	25 Amps Case 221A T0220AB	25 AMPS *326-01 Style 2				30 AMPS 263-03 Style 2	30 AMPS 311-01 Style 2		30 AMPS 310-01 Style 2	40 AMPS 263-03 Style 2	40 AMPS 311-01 Style 2	40 AMPS 326-01 Style 2	
100 V 200 V	MAC223-4 MAC223A4	MAC 20-4	MAC 20A4	MAC 25-4	MAC 25A4	T6411B	T6421B	T6401A T6401B	T6400B	T6401B	T6420B	MAC 50-4	MAC 50A4
300 V	MAC223-5 MAC223A5	MAC 20-5	MAC 20A5	MAC 25-5	MAC 25A5	T6411C	T6421C	T6401C	T6400C	T6410B	T6420C	MAC 50-5	MAC 50A5
400 V	MAC223-6 MAC223A6	MAC 20-6	MAC 20A6	MAC 25-6	MAC 25A6	T6411D	T6421D	T6401D	T6400D	T6410D	T6420D	MAC 50-6	MAC 50A6
500 V	MAC223-7 MAC223A7	MAC 20-7	MAC 20A7	MAC 25-7	MAC 25A7	T6411E	T6421E	T6401E	T6400E	T6410E	T6420E	MAC 50-7	MAC 50A7
600 V	MAC223-8 MAC223A8	MAC 20-8	MAC 20A8	MAC 25-8	MAC 25A8	T6411M	T6421M	T6401M	T6400M	T6410M	T6420M	MAC 50-8	MAC 50A8
700 V	MAC223-9 MAC223A9	MAC 20-9	MAC 20A9	MAC 25-9	MAC 25A9	T6411S	T6421S	T6401S	T6400S	T6410S	T6420S	MAC 50-9	MAC 50A9
800 V	MAC223-10 MAC223A10	MAC 20-10	MAC 20A10	MAC 25-10	MAC 25A10	T6411N	T6421N	T6401N	T6400N	T6410N	T6420N	MAC 50-10	MAC 50A10
Max. Elect. Char. I_{TSM}A		250	150	150	250	250	300	300	300	300	300	300	300
I_{GT}@25°CMA													
MT2(+)G(+)		50	50	50	70	70	50	50	50	50	50	70	70
MT2(+)G(−)		50	50	50	70	70	80	80	80	80	80	70	70
MT2(−)G(−)		50	50	50	70	70	50	50	50	50	50	70	70
MT2(−)G(+)		75#	—	75	—	100	80	80	80	80	80	—	100
V_{GT}@25°CV													
MT2(+)G(+)		2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.0	2.0
MT2(+)G(−)		2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.0	2.0
MT2(−)G(−)		2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.0	2.0
MT2(−)G(−)		2.5#	—	2.5	—	2.5	2.5	2.5	2.5	2.5	2.5	—	2.5

*UL Recognized File #E69369

UNIJUNCTION TRASISTORS

Package	Device Type	η Min	η Max	I_p µA Max	I_{EB20} µ MAx	IV mA Min
Plastic Case 29-02 (TO-92)	MU10	0.50	0.85	5.0	1.0	1.0
	2N4870	0.56	0.75	5.0	1.0	2.0
	2N4871	0.70	0.85	5.0	1.0	4.0
	MU2646	0.56	0.75	5.0	12	4.0
	MU4891	0.55	0.82	5.0	0.01	2.0
	MU4892	0.51	0.69	2.0	0.01	2.0
	MU4893	0.55	0.82	2.0	0.01	2.0
	MU4894	0.74	0.86	1.0	0.01	2.0
Metal Case 22A-01	MU20	0.50	0.85	5.0	1.0	1.0
	2N2646	0.56	0.75	5.0	12	4.0
	2N2647	0.68	0.82	2.0	0.2	8.0
	2N3980	0.68	0.82	2.0	0.01	1.0
	2N4851	0.56	0.75	2.0	0.1	2.0
	2N4852	0.70	0.85	2.0	0.1	4.0
	2N4853	0.70	0.85	0.4	0.05	6.0
	2N4948*	0.55	0.82	2.0	0.01	2.0
	2N4949*	0.74	0.86	1.0	0.01	2.0
	2N5431*	0.72	0.80	0.4	0.01	2.0

*Also available as JAN and JANTX devices.

BILATERAL TRIGGERS

Device Type	V_s Volts	I_s µA Max
1N5758/MPT20	20 ± 4.0	100
1N5760/MPT28	28 ± 4.0	100
1N5761/MPT32	32 ± 4.0	100
1N5762	36 ± 4.0	100
1N5758A	20 ± 2.0	25
1N5761A	32 ± 2.0	25

SILICON BIDIRECTIONAL SWITCH

TYPE	V_s VOLTS MIN	V_s VOLTS MAX	I_s µA MAX	I_H mA MAX
MBS4991	6.0	10	500	1.5
MBS4992	7.5	9.0	120	0.5

PROGRAMMABLE UNIJUNCTION TRANSISTORS

Package	Device Type	P R_G= 10kΩ µMax	P R_G= 1.0MΩ µMax	I_{GAO} @ 40V nA Max	Iv R_G= 10kΩ µA Min	Iv R_G= 1.0MΩ µA Max
Plastic Case 29-02 TO-92	2N6027	5.0	2.0	10	70	50
	2N6028	1.0	0.15	10	25	25
	MPU6027	5.0	2.0	10	70	50
	MPU6028	1.0	0.15	10	25	25
	MPU131	5.0	2.0	5.0	70	50
	MPU132	2.0	0.3	5.0	50	50
	MPU133	1.0	0.15	5.0	50	25
Metal Case 22-03 To-18	2N6116*	5.0	2.0	5.0	70	50
	2N6117*	2.0	0.3	5.0	50	50
	2N6118*	1.0	0.15	5.0	50	25

*Also available as JAN and JANTX devices.

Low Power Schottky Advanced Low Power Schottky

J Suffix

The Advanced Low Power Schottky TTL family (ALS TTL) provides a 50% power reduction compared to standard 74LS TTL.

N Suffix

SN74 Device	Function	Pins
LS00*	Quad 2-Input NAND Gate	14
LS01	Quad 2-Input NAND Gate 00/C	14
LS02*	Quad 2-Input NOR Gate	14
LS03	Quad 2-Input NAND Gate 0/C	14
LS04	Hex Inverter	14
LS05	Hex Inverter 0/C	14
LS08*	Quad 2-Input AND Gate	14
LS509	Quad 2-Input AND Gate 0/C	14
LS10	Triple 3-Input	14
LS11	Triple 3-Input AND Gate	14
LS12	Triple 3-Input NAND Gate O/C	14
LS13	Dual 4-Input Schmitt Trigger	14
LS14	Hex Schmitt Trigger	14
LS15	Triple 3-Input AND Gate 0/C	14
LS20	Dual 4-Input NAND Gate	14
LS21	Dual 4-Input AND Gate	14
LS22	Dual 4-Input NAND Gate 0/C	14
LS26	Quad 2-Input NAND (Hi Voltage)	14
LS27	Triple 3-Input NOR Gate	14
LS28	Quad 2-Input NOR Buffer	14
LS30	8-Input NAND Gate	14
LS32	Quad 2-Input OR Gate	14
LS33	Quad 2-Input NOR 0/C	14
LS37	Quad 2-Input NAND Buffer	14
LS38	Quad 2-Input NAND Buffer 0/C	14
LS40	Dual 4-Input NAND Buffer	14
LS42	1-of-10 Decoder	16

*Technology available in ALS series.

SN74 Device	Function	Pins
LS47	BCD-to-Seven segment Dcdr/Dvr 0/C	16
LS48	BCD-to-Seven Segment Dcdr/Dvr	16
LS49	BCD-to-Seven Segment Dcdr/Dvr 0/C	16
LS51	Dual AOI Gate	14
LS54	2-3 3-2-Input AOI Gate	14
LS55	2-Wide 4-Input AOI Gate	14
LS73A	Dual J-K Flip-Flop	14
LS74A	Dual D Flip-Flop	14
LS75	4-Bit Bi-Stable Latch	16
LS76A	Dual J-K Flip-Flop	16
LS77	4-Bit Bi-Stable Latch	14
LS78A	Dual J-K Flip-Flop	14
LS83A	4-Bit Full Adder	16
LS85	4-Bit Magnitude Comparator	16
LS86	Quad Exclusive OR Gate	14
LS90	Decade Counter	14
LS91	8-Bit Shift Reg. SISO	14
LS92	Divide-by-12 Counter	14
LS93	4-Bit Binary Counter	14
LS95B	4-Bit Shift Register	14
LS107A*	Dual J-K w/clear	14
LS109A	Dual J-K Flip-Flop	16
LS112A	Dual J-K Edge-Triggered Flip-Flop	16
LS113A	Dual J-K Edge-Triggered Flip-Flop	14
LS114A	Dual J-K Edge-Triggered Flip-Flop	14
LS122	Retrig Mono Multvib (Int Res)	14
LS123	Dual Retrig Mono Multvib	16

SN74 Device	Function	Pins
LS125A	Quad 3-State Buffer (LOW Enable)	14
LS126A	Quad 3-State Buffer (HIGH Enable)	14
LS132	Quad 2-Input Schmitt Trigger	14
LS133	13-Input NAND Gate	16
LS136	Quad Exclusive OR 0/C	14
LS137	3-8 Line DCDR/DEMUX/ W-Add. Latch	16
LS138*	1-of-8 Dcdr/Demux	16
LS139*	Dual 1-of-4 Dcdr/Demux	16
LS145	1 of 10 decoder/driver, open-collector	16
LS147	10-4 Line Encoder	16
LS148	8 to 3 Line Encoder	16
LS151*	8-Input Mux	16
LS153*	Dual 4-Input Mux	16
LS155	Dual 1-of-4 Decoder	16
LS156	Dual 1-of-4 Decoder 0/C	16
LS157*	Quad 2-Input Mux (Non-Inverting)	16
LS158*	Quad 2-Input Mux (Inverting)	16
LS160A*	BCD Decode Ctr Asyn Reset	16
LS161A*	4-Bit Ctr Asyn Reset	16
LS162A*	BCD Decode Ctr Synch Reset	16
LS163A*	4-Bit Binary Ctr Synch Reset	16
LS164	8-Bit Serial In/Parallel Out S.R.	14
LS165	8-Bit Parallel In/Serial Out S.R.	16
LS166	8-Bit PISO Shift Reg.	16
SL168*	Up/Down Decode counter	16

SN74 Device	Function	Pins
LS169*	Up/Down Binary Counter	16
LS170	4x4 Register File 0/C	16
LS173	4-Bit D Register, 3-State	16
LS174	Hex D/ Flip-Flop w/Clear	16
LS175	Quad D Flip-Flop w/Clear	16
LS181	4-Bit ALU	24
LS182	Look-ahead Carry Gen	16
LS183	Dual carry/save full adder	14
LS190*	Up/Down Decorate Counter	16
LS191*	Up/Down Binary Counter	16
LS192*	Up.Down Decade Counter	16
LS193*	Up/Down Binary Counter	16
LS194A	4-Bit Right/left S.R.	16
LS195A	4-Bit S.R. (9300 TYPE)	16
LS196	Decade Counter	14
LS197	4-Bit Binary Counter	14
LS221	Dual One-Shot Very Stable	16
LS240*	Octal Inv. Bus/Line Driver 3-State	20
LS241*	Octal Bus/Line Driver, 3-State	20
LS242*	Quad Bus Transceiver/ Inverting	14
LS243*	Quad Bus Transceiver/ Non-Inverting	14
LS244*	Octol 3-State Driver/ Non-Inverting	20
LS245*	Octal Bus Transceiver/ Non-Inverting	20
LS247	BCD-to-Seven Segment Dcdr/Dvr 0/C	16
LS248	BCD-to-Seven Segment Dcdr/Dvr	16
LS249	BCD-to-Seven Segment Dcdr/Dvr 0/C	16

Low Power Schottky Advanced Low Power Schottky

SN74 Device	Function	Pins
LS251*	8-Input Mux, 3-State	16
LS253*	Dual 4-Input Mux, 3-State	16
LS256	Dual 4-Bit Add Latch	16
LS257*	Quad 2-Input Mux, 3-State	16
LS258	Quad 2-Input Mux, 3-State	16
LS259	8-Bit Addressable Latch	16
LS260	Dual 5-Input NOR Gate	14
LS266	Quad Exclusive NOR Gate 0/C	14
LS273*	Octal D Flip-Flop w/M.R.	20
LS279	Quad Set/Reset Latch	16
LS280	9-Bit Odd/Even parity Gen/Check	14
LS283	4-Bit Full Adder	16
LS290	Decade Counter	14
LS293	4-Bit Binary Counter	16
LS295B	4-Bit S.R., 3-State	14
LS298	Quad 2-Mux w/Out Reg.	16
LS299	8-Bit Shift/Storage reg. 3-S	20
LS322	8-Bit Shift reg. w/sign extend, 3-S	20
LS323	8-Bit Shift/Storage reg. 3-S	20
LS348	8 to 3 Line Priority Encoder, 3-S	16
LS352*	Dual 4-Mux	16
LS353*	Dual 4-Mux	16
LS365A	Hex Buffer, 3-State, Common Enable	16
LS366A	Hex Inv, 3-State, Common	16
LS367A	Hex Buffer, 3-State, 4-Bit & 2-Bit	16
LS368A	Hex Inv, 3-State, 4-Bit & 2-Bit	16
LS373*	Oct Trans. Latch 3-S	20
LS374*	Octal D FF 3-S	20
LS375	Quad Latch	16
LS377*	Octal D Flip-Flop w/Enable	20
LS378	Hex D Flip-Flop w/Enable	16
LS379	4-Bit Flip-Flop w/Enable	16
LS385	Quad Adder/Subtractor (4-Bit)	20

SN74 Device	Function	Pins
LS386	Quad Exclusive-OR Gates	14
LS390	Dual Decade Counter	16
LS393	Dual 4-Bit Binary Counter	14
LS395A	S.R., 3-State 4-Bit	16
LS398	LS399 w/Q & Q Outputs	16
LS399	Quad 2-Mux w/Out reg.	20
LS490	Dual Decade Counter	16
ALS537	1-of-10 Decoder, 3-State	20
ALS538	1-of-8 Decoder, 3-State	20
ALS539	Dual 1-of-4 Decoder, 3-State	20
ALS540*	Octal Butter, 3-State	20
ALS541*	Octal Buffer, 3-State	20
ALS560	4-Bit Decade Counter, 3-State	20
ALS561	4-Bit Binary Counter, 3-State	20
LS568*	Dec. UP/DOWN Count, 3-S	20
LS569*	Bin UP/DOWN Count, 3-S	20
ALS573*	Octal Transparent Latch, 3-State	20
ALS574*	Octal D Flip-Flop, 3-State	20
ALS76*	Octal D Flip-Flop, Inverting, 3-State	20
ALS580*	Octal Transparent Latch, Inverting, 3-State	20
LS604	16-to-8 Multiplexer, 3-State	28
LS605	16-to-8 Multiplexer, Open Collector	28
LS606	16-to-8 Multiplexer, 3-State	28
LS607	16-to-8 Multiplexer, Open-Collector	28
ALS620	Octal Transceiver with Storage, 3-State	20
ALS621	Octal Transceiver with Storage, Open-Collector	20
ALS622	Octal Transceiver with Storage, Open-Collector	20
ALS623	Octal Transceiver with Storage, 3-State	20
ALS638	Octal Bus transceiver, Inverting, 3-State	20
ALS639	Octal Bus Transceiver, 3-State	20

SN74 Device	Function	Pins
LS640*	Oct Inv XCVR, 3-S	20
ALS641*	Oct N-Inv XCVR w-o/c	20
LS642*	Oct. Inv XCVR w-o/C	20
LS643*	Oct True/Inv XCVR 3-S	20
LS644*	Oct True/Inv XCVR O/C	20
LS645	Oct N-Inv XCVR 3-S	20
ALS646	Octal Transceiver/Latch/Multiplexer, Noninverting, 3-State	24
ALS647	Octal Transceiver/Latch/Multiplexer Noninverting, Open-Collector	24
ALS648	Octal Transceiver/Latch/Multiplexer, Inverting, 3-State	24
ALS649	Octal Transceiver/Latch/Multiplexer, Inverting, Open-Collector	24
LS668*	Sync 4-Bit Umar/Down Decade Counter	16
LS669*	Sync 4-Bit Umar/Down Binary Counter	16
LS670	4x4 Reg File (3-State)	16
ALS671	Binary Bidirectional Shift Register/Latch/Multiplexer, 3-State	20
ALS672	BCD Bidirectional Shift Register/Latch/Multiplexer, 3-Stage	20
LS673	16-Bit SISO Shift Reg. 3-S	24
LS674	16-Bit PISO Shift Reg. 3-5	24
LS682	8-Bit Magnitude Comparator, 3-State	20
LS683	8-Bit Magnitude Comparator, Open-Collector	20
LS684	8-Bit Magnitude Comparator, 3-State	20
LS685	8-Bit Magnitude Comparator, Open-Collector	20
LS686	8-Bit Magnitude Comparator with Enable	24
LS687	8-Bit Magnitude Comparator with Enable	24
LS688	8-Bit Magnitude Comparator, 3-State	20

SN74 Device	Function	Pins
LS689	8-Bit Magnitude Comparator, Open-Collector	20
ALS690	Decade Counter/Latch/Multiplexer, Asynchronous Reset 3-State	20
ALS691	Binary Counter/Latch/Multiplexer, Asynchronous Reset, 3-State	20
ALS692	Decade Counter/Latch/Multiplexer, Synchromous Reset, 3-State	20
ALS693	Binary Counter/Latch/Multiplexer, Synchronous Reset, 3-State	20
ALS696	Decade Counter/Register/Multiplexer, 3-State	20
ALS697	Binary Counter/Register/Multiplexer, 3-State	20
ALS698	Decade Counter/Register/Multiplexer, 3-State	20
ALS699	Binary Counter/Register/Multiplexer, 3-State	20
LS716	Programmable Decade Counter, (MC-4016)	16
LS718	Programmable Binary Counter, (MC-4018)	16
LS748	8-Input to 3-Line Priority Encoder Glitchless)	16
LS783*	Synchronous Address Multiplexer MC6883)	40
LS795	Octal Buffer (81LS95), 3-State	20
LS796	Octal Buffer (81LS96), 3-State	20
LS797	Octal Buffer (81LS97), 3-State	20
LS798	Octal Buffer (81LS98), 3-State	20
LS848	8-Input to 3-Line Priority Encoder, 3-State	16
ALS873*	Octal transparent Latch	24
ALS874*	Octal D Flip-Flop	24
ALS876*	Octal D Flip-Flop, Inverting	24
ALS880*	Octal Transparent Latch, Inverting	24

*Technology available in ALS series.

High Speed CMOS & High Speed Schottky

The Fast Schottky TTL provides a 75-80% power reduction compared to standard 74S TTL.

The High Speed CMOS features low power dissipation with LS TTL Speeds and LS TTL Pinouts.

MC Device	Function	Pins
74HC00*	Quad 2-Input NANO Gate	14
74HC02*	Quad 2-Input NOR Gate	14
74HC04*	Hex Inverter	14
74HC08*	Quad 2-Input AND Gate	14
74HC10*	Triple 3-Input NAND Gate	14
74HC11*	Triple 3-Input AND Gate	14
74HC14	Hex Schmitt-Trigger Inverter	14
74HC20*	Dual 4-Input NAND Gate	14
74HC27	Triple 3-Input NOR Gate	14
74HC30	8-Input NAND Gate	14
74HC32*	Quad 2-Input OR Gate	14
74HC42	1-of-10 Decoder	14
74F64	4-2-2-3 Input and/or/Invert Gate	14
74HC73	Dual J-K Flip-Flop with Clear	14
74HC74*	Dual D-Type Flip-Flop with Set and Clear, Positive-Edge Triggered	16
74HC75	4-Bit D-Type Latch	16
74HC76	Dual J-K Flip-Flop with Set and Clear	16
74HC77	4-Bit Bistable Latch	16
74HC85	4-Bit Magnitude Comparator	16
74HC86	Quad 2-Input Exclusive OR Gate	16
74HC107	Dual J-K Flip-Flop with Clear	16
74HC109*	Dual J-K Flip-Flop with Set and Clear, Positive-Edge Triggered	16
74HC112*	Dual J-K Flip-Flop with Set and Clear, Negative-Edge Triggered	16
74F113	Dual J-K Flip-Flop	14
74HC123	Dual Monostable	14
74F124	Vltg. Cutled. Octr.	14
74HC132	Quad 2-Input Schmitt Trigger NAND Gate	14
74HC133	13-Input NAND Gate	16
74HC138*	1-of-8 Decoder	16
74HC139	Dual 1-of-4 Decoder	16
74HC147	10-to-4 Priority Encoder	16
74HC151*	8-Input Multiplexer	16
74HC153*	Dual 4-Ply Multiplexer	16
74HC154	4-to-16 Decoder	16
74HC152*	Quad 2-Input Date Selector/Multiplexer	16

MC Device	Function	Pins
74HC158*	Quad 2-Input Date Selector/Multiplexer Inverting Output	16
74HC160	Decade Counter, Asynchronous Clear	16
74HC161	4-Bit Binary Counter, Asynchronous Clear	16
74HC162	Decode Counter, Synchronous Clear	16
74HC163	4-Bit Binary Counter, Synchronous Clear	16
74HC164	8-Bit Serial-to-Paralle Shift Register	16
74HC165	Parallel-Load 8-Bit Shift Register	16
74HC173	4-Bit D-Type Register, 3-State	16
74HC174*	Hex D-Type Flip-Flop	16
74HC175*	Quad D-Type Flip-Flop	16
74HC192	BCD Decade Up/Down Counter	16
74HC193	4-Bit Binary Up/Down Counter	16
74HC194*	4-Bit Bidirectional Universal Shift Register	16
74HC195*	4-Bit Universal Shift Register	16
74HC221	Dual Monostable Multivibrator	16
74HC240*	Octal Buffer/Line Driver/Line Receiver 3-State, Inverting Output	16
74HC241*	Octal Buffer/Line Receiver, 3-State	16
74HC242*	Quad Bus Transceiver, 3-State, Inverting Output	16
74HC243*	Quad Bus Transceiver, 3-State	16
74HC244*	Octal Buffer/Line Driver/Line Receiver 3-State	20
74HC245*	Octal Bus Transceiver, 3-State	20
74HC251*	8-Input Multiplexer, 3-State	16
74HC253*	Dual 4-Input Multiplexer, 3-State	16
74HC257*	Quad 2-Input Date Selector/Multiplexer 3-State	16

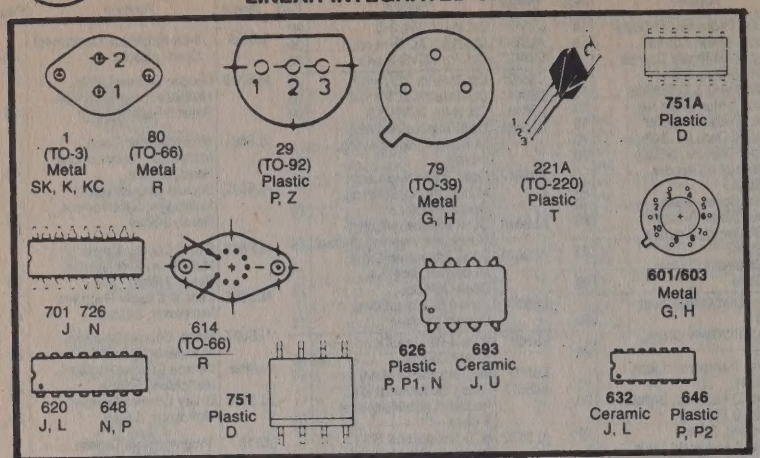
MC Device	Function	Pins
74F258	Quad 2-Input Mutipxt.	16
74HC259	8-Bit Addressable Latch 3-State	16
74HC266	Quad 2-Input Exclusive NOR Gate	16
74HC280	9-Bit Odd/Even Parity Generator/Checker	16
74HC299	8-Bit Universal Shift/Store Register, 3-State	16
74F352	Dual 4 Input Multiplexer	16
74F353	Multiplexer	16
74HC354	8-Input Multiplexer, 3-State	16
74HC356	8-Input Multiplexer, 3-State	16
74HC365	Hex 3-State Bus Driver with Common 2-Input NDR Enable	16
74HC366	Hex 3-State Bus Driver with Common 2-Input NDR Enable, Inverting Output	16
74HC367	Hex 3-State Bus Driver with Separate 2-Bit and 4-Bit Sections	16
74HC368	Hex 3-State Bus Driver with Separate 2-Bit and 4-Bit Sections, Inverting Output	16
74HC373*	Octal D-Type Transparent Latch, 3-State	20
74HC374*	Octal D-Type Flip-Flop, 3-State	20
74HC390	Dual Decade Counter	20
74HC393	Dual 4-Bit Binary Counter	20
74HC423	Dual Monostable Multivibrator	20
74HC533*	Octal D-Type Transparent Latch, 3-State, Inverting Output	20
74HC534*	Octal D-Type Flip-Flop, 3-State, Inverting Output	20
74F538	1 of 8 Decoder	20
73F539	1 of 4 Decoder	20
74HC563	Octal D-Type Transparent Latch, 3-State, Inverting Output	20
74HC564	Octal D-Type Flip-Flop, 3-State, Inverting Output	20
74HC573	Octal D-Type Transparent Latch, 3 State	20

MC Device	Function	Pins
74HC574	Octal D-Type Flip-Flop, 3-State	20
74F620		
74HC649*	Octal Bus Transceiver, 3-State	20
74HC643*	Octal Bus Transceiver, 3-State	20
74HC645*	Octal Bus Transceiver, 3-State	20
74HC646	Octal Bus Transceiver and Register, 3-State	20
74HC648	Octal Bus Transceiver and Register, 3-State	20
74HC688	8-Bit Equality Comparator	20
74HC4002	Dual 4-Input NOR Gate	20
74HC4017	Decade Counter-Divider	20
74HC4020	14-Stage Binary Counter	20
74HC4040	12-Stage Binary Counter	20
74HC4049	Hex Inverting Buffer	20
74HC4050	Hex Buffer	20
74HC4060	14-Stage Binary Counter	20
74HC4075	Triple 3-Input OR Gate	20
74HC4078	8-Input NOR Gate	20
74HC4301	Octal Latch/Level Translator, Inverting Output	20
74HC4302	Octal Latch/Level Translator	20
74HC4303	Octal Flip-Flop/Level Translator, Inverting Output	20
74HC4304	Octal Flip-Flop/Level Translator	20
74HC305	Octal Buffer/Level Translator, Inverting Output	20
74HC4306	Octal Buffer/Level Translator	20
74HC4511	BCD-to-7-Segment Latch/Decoder/Driver	20
74HC4514	4-Bit Latch/4-to-16 Line Decoder	20
74HC4538	Dual Precision Retriggerable/Resettable Monostable Multivibrator	20
74HC4543	BCD-to-7 Segment Latch/Decoder/Drive for Liquid-Crystal Displays	20

*Technology available in F series.

Motorola Selector Guide

LINEAR INTEGRATED CIRCUITS



3

Single Operational Amplifiers Noncompensated

Device	Description	Packages
Military Range (–55°C to +125°C)		
MC1539	High Slew Rate	601,632
MC1709	General Purpose	601,632,693
MC1748	General Purpose	601,693
Commercial Temperature Range (0°C to +70C)		
LM11C	Precision	601,693,626
LM301A	General Purpose	601,626,693,751
LM308	Precision	601,626,693
LM308A	Precision	601,626,693
MC1439	High Slew Rate	601,626,632,646
MC1709C	General Purpose	601,626,632 646,693
MC1748C	General Purpose	601,626,693

Internally Compensated

Device	Description	Packages
Military Range (–55°C to +125°C)		
LF155	FET Input	601,693
LF156	FET Input	601,693
LF157	Wideband FET Input	601,693
LM107	General Purpose	601,693
MC1556	High Performance	601,632
MC1741	General Purpose	601,632,693
MC1741S	High Slew Rate	601,632,693
MC1776	µPower, Programmable	601,632
MC35001	TRIMFET Input	601,693
Commercial Temperature Range (0°C to +70°C)		
LF355	FET Input	626,601,693
LF356	FET Input	626,601,693
LF357	Wideband FET Input	626,601,693
LM307	General Purpose	601,626,693
MC1436	High Voltage	601
MC1456	High Performance	601,632
MC1733C	Differential Wideband Video Amp	601,632,646
MC1741C	General Purpose	601,632,626, 646,693
MC1741NC	Low Noise	601,632,626, 646,693
MC1741SC	High Slew Rate	601,632,626, 646,693
MC1776C	µPower, Programmable	601
MC3476	Low Cost µPower, Programmable	601,626
MC34001	TRIMFET Input	601,626,693,751

Quad Operational Amplifiers Internally Compensated

Device	Description	Packages
Military Temperature Range (–55°C to +125°C)		
MC3503	General Purpose Low	632,646
MC4741	Power Quad MC1741	632,646
MC35004	Trimmed FET Input	632
Commercial Temperature Range (0°C to +70°C)		
LM324	Low Power Consumption	632,646,751A
LM348	Quad MC1741	632,646,751A
MC3401	Norton Input	632,646
MC3403	No Crossover Distortion	632,646,751A
MC4741C	Quad MC1741	632,646
MC34004	Trimmed FET Input	632,646

Dual Operational Amplifiers Internally Compensated

Device	Description	Packages
Military Temperature Range (-55C to +125C)		
MC1558	Dual MC1741	601,632,693
MC1558N	Low Noise	601,632,693
MC1558S	High Slew Rate	601,632,693
MC1747	Dual MC1741	601,632
MC3558	Split Supplies	601,632,693
MC4558	High Frequency	601,632,693
MC35002	TRIMFET Input	601,693
Commercial Temperature Range (0°C to +70°C)		
LM358	Split Supplies	601,626,693,751
MC1458	Dual MC1741	601,626,632, 646,693,751
MC1458C	Dual General Purpose	601,626,632, 646,751
MC1458N	Low Noise	601,626,632, 646,693
MC1458S	High Slew Rate	601,626,632, 646,693
MC1747C	Dual MC1741	603,632,646
MC3458	Split Supplies	601,626,693
MC4558C	High Frequency	601,626,693,751
MC34002	TRIMFET Input	601,626,693,751
MC34022	Precision TRIMFET Input	601,626,693

Noncompensated

Military Temperature Range (-55°C to +125°C)		
MC1537	Dual MC1709	632
Commercial Temperature Range (0°C to +70°C)		
MC1437	Dual MC1709	632,646

Device Type Positive Output	Device Type Negative Output	Volts	Io Max	Case
MC78T18C	—	18	3000	1,221A
MC78M20C	—	20	500	79,221A
MC78L24C	MC79L24C	24	100	29,79
MC78L24AC	MC79L24AC	24	100	29,79
MC78M24C	—	24	500	79,221A
MC7824C	MC7924C	24	1500	1,221A
MC78T24C	—	24	3000	1,221A

Fixed Output Voltage Regulators

	MC7902C	2	1500	1,221A
	MC79L03C	3	100	29,79
	MC79L03C	3	100	29,79
MC78L05C	MC79L05C	5	100	29,79
MC78M05C	—	5	500	79,221A
LM309	—	5	1500	1,79
MC7805C	MC7905C	5	1500	
MC78T05C	—	5	3000	
MC78M06C	—	6	500	
MC7806C	MC7906C	6	1500	1,221A
MC78T06C	—	6	3000	1,221A

Switching Regulators

Device No.	VCC Volts	f_o kHz	Io mA Max.	Case
MC3420	10-30	2-100	40	648
MC3420L	10-30	2-100	40	620
MC34060L	7-40	1-200	200	632
MC34060P	7-40	1-200	200	646
TL494	7-40	1-300	250	648
TL495	40*	1-300	250	701

*TL495 features a 39-V zener for high-voltage operation.

Device Type Positive Output	Device Type Negative Output	Vout Volts	Io mA Max	Case
MC78L08C	—	8	100	29,79
MC79M08C	—	8	500	79,221A
MC7808C	MC7908C	8	1500	1,221A
MC78T08C	—	8	3000	1,221A
MC78L12C	MC79L12C	12	100	29,79
MC78M12C	—	12	500	79,221A
MC7812C	MC7912C	12	1500	1,221A
MC78T12C	—	12	3000	1,221A
MC78L15C	MC79L15C	15	100	29,79
MC78M15C	—	15	500	79,221A
MC7815C	MC7915C	15	1500	1,221A
MC78T15C	—	15	3000	1,221A
M78L18C	MC79L18C	18	100	29,79
MC78M18C	—	18	500	79,221A
MC7818C	MC7918C	18	1500	1,221A

Variable Output Voltage Regulators

Positive Output Regulators

Type Device	Vout VDC	Max. Io mA	Max. PcW	Case
MC1723	2.0-37	150	1.25	646
MC1723	2.0-37	150	1.0	603C
MC1469	2.5-32	250	0.68	603
MC1469	2.5-32	600	3.0	614
LM317	1.2-37	1500	Inter-nally Limited	221A
LM317	1.2-37	1500	Inter-nally Limited	79,1
LM350	1.2-33	3000	Inter-nally Limited	221A
LM350	1.2-33	3000		1
LM250	1.2-33	3000		1
LMC150*	1.2-33	3000		1

Negative Output Regulators

MC1463	3.8 –32	250	0.68	603
MC1463	3.8 –34	600	2.4	614
**LM337	1.2 –37	1500	Inter-nally Limited	221A
**LM337	1.2 –37	1500		79,1

Competitive Marked Device

Device	Description	Case
CA3059 CA3079	Zero Crossing Switch	646 646
LM304H	Neg. Voltage Reg.	603
LM305H	Pos. Voltage Reg.	601
LM307N	Op Amp	626
LM311N LM311J-8	Comparator	626 693
LM324J LM324N	Quad Op Amp	632 646
LM339AN LM339N	Quad Comparator	646 646
LM348J LM348N	Quad 741	632 646
LM358H LM358N	Dual Op Amp	601 626
LM723CH LM723CJ LM723CN	Voltage Reg.	603 632 646
LM741CH LM741CN	Op Amp	601 626
LM2902N	Quad Op Amp	646
LM2904H LM2904N	Dual Op Amp	601 626
N8T26AB N8T28B	Quad Transceiver	648 648
N8T95B N8T96B N8T97B N8T98B	Hex buffer	648 648 648 648
NE555V	Timer	626
NE556A	Dual 555	646
NE565A	Phase-Locked Loop	646
NE592A NE592K	Video Amp	646 603
UA710HC	Comparator	601
UA711HC	Dual Comparator	603
UA723DC UA723HC UA723PC	Voltage Reg.	632 601 646
UA741DC UA741HC UA741TC	Op Amp	632 601 626
ULN2001A ULN2002A ULN2003A ULN2004A	Darlington Drivers	648 648 648 648

Motorola Selector Guide

LINEAR INTEGRATED CIRCUITS

DIGITAL-TO-ANALOG CONVERTERS

Type	Description	Case
MC1406L	6 bit	632
MC1408L8	8 bit	620
MC3410CL	10 bit	690
MC3410L	10 bit	690

VOLTAGE COMPARATORS

MC1414L	Dual Comparator	620
MC1414P		646
MC1711CL		620
MC1711CP		646
LM311PI		626
LM311U		693
MC3302P	Quad Comparator	646
LM339N		648

MPU, MEMORY INTERFACE FUNCTIONS

Type	Description	Case
MC6875L	MC6800 Clock Driver	620
MC6880AL	Quad Data bus transceivers	620
MC6880AP		648
MC6889L		620
MC6889P		648
MC6885L	Hex Address Buffers	620
MC6885P		648
MC6886L		620
MC6886P		648
MC6887L		620
MC6887P		648
MC6888L		620
MC6888P		648
MC6882AL	Octal Buffer/Latch	732
MC6882BL		732
MC3232AL	Address DeMux/ Refresh 4K RAM	623
MC3232AP		649
MC3242AL	Address DeMux/ Refresh 16K RAM	733
MC3242AP		710
MC3480L	Dynamic RAM Controller	623
MC3480P		649

LOW TEMP DRIFT VOLTAGE REFERENCES

Type	Output Voltage V	Case
MC1403U	2.5	693
MC1403AU	2.5	
MC1503U	2.5	
MC1404U5	5.0	
MC1404AU5	5.0	
MC1504U5	5.0	
MC1404U6	6.25	693
MC1404AU6	6.25	
MC1504U6	6.25	
MC1404U10	10.0	
MC1404AU10	10.0	
MC1504U10	10.0	

SWITCHING TYPES

Type	Case	Min-Max VCC	Min-Max fo kHz	Max Io mA
MC3420L	620	10-30	2-100	40
MC3420P	648	10-30	2-100	40
MC34060L	632	7-40	1-200	200
MC34060P	646	7-40	1-200	200
TL494CJ	620	7-40	1-200	200
TL494CN	648	7-40	1-200	200
TL495CJ	726	7-40	1-200	200
TL495CN	707	7-40	1-200	200

HIGH FREQUENCY AMPLIFIERS
Temperatures −55°C to +75°C

Type	Case	Bandwidth MHz	Bandwidth dB	Vos p-p V
MC1545G†	602A	DC to 75*		2.5
MC1445G††	602A	DC to 75*		2.5
MC1590G	601	100	4	7.0
MC1590G	601	60	25	7.0
MC1733G	603-02	40	52	4.0
M21733L	632	90	40	4.0
MC1733CG†	603-02	120	20	4.0
MC1733CL††	632	...	...	4.0
NE592H	603	90	40	4.0
NE529N	646	90	40	4.0

(*) Bandwidth value only (†) Case 632 (suffix L) available at same price
(††) Temp. 0°C to +75°C

DUAL ±15 V TRACKING REGULATORS

MC1468	603C	14.8–15.2 ± .100	0.8
MC1468L	632	14.8–15.2 ± 100	1.0
MC1468R	614	14.8–15.2 ± 100	2.4
MC1568G	603C	14.8–15.2 ± 100	0.8
MC1568L	632	14.8–15.2 ± 100	1.0
MC1568R	614	14.8–15.2 ± 100	2.4

LINE DRIVERS, RECEIVERS, TRANSCEIVERS

Type	Description	Case
MC8T95P	Hex 3-State buffers	648
MC8T96P		648
MC8T97P		648
MC8T98P		648
MC1411P	7-Darlington transistor Driver Arrays	648
MC1412P		648
MC1413P		648
MC1416P		648
MC1472P1	Dual Peripheral Driver	626
MC1488L	Quad RS-232 Driver	632,646
MC1489L/P MC1489AL/AP	Quad RS-232 Receivers	
MC3437L	Hex Receivers	620
MC3437P		648
MC3438L	Quad Transceiver	620
MC3438P		648
MC3440AP	Quad IEEE 488-1975 bus transceivers (G.P.I.B.)	648
MC3441AP		648
MC3446AP		648
MC3448AP		648
MC3447P3	Octal GPIB transceiver	724
MC3450L	Quad Line Receivers	620
MC3450P		648
MC3452L		620
MC3452P		648
MC3453L	Quad Line Drivers	620
MC3453P		648
MC3459L,P	Quad Add Line Driver	632,646
MC3490P	Gas-Discharge Display Drivers	648
MC3491P		701
MC3492P		601
MC3494P		648
MC55107L	Dual Line Receivers	632
MC55108L		632
MC75107L,P		632,646
MC75108L,P		632,646
MC55325L	Core Driver	626
MC75325L,P		620,648
MC75S110L,P	Dual Line Drivers	632,646
MC75491P	LED Drivers	646
MC75492P		646
MC3485L,P	Quad RS422/423 Rcvr.	620,648
MC3478L,P	Quad RS422 Driver	620,648

COMMUNICATION INTERFACE (TELEPHONY)

Crosspoint Switch

MC3416—Low cost solid state crosspoint switch. Features 4×4 two-wire monolithic structure for PABX applications. Select inputs are both CMOS and TTL compatible.

$T_A = 0$ to $+70°C$

I_{off} @V_{AK} = 10V MΩMin	I_{on} @1AK = 20mA Ohms Max	$V_{(BR)AK}$ $V_{(BR)KA}$ Volts Min	V_{AK} @1AK = 20mA Volts Max	Pkg.
100	10	25	1.1	649,623

VOICE ENCODING/DECODING

Simplified voice encoding/decoding using continuous Variable Slope Delta Modulator (CVSD) technique.

MC3417/MC3517—3-bit algorithm; for military secure communication and general purpose low-sampling rate applications.

MC3418/MC3518—4-bit algorithm; telephone quality.

$T_A = 0$ to $+70°C$—MC3417/MC3418
$= -55$ to $+125°C$—MC3517/MC3518

SPECIAL REGULATORS FLOATING REGULATOR

MC1466L	632	**	##	0.75
MC1566L	632	**	#	0.75

(**) Limited only by the characteristics of the external series-pass elements.
(##) Current Regulation 0.2% (#) 0.1%

Device Number	Sample Rate Samples/s Typ	Total Loop Offset Voltage mV Max	t_{PD}, Clock Trigger to Output µs Max	Pkg
MC3417/ MC3517	16k	±5.0	2.5	620
MC3418/ MC3518	32k	±2.0	2.5	648

SUBSCRIBER LOOP INTERFACE CIRCUIT

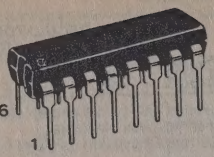
MC3419—Designed to replace the hybrid transformer circuit in Central Office, PABX and Subscriber carrier equipment. It provides dc line current for powering the telset, operating from up to a 56V supply.

Device	Longitudinal Balance (dB)	Noise (dBrnc0)	Pkg
MC3419CL	40	18	726
MC3419L	45	13	726
MC3419AL	55	10	726

MOTOROLA BIPOLAR INTEGRATED CIRCUITS GROUP LINEAR IC'S AVAILABLE IN SOIC PACKAGES

Device	Function	Pkg
LM201AD	General Purpose Op Amp	SO-8
LM301AD	General Purpose Op Amp	SO-8
LM208D	High Gain Op Amp	SO-8
LM308AD	High Gain Op Amp	SO-8
LM308D	High Gain Op Amp	SO-8
LM211D	Comparator	SO-8
LM311D	Comparator	SO-8
LM258D	Dual Op Amp	SO-8
LM358D	Dual Op Amp	SO-8
LM293D	Dual Comparator	SO-8
LM393D	Dual Comparator	SO-8
LM2903D	Dual Comparator	SO-8
LM2904D	Dual Op Amp	SO-8
MC1403D	Precision Voltage Reference	SO-8
MC1436D	Op Amp	SO-8
MC1455D	Timer	SO-8
MC1458CD	Dual Op Amp	SO-8
MC1458D	Dual Op Amp	SO-8
MC1741CD	General Purpose Op Amp	SO-8
MC1748CD	General Purpose Op Amp	SO-8
MC1776CD	Programmable Op Amp	SO-8
MC3458D	Dual Low Power Op Amp	SO-8
MC3476D	Programmable Op Amp	SO-8
MC34001D	Trimfet Op Amp	SO-8
MC34002D	Dual Trimfet Op Amp	SO-8
MC4558CD	Wide BW Dual Op Amp	SO-8
LM224D	Quad Op Amp	SO-14
LM324D	Quad Op Amp	SO-14
LM239D	Quad Comparator	SO-14
LM339D	Quad Comparator	SO-14
LM348D	Quad Op Amp	SO-14
LM2901D	Quad Comparator	SO-14
LM2902D	Quad Op Amp	SO-14
MC1496D	Modulator/Demodulator	SO-14
MC1723CD	Precision Voltage Regulator	SO-14
MC3302D	Quad Comparator	SO-14
MC3346D	Transistor Array	SO-14
MC3386D	Transistor Array	SO-14
MC3403D	Quad Op Amp	SO-14
MC34004D	Quad Trimfet Op Amp	SO-14
MC4741CD	Quad Op Amp	SO-14
NE592D	Video Amp	SO-14
MC1408D8/ D7/D6	8-Bit Multiplying D/A Converter	SO-16
MC3357D	Low Power FM I/F	SO-16

Motorola Selector Guide



CMOS INTEGRATED CIRCUITS

CMOS B Series is the standard line of CMOS monolithic integrated circuits providing the design engineer with several medium speed series fully compatible with non-buffered CMOS for mix-and-match convenience. Low power dissipation and flexible power supply requirements simplify design. High noise immunity and fanout capability reduce printed circuit board layout.

3

Part Number	Function
MC1400UB	Dual 3-Input NOR Gate plus Inverter
MC14001B	Quad 2-Input NOR Gate
MC14001UB	Quad 2-Input NOR Gate
MC14002B	Dual 4-Input NOR Gate
MC14002UB	Dual 4-Input NOR Gate
MC14006B	18-Bit Static Shift Register
MC14007UB	Complementary Pair plus Inverter
MC14008B	4-Bit Full Adder
MC14011B	Quad 2-Input NAND Gate
MC14011UB	Quad 2-Input NAND Gate
MC14012B	Dual 4-Input NAND Gate
MC14012UB	Dual 4-Input NAND Gate
MC14013B	Dual D Flip-Flop
MC14014B	8-Bit Static Shift Register
MC14015B	Dual 4-Bit Static Shift Register
MC14016B	Quad Analog Switch/Quad Multiplexer
MC14017B	Decade Counter/Divider
MC14018B	Presettable Divide-by-N Counter
MC14020B	14-Bit Binary Counter
MC14021B	8-Bit Static Shift Register
MC14022B	Octal Counter/Divider
MC14023UB	Triple 3-Input NAND Gate
MC14023B	Triple 3-Input NAND Gate
MC14024B	Seven Stage Ripple Counter
MC14025B	Triple 3-Input NOR Gate
MC14025UB	Triple 3-Input NOR Gate
MC14027B	Dual J-K Flip-Flap
MC14028B	BCD-to-Decimal Decoder
MC14029B	4-Bit Presettable Up/Down Counter
MC14032B	Triple Serial Adder (Positive Logic)
MC14034B	8-Bit Universal Bus Register
MC14035B	4-Bit Shift Register
MC14038B	Triple Serial Adder (Negative Logic)
MC14040B	12-Bit Binary Counter
MC14042B	Quad Latch
MC14043B	Quad NOR R-S Latch
MC14044B	Quad NAND R-S Latch
MC14046B	Phase-Locked Loop
MC14049UB	Hex Inverter/Buffer
MC14050B	Hex Buffer
MC14051B	8-Channel Analog Multiplexer
MC14052B	Dual 4-Channel Analog Multiplexer
MC14053B	Triple 2-Channel Analog Multiplexer
MC14060B	14-Stage Bin. Ctr.
MC14066B	Quad Analog Switch
MC14068B	8-Input NAND Gate
MC14069UB	Hex Inverter
MC14070B	Quad Exclusive OR Gate
MC14071	Quad 2-Input OR Gate
MC14071B	Quad 2-Input OR Gate
MC14072B	Dual 4-Input OR Gate
MC14073B	Triple 3-Input AND Gate
MC14075B	Triple 3-Input OR Gate
MC14076B	Quad D-Type Register
MC14077B	Quad Exclusive NOR Gate
MC14078B	8-Input NOR Gate
MC14081	Quad 2-Input AND Gate
MC140818	Quad 2-Input AND Gate
MC14082B	Dual 4-input AND Gate
MC14093B	Quad 2-Input NAND Schmitt Trigger
MC14094B	8-Bit, Bus Compact, Shift/Store/ Latch
MC14099B	8-Bit Addressable latch

Part Number	Function
MC14160B	Decade Counter (Asynchronous Clear)
MC14161B	Binary Counter (Asynchronous Clear)
MC14162B	Decade Counter (Synchronous Clear)
MC14163B	Binary Counter (Synchronous Clear)
MC14174B	Hex D Flip-Flop
MC14175B	Quad D Flip-Flop
MC14194B	4-Bit Universal Shift Register
MC14400	PCM Codec/Filter Monocircuit.
MC14401	PCM Codec/Filter Monocircuit
MC14402	PCM Codec/Filter Monocircuit
MC14403	PCM Codec/Filter Monocircuit
MC14404	Pulse Code Mod/Dem (Codec)
MC14406	Pulse Code Modulator
MC14407	Pulse Code Modulator
MC14408	Binary-to-Phone Pulse Converter
MC14409	Binary-to-Phone Pulse Converter
MC14410	2-of-8 Tone Encoder
MC14411	Bit-Rate Frequency Generator
MC14412	Universal Low-Speed Modem
MC14413	PCM Filter (CCITT)
MC14414	PCM Filter
MC14415	Quad Precision Timer/Driver
MC14416	Time Slot Assigner Cir.
MC14417	Time Slot Assigner Cir.
MC14418	Time Slot Assigner Cir.
MC14419	2-of-8 Keypad-to-Binary Encoder
MC14433	3½-Digit A/D Converter
MC14435	3½-Digit A/D Logic Subsystem
MC14443	8-channel A/D Converter
MC14444	Bus Comp. 8-Bit A/D Conv.
MC14447	8-Channel A/D Converter
MC14457	R/C Transmitter
MC14458	R/C Transmitter
MC14460	Auto Speed Control
MC14460	Automotive Speed/Control Processor
MC14469	Addressable Asynchronous Receiver/Transmitter
MC14490	Hex Contact Bounce Eliminator
MC14495	BCD-to-7 Segment Decoder/Driver/Latch
MC14500B	Industrial Control Unit
MC14501UB	Triple Gate
MC14502B	Strobed Hex Inverter/Buffer
MC14503B	Hex 3-State Buffer
MC14504B	Hex TTL or CMOS to CMOS Level Shifter
MCM14505	64 x 1-Bit Static RAM
MC14506B	Dual Expandable AOI Gate
MC14508B	Dual 4-Bit Latch
MC14510B	BCD Up/Down Counter
MC14511B	BCD-to-7 Segment Latch/ Decoder/Driver
MC14512UB	8-channel Data Selector
MC14513B	BCD-to-7/Segment Latch/ Decoder/Driver—Ripple Blanking
MC14514B	4-Bit latch/4-to-16 Line Decoder (High)
MC14515B	4-Bit latch/4-to-16 Line Decoder (Low)
MC14516B	Binary Up/Down Counter
MC14517B	Dual 64-Bit Static Shift Register
MC14518B	Dual BCD Up Counter
MC14519B	4-Bit AND/OR Selector

Part Number	Function
MC14520B	Dual Binary Up Counter
MC14521B	24-Stage Frequency Divider
MC14522B	Programmable BCD Divide-by-N Counter
MCM14524	256 x 4-Bit Read Only Memory
MC14526B	Programmable Binary Divide-by-N Counter
MC14527B	BCD Rate Multiplier
MC14528B	Dual Monostable Multivibrator
MC14529B	Dual 4-Channel Analog Data Selector
MC14530B	Dual 5-Input Majority Logic Gate
MC14531B	12-Bit Parity Tree
MC14532B	8-Bit Priority Encoder
MC14534B	Real Time 5-Decade Counter
MC14536B	Programmable Timer
MCM14537	256 x 1-Bit Static RAM
MC14538B	Dual Precision Monostable Multivibrator
MC14539B	Dual 4 Channel Data Selector/ Multiplexer
MC14541B	Programmable Oscillator-Timer
MC14543B	BCD-to-7 Segment Latch/ Decoder/Driver
MC14544	BCD-to-7 Seg. L/D/O
MC14547	BCD-to-7 Seg. Dec./Dur.
MC14549B	Successive Approximate Register
MC14551	Quad 2-1 Analog Mux
MCM14552	64 x 4-Bit Static RAM
MC14553B	3-Digit BCD Counter
MC14554B	2 x 2 Bit Parallel Binary Multiplier
MC14555B	Dual Binary to 1-of-4 Decoder
MC14556B	Dual Binary to 1-of-4 Decoder (Inverting)
MC14557B	1-to-64-Bit Variable Length Shift Register
MC14558B	BCD-to-7 Segment Decoder
MC14559B	Successive Approximation Register
MC14560B	NBCD Adder
MC14561B	9's Complementer
MC14562B	128-Bit Static Shift Register
MC145566B	Industrial Time Base Generator
MC14568B	Phase Comparator/Programmable Counter
MC14569B	Dual Programmable BCD/Binary Counter
MC14572UB	Hex Gate
MC14573	Quad Prog. Op. Amp
MC14574	Quad Prog. Comp.
MC14575	Dual Prog. Op. Amp/Comp.
MC14580B	4 x 4 Multiport Register
MC14581B	4-Bit Arithmetic Logic Unit
MC14582B	Look-Ahead Carry Block
MC14583B	Dual Schmitt Trigger
MC14584B	Hex Schmitt Trigger
MC14585B	4-Bit Magnitude Comparator
MC14597B	8-Bit, Bus Compat, Counter/Latch
MC14598B	8-Bit, Bus Compat. Addressable Latch
MC14599B	8-Bit Addressable Latch
MC145100	Telecom 4x4 Cross Point Switch
MC145104	PLL Frequency Synthesizer
MC145106	PLL Frequency Synthesizer
MC145107	PLL Frequency Synthesizer
MC145109	PLL Frequency Synthesizer
MC145112	PLL Frequency Synthesizer

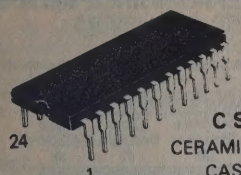
PACKAGES

*Add suffix to part number on all orders.

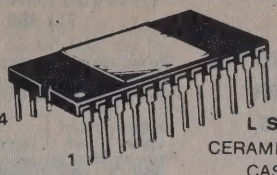
- AL 3—to—18 V, —55 to +125°C, ceramic package
- CL 3—to—18 V, —40 to +85°C, ceramic package
- CP 3—to—18 V, —40 to +85°C, plastic package
- L Limited voltage range, limited temperature range, ceramic package
- P Limited voltage range, limited temperature range, plastic package
- EFL 3—to—18 V, —55 to +125°C, ceramic package
- FL 3—to—18 V, —40 to +85°C, ceramic package
- FP 3—to—18 V, —40 to +85°C, plastic package
- EVL 3—to—6 V, —55 to +125°C, ceramic package
- VL 3—to—6 V, —40 to +85°C, ceramic package
- VP 3—to—6 V, —40 to +85°C, plastic package

Motorola Selector Guide

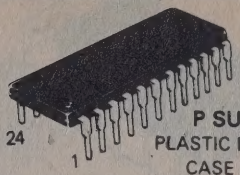
MOTOROLA MEMORIES



C SUFFIX
CERAMIC PACKAGE
CASE 623-03



L SUFFIX
CERAMIC PACKAGE
CASE 716



P SUFFIX
PLASTIC PACKAGE
CASE 709-02

A very broad range of reliable MOS and bipolar memories for virtually any digital data processing system application. For those whose requirements go beyond individual components. Motorola also supplies Memory Systems and Micromodules.

MOS DYNAMIC RAMs

Organization	Part Number	Access Time (ns max)	Power Supplies	No. of Pins
4096 x 1	MCM4027AC-2	150	+12, ±5V	16
4096 x 1	MCM4027AC-3	200	+12, ±5V	16
4096 x 1	MCM4027AC-4	250	+12, ±5V	16
16384 x 1	MCM4116BP15	150	+12, ±5V	16
16384 x 1	MCM4116BP20	200	+12, ±5V	16
16384 x 1	MCM4116BP25	250	+12, ±5V	16
16384 x 1	MCM4517P10	100	+5V	16
16384 x 1	MCM4517P12	120	+5V	16
16384 x 1	MCM4517P15	150	+5V	16
16384 x 1	MCM4517P20	200	+5V	16
32768 x 1	MCM6632AP15[1]	150	+5V	16
32768 x 1	MCM6632AP20[1]	200	+5V	16
32768 x 1	MCM6633AP15	150	+5V	16
32768 x 1	MCM6633AP20	200	+5V	16
65536 x 1	MCM6664AP12[1]	120	+5V	16
65536 x 1	MCM6664AP15[1]	150	+5V	16
65536 x 1	MCM6664AP20[1]	200	+5V	16
65536 x 1	MCM6665AP12	120	+5V	16
65536 x 1	MCM6665AP15	150	+5V	16
65536 x 1	MCM6665AP20	200	+5V	16

MOS STATIC RAMs (+5 Volts)

Organization	Part Number	Access Time (ns max)	No. of Pins
128 x 8	MCM6810	450	24
128 x 8	MCM68A10	360	24
128 x 8	MCM68B10	250	24
1024 x 4	MCM2114P20	200	18
1024 x 4	MCM2114P25	250	18
1024 x 4	MCM2114P30	300	18
1024 x 4	MCM2114P45	450	18
1024 x 4	MCM21L14P20	200	18
1024 x 4	MCM21L14P25	250	18
1024 x 4	MCM21L14P30	300	18
1024 x 4	MCM21L14P45	450	18
1024 x 1	MCM2115AC45[2]	45	16
1024 x 1	MCM2115AC55[2]	55	16
1024 x 1	MCM2115AC70[2]	70	16
1024 x 1	MCM21L15AC45[2]	45	16
1024 x 1	MCM21L15AC70[2]	70	16
1024 x 1	MCM2125AC45	45	16
1024 x 1	MCM2125AC55	55	16
1024 x 1	MCM2125AC70	70	16
1024 x 1	MCM21L25AC45	45	16
1024 x 1	MCM21L25AC70	70	16
4096 x 1	MCM6641P20	200	18
4096 x 1	MCM6641P25	250	18
4096 x 1	MCM6641P30	300	18
4096 x 1	MCM6641P45	450	18
4096 x 1	MCM66L41P20	200	18
4096 x 1	MCM66L41P25	250	18
4096 x 1	MCM66L41P30	300	18
4096 x 1	MCM66L41P45	450	18
4096 x 1	MCM2147C55	55	18
4096 x 1	MCM2147C70	70	18
4096 x 1	MCM2147C85	85	18

CMOS STATIC RAMs (+5 Volts)

Organization	Part Number	Access Time (ns max)	No. of Pins
256 x 4	MCM5101P65	650	22
256 x 4	MCM5101P80	800	22
256 x 4	MCM51L01P45	450	22
256 x 4	MCM51L01P65	650	22
2048 x 8	MCM65116P15	150	24
4096 x 1	MCM65147P55	55	18
4096 x 1	MCM65147P70	70	18

ECL BIPOLAR RAMs

Organization	Part Number	Access Time (ns max)	No. of Pins
8 x 2	MCM10143	15	24
256 x 1	MCM10144	26	16
16 x 4	MCM10145	15	16
1024 x 1	MCM10146	29	16
1024 x 1	MCM10146A*	15	16
128 x 1	MCM10147	15	16
64 x 1	MCM10148	15	16
256 x 1	MCM10152	15	16
4096 x 1	MCM10470	35	18
4096 x 1	MCM10470A*	20	18
1024 x 4	MCM10474*	25	24

ECL PROMs

Organization	Part Number	Access Time (ns max)	No. of Pins
32 x 8	MCM10139	20	16
256 x 4	MCM10149	25	16

TTL BIPOLAR RAMs

Organization	Part Number	Access Time (ns max)	Output	No. of Pins
256 x 4	MCM93412	45	Open Collector	22
256 x 4	MCM93422	45	3-State	22
256 x 4	MCM93L422	60	3-State	22
1024 x 1	MCM93415	45	Open Collector	16
1024 x 1	MCM93425	45	3-State	16

TTL PROMs

Organization	Part Number	Access Time (ns max)	Output	No. of Pins
512 x 4	MCM7621	70	3-State	16
512 x 8	MCM7641	70	3-State	24
1024 x 4	MCM7643	70	3-State	18
1024 x 8	MCM7681	70	3-State	24
2048 x 4	MCM7685	70	3-State	18
2048 x 8	MCM76161	70	3-State	24

MOS EPROMs

Organization	Part Number	Access Time (ns max)	Power Supplies	No. of Pins
1024 x 8	MCM2708C	450	+12, ±5V	24
1024 x 8	MCM27A08C	300	+12, ±5V	24
2048 x 8	TMS2716C	450	+12, ±5V	24
2048 x 8	MCM2716C	450	+5V	24
4096 x 8	MCM2532C	450	+5V	24
8192 x 8	MCM68764C	450	+5V	24
8192 x 8	MCM68766C	450	+5V	24
8192 x 8	MCM68766C35	350	+5V	24

MOS EEPROMs

Organization	Part Number	Access Time (ns max)	Power Supplies	No. of Pins
16 x 16	MCM2801P	10µs	+5V	14
32 x 32	MCM2802P	15µs	+5V	14
2048 x 8	MCM2816P	450 ns	+5V	24
2048 x 8	MCM2817P	150 ns	+5V	28
4096 x 8	MCM2832P	150 ns	+5V	28

MOS STATIC ROMs (+5 Volts) Character Generators[3]

Organization	Part Number	Access Time (ns max)	No. of Pins
128x(7x5)	MCM6670P	350	18
128x(7x5)	MCM6674P	350	18
128x(9x7)	MCM66700P	350	24
128x(9x7)	MCM66710P	350	24
128x(9x7)	MCM66714P	350	24
128x(9x7)	MCM66720P	350	24
128x(9x7)	MCM66730P	350	24
128x(9x7)	MCM66734P	350	24
128x(9x7)	MCM66740P	350	24
128x(9x7)	MCM66750P	350	24
128x(9x7)	MCM66760P	350	24
128x(9x7)	MCM66770P	350	24
128x(9x7)	MCM66780P	350	24
128x(9x7)	MCM66790P	350	24

Binary ROMs (+5 Volts)

Organization	Part Number	Access Time (ns max)	No. of Pins
1024 x 8	MCM68A308P	350	24
1024 x 8	MCM68A308P7[4]	350	24
1024 x 8	MCM68B308P	250	24
2048 x 8	MCM68A316EP	350	24
2048 x 8	MCM68A316EP91[4]	350	24
4096 x 8	MCM68A332P	350	24
4096 x 8	MCM68A332P2[4]	350	24
8192 x 8	MCM68364P35	350	24
8192 x 8	MCM68364P35-3[4]	350	24
8192 x 8	MCM68364P25	250	24
8192 x 8	MCM68364P20	200	24
8192 x 8	MCM68365P25	250	24
8192 x 8	MCM68365P35	350	24
8192 x 8	MCM68366P25	250	24
8192 x 8	MCM68366P35	350	24

CMOS ROMs (+5 Volts)

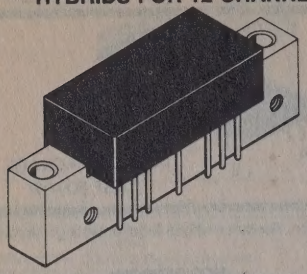
Organization	Part Number	Access Time (ns max)	No. of Pins
256 x 4	MCM14524	1200	16
2048 x 8	MCM65516P43	430	18
2048 x 8	MCM65516P43M[4]	430	18
2048 x 8	MCM65516P55	550	18

[1]Motorola's innovative pin #1 refresh
[2]All MOS memory outputs are three-state except the open collector MCM2115A series
[3]Character generators include shifted and unshifted characters, ASCII alpha-numeric control, math, Japanese, British, German, European and French symbols
[4]Standard Patterns for MOS ROMs:
MCM68A308P7—MC6800 MIKbug/MINIbug ROM
MCM68A316EP91—Universal Code Converter and Character Generator
MCM68A332P2—Sine/Cosine Look-Up Table
MCM68364P35-3—Log/Antilog Look-Up Table
MCM65516P43M—MC146805 Monitor Program

Operating temperature ranges:
MOS—0°C to 70°C
ECL—Consult individual data sheets
TTL—Military −55°C to +125°C. Commercial 0°C to 70°C

CATV Linear Hybrid Amplifiers

HYBRIDS FOR 12 CHANNEL TO 40 CHANNEL



FORWARD AMPLIFIER MODULES

Motorola hybrid modules are specified for amplifier applications in CATV distribution equipment but are applicable wherever broadband low-distortion, low-noise amplication is required. All of the listed hybrids are manufactured using the Motorola exclusive industry acclaimed "Third Generation Technology" which has set new standards for CATV system performance and reliability. These hybrids exceed most original equipment specifications and have been optimized to provide premium performance in all CATV systems from 12 channels to 60 channels.

System Upper Freq MHz	Hybrid Gain (Nominal) dB	Channel Loading Capacity	Maximum Distortion Specifications: Output Level dBmV	2nd Order Test Note 1 dB	Composite Triple Beat dB: 35CH	40CH	Cross Modulation dB: 35CH	40CH	Noise Figure @330MHz dB: Max	Typ	Device Type
330	12	40	+50	−68	−51	−49*	−51	−50*	7.0	6.0	MHW1121
	12	40	+50	−70	−56	−54*	−51	−50*	8.0	6.5	MHW1122
	17	40	+50	−68	−56	−54	−55	−54	6.0	5.5	MHW3171
	17	40	+50	−70	−59	−57	−58	−57	7.0	6.0	MHW3172
	22	40	+50	−65	−57	−55	−55	−54	6.5	5.0	MHW3222
	34	40	+50	−68	−57	−55	−57	−55	5.5	4.5	MHW3342

NOTE 1. Channels (2 and 13) @ R *typ

HYBRIDS FOR IMPROVED PERFORMANCE 400 MHz TO 450 MHz FORWARD AMPLIFIERS

The hybrids in the following table provide unsurpassed performance for use in state-of-the-art CATV systems.

System Upper Frequency MHz	Hybrid Gain (Nominal) dB	Channel Loading Capacity	Maximum Distortion Specifications: Output Level dBmV	2nd Order Test Note 1 dB	Composite Triple Beat dB: 53CH	60CH	Cross Modulation dB: 53CH	60CH	Noise Figure @330MHz dB: Max	Typ	Device Type
400-450	12	60	+46	−70	−61	−58	−62	−62	9.0	8.0	MHW5122
	17	60	+46	−70	−58	−55	−58	−58	6.5	5.5	MHW5171
	17	60	+46	−70	−61	−58	−61	−61	7.0	6.0	MHW5172
	18	60	+46	−72	−58	−55	−59	−59	6.5	5.5	MHW5181
	18	60	+46	−72	−62	−59	−62	−62	7.0	6.0	MHW5182
	22	60	+46	−68	−57	−54*	−54	−54*	8.0	6.5	MHW5222
	34	60	+46	−70	−61	−58	−62	−62	6.0	5.0	MHW5342

Note 1. Channels (2 and M6) 2+ M15 *typ

HYBRIDS FOR RETURN AMPLIFIER MODULES

The hybrids in the following table provide improved performance for replacement in all existing return applications. Whether 5 to 30 MHz or 5 to 200 MHz these gain blocks provide optimum performance.

System Frequency MHz	Hybrid Gain (Nominal) dB	Channel Loading Capacity	Maximum Distortion Specifications: Output Level dBmV	2nd Order Test Note 1 dB	Composite Triple Beat dB: 12CH	25CH	Cross Modulation dB: 12CH	25CH	Noise Figure @330MHz dB: Max	Typ	Device Type
5-200	13	25	+50	−72	−80	−66	−68	−62	8.0	7.0	MHW1134
5-200	18	25	+50	−72	−80	−64	−66	−60	6.5	5.5	MHW1184
5-200	22	25	+50	−72	−80	−62	−66	−55	6.0	5.0	MHW1224

HYBRIDS FOR 12 CHANNEL TO 40 CHANNEL FORWARD AMPLIFIER MODULES

System Upper Frequency MHz	Hybrid Gain (Nominal) dB	Channel Loading Capacity •	Maximum Distortion Specifications: Output Level dBmV	2nd Order Test Note 1 dB	Composite Triple Beat dB: 35CH	40CH	Cross Modulation dB: 35CH	40CH	Noise Figure @ 330 MHz dB: Max.	Typ.	Device Type
330	12	40	+50	−68	−51	−49*	−51	−50*	7.0	6.0	MHW1121
	12	40	+50	−70	−56	−54*	−51	−50*	8.0	6.5	MHW1122
	17	40	+50	−68	−56	−54	−55	−54	6.0	5.5	MHW3171
	17	40	+50	−70	−59	−57	−58	−57	7.0	6.0	MHW3172
	22	40	+50	−65	−57	−55	−55	−54	6.5	5.0	MHW3222
	34	40	+50	−68	−57	−55	−57	−55	5.5	4.5	MHW3342

Note 1. Channels (2 and 13) @ R *typ.

HYBRIDS FOR IMPROVED PERFORMANCE 400 MHZ TO 450 MHZ FORWARD AMPLIFIERS

The hybrids in the following table provide unsurpassed performance for use in State-of-the art CATV Systems.

System Upper Frequency MHz	Hybrid Gain (Nominal) dB	Channel Loading Capacity •	Maximum Distortion Specifications: Output Level dBmV	2nd Order Test Note 1 dB	Composite Triple Beat dB: 35CH	40CH	Cross Modulation dB: 35CH	40CH	Noise Figure @ 330 MHz dB: Max.	Typ.	Device Type
450	12	60	+46	−70	−61	−58	−62	−62	9.0	8.0	MHW5122
	17	60	+46	−70	−58	−55	−58	−58	6.5	5.5	MHW5171
	17	60	+46	−70	−61	−58	−61	−61	7.0	6.0	MHW5172
	18	60	+46	−72	−58	−55	−59	−59	6.5	5.5	MHW5181
	18	60	+46	−72	−62	−59	−62	−62	7.0	6.0	MHW5182
	22	60	+46	−68	−57	−54*	−54	−54*	8.0	6.5	MHW5222
	34	60	+46	−70	−61	−58	−62	−62	6.0	5.0	MHW5342

Note 1. Channels (2 and M6) 2+ M15 *typ.

HYBRIDS FOR RETURN AMPLIFIER MODULES

The hybrids in the following table provide improved performance for replacement in all existing return applications. Whether 5 to 30 MHz or 5 to 200 MHz these gain blocks provide optimum performance.

System Frequency MHz	Hybrid Gain (Nominal) dB •	Channel Loading Capacity dBmV	Maximum Distortion Specifications: Output Level dB	2nd Order Test Note 1 12CH 25CH	Composite Triple Beat dB: 12CH	25CH	Cross Modulation dB: Max.	Typ.	Noise Figure @ 330 MHz dB		Device Type
5-200	13	25	+50	−72	−80	−66	−68	−62	8.0	7.0	MHW1134
5-200	18	25	+50	−72	−80	−64	−66	−60	6.5	5.5	MHW1184
5-200	22	25	+50	−72	−80	−62	−66	−55	6.0	5.0	MHW1224

Motorola Selector Guide

MICROPROCESSORS

MC68000

16 Bit microprocessor. Available in 4, 6, 8, 10, and 12½ MHz. Other processors include the MC68008, MC68010, and the MC68020 (32 Bit address and data bus). Resources available to the user consist of: 16 megabyte direct linear addressing, 56 powerful instr. type, memory mapped I/O, and others. In addition to the MC68000 Peripherals it is also functional with the existing 6800 family peripherals.

MC68008

This 8 Bit microprocessor provides the performance capabilities of the 16/32 Bit MC68000 architecture while preserving the cost-effectiveness of an 8 Bit processor system. Resources available to the user include: Eight 32 bit data registers, Nine 32 bit address registers, 1 megabyte linear address space, 56 powerful instruction types, complete Software and hardware compatibility with the MC68000, plus many more.

MC68010

16/32 Bit virtual memory processor. The MC68010 is a MC68000 with enhancements which make it an ideal processor in virtual memory systems or to operate as a true virtual machine. The MC68010 features include: 32 bit data and address registers, 16 megabyte linear addressing range, 58 powerful instructions types, operations on five main data types, automatic instr. continuation after memory fault, plus many more.

MC68230

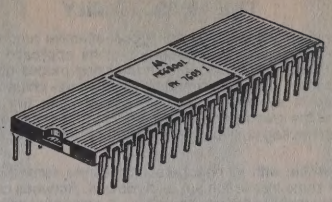
Parallel Interface/Timer (PI/T) provides versatile double buffered parallel interfaces and an operating system oriented timer to MC68000 systems. The parallel interfaces operate in unIndirectional or bidirectional modes, either 8 or 16 bits wide. The MC68230 provides the user with: port modes, 24 bit programmable timer, selectable handshaking options, and more. The MC68230 is available in a 48 pin ceramic pkg.

MC68450

Direct memory access controller (DMAC) is designed primarily to complement the performance and architectural capabilities of the MC68000 by providing the following features: 4 independent DMA channels, transfers to/from M68000 or MC6800 peripherals, programmable channel prioritization, and many more.

MC68451

Memory management unit (MMU) provides address translation and protection for the 16 megabyte addressing range of the MC68000 MPU. Features provided are: MC68000 and DMA compatible, provides efficient memory allocation, 32 segments of variable size with each MMU, plus many more.



MC68452

Bus Arbitration Module (BAM) is a cost effective, asynchronus bus controller which allows multiple bus masters (8 per BAM) to be multiplexed easily onto a bus for sharing memory, I/O devices, and communicate with each other. The unit is designed with an arbitration time of 50 nanoseconds and allows great flexibility in the user system.

MC68661/2661

Enhanced Programmable Communication Interface (EPCI) is a universal synchronous/asynchronous data communications controller chip that is an enhanced version of the Signetics 2651. A Baud rate generator in the EPCI can be programmed to either accept an external clock or the generate internal transmit or receive clocks. Each version of the EPCI (A, B, C) has a different set of BAUD rates.

MC68652/2652

Multi-Protocol Communications Controller (MPCC) formats, transmits, and receives synchronous serial data while supporting bit-oriented or byte-control protocols. The parallel BUS of the MPCC readily interfaces with M6800 and M68000 as well as many other 8 or 16 bit processors. Typical applications include: Intelligent terminals, communication test equip., computer to computer links plus more.

MC68653/2653

Polynomial Generator Checker (PGC) is a polynominal generator checker/character comparator circuit that complements a receiver/transmitter (R/T or USART/USRT/UART) in the support of character oriented data link controls. Directly compatible with Motorola's MC68652, 68661, and Signetics 2651.

MC68681/2681

Dual channel Asynchrounous Receiver Transmitter (DUART) is a cost effective peripheral providing 2 asynchronous serial channels.

M6800 Interface Circuits

Case 620

Case 601

Case 603

DATA BUS EXTENDERS

MC6880A/MC8T26A Invert. } Quad Bus
MC6889/MC8T98 Noninvert. } Transcvrs.
For bidirect. bus syst. (M6800 Data bus)

ADDRESS AND CONTROL BUS EXTENDERS

MC6882A/MC3482A Invert } Octal 3-State
MC6882B/MC3482B Noninvert } Buffer/Latch
Expand drive capabilities of unidirect., byte-organized, microcomputer bus (M6800 Address and Control bus)

MC6885/MC8T95 thru } Hex 3-State
MC6888/MC8T98 } Buffer/Inverters
Bus extenders for unidirect. bus syst. (M6800 Add./Control) Devices in series differ in output and enable config.

HEX Receiver

MC3437—Hysteresis equipped for improved noise immunity.

QUAD TRANSCEIVER

MC3438—Open collector driver outputs allow wire-OR connection. MC3438 has hysteresis-equipped receiver for improved noise immunity.

DUAL LINE DRIVERS

MC8T13—Open emitter driver; specified for general TTL systems.
MC8T23—Open emitter driver; specified to meet older IBM system requirements.

TRIPLE LINE RECEIVERS

MC8T14—Hysteresis-equipped receiver; specified for general TTL systems.
MC8T24—Hysteresis-equipped receiver; specified to meet older IBM system requirements.

QUAD INTERFACE TRANSCEIVERS

MC3440AP—Three drivers with common Enable input; one driver without Enable.

MC3441AP—Four drivers with common Enable input.

MC3443AP—Four drivers with common Enable input; no termination resistors.

MC3480 Dynamic Memory Controller. Transfer data btwn processor and NMOS memories.

MC3232A—Address Multiplexer and Refresh Address Counter. W/MC3480 and ext. 32kHz oscillator provide interface btwn processor and 4K dynamic RAM (MCM4027A)

MC3242A—Address Multiplexer and Refresh Address Counter. As MC3232A but interface syst. and 16-pin 16K dyn. RAM (MCM4116A).

MC68540—16-Bit (8-Bit) Expandable Error Detection and Correction Circuit.

MC3470—a monolithic READ Amplifier System for obtaining digital information from floppy disk storage.

M6800 INTERFACE CIRCUITS

MC6875—Monolithic Clock Generator. For MC6800-based syst. 1.0, 1.5, or 2.0 MHz.
MC6846—ROM-Timer-I/O. 2K bytes ROM, 16-bit programmable timer-counter, 8-bit I/O. w/MC6802 form 2-chip microcomputer.

MC6821—Peripheral Interface Adapter (PIA). Contains two I/O circuit blocks, each capable of controlling an independent 8-bit peripheral data bus.

MC6828/8507—Priority Interrupt Controller (PIC). After interrupt, PIC directs MPU to proper memory location.

MC6840—Programmable Timer. Has three 16-bit binary counters, three corresponding control registers and a status register.

MC6850—Asynchronous Communications Interface Adapter (ACIA). Interface serial asynchronous data communications information to bus-organized systems.

MC6854—Advanced Data Link Controller. Com. link for ADCCP, HLDC, SDLC std.

MC6852—Synchronous Serial Data Adapter (SSDA). MPU/sync. data terminal interface.

MC6860—0-600 bps Digital Modem. Modulation and control functions to implement serial data com. link over voice grade channel.

MC6862—Digital Modulator. Similar MC6860 but 1200 and 2400 bps.

MC6844—Direct Memory Access Controller (DMAC). Facilitate direct memory access by peripheral.

MC6843—Floppy Disk Controller.. MPU/Floppy Disk Interface.

MC6845—CRT Controller (CRTC). CRT/processor interface. 14 add. lines, 16K memory.

MC6847—Video Display Generator (VDG). Microprocessor/color or B&W TV interface.

THE M6800 FAMILY

The MC6800 microprocessor is a highly cost-effective processor for a great many process-control and data-communications applications. Seventy-two powerful instructions and six different addressing modes give it unexcelled capability, and a full range of compatible peripheral chips offer the widest possible latitude in system implementation. To tailor the system to your specific needs at the lowest cost, the MC6800 (and its peripherals) is available in three different packages, two different temperature ranges and three speed ranges.

MC6802 Compatible with all peripherals it features same MPU architecture and works with same instruction set as basic unit. Reduces component count of a minimum microcomputer system to only 2, compared with a min. of 4 with earlier MPU. Built-in clock operates at a maximum frequency of 1 MHz but an on-chip divide-by-four circuit has been added to permit use of an external 4-MHz crystal. First 32 bytes of built-in RAM may be operated in a low-power mode from an external power source to prevent loss of information during a powerdown situation.

MC6808 Low-cost version of MC6802 has an on-chip clock oscillator and driver, but no on-chip memory. Utilize up to 64K of external RAM, ROM, or peripherals.

Temperature Range	Frequency		
	1 MHz	1.5 MHz	2 MHz
0 to 70°C −40 to 85°C	MC6800P MC6800CP	MC68A00P, S* MC68A00CP/CL*	MC6800P, S MC68B00P, S

P suffix = Plastic Package, L suffix = Ceramic Package.
S suffix = Cerdip Package
*Hi-Rel versions also available

The M6800 Family includes the following devices:

Device	Function
MC6800	MPU
MC6801, C	MCU
MC6802	MPU (with Clock, RAM)
MC6803, NR	MPU
MC6805	MCU
MC6808	MPU (with Clock)
MC6809, E	MPU
MCM6810	128 x 8 Static RAM
MC6821	Peripheral Interface Adapter
MC6822	Industrial Interface Adapter
MC6828	Priority Interrupt Controller
MC6829	Memory Management Unit
MC6835	CRT Controller with ROM
MC6839	Floating Point ROM
MC6840	Programmable Timer
MC6843	Floppy-Disk Controller
MC6844	Direct Memory Access Controller
MC6845	CRT Controller
MC6846	ROM-I/O-Timer
MC6847, Y	Video Display Generator
MC6850	Asynchronous Interface Adapter
MC6852	Synchronous Serial Data Adapter
MC6854	Advanced Data Link Controller
MC6859	Data Security Device
MC6860	Digital Modem
MC6862	Digital Modulation
MC68488	General-Purpose Interface Adapter
MC6822	Industrial Interace Adapter
MC6835	CRT Controller

THE CMOS M146805 FAMILY

The M146805 Family processors have 61 basic instructions that are similar to those of the popular MC6800 microprocessor. A complete set of bit-manipulation instructions allows any bit in RAM or any I/O pin to be individually set or cleared with a single instruction.
The low power requirement—20 mW at 1 MHz, and less than 1 mW in standby—makes the parts extremely attractive for those applications where power is a major consideration (e.g., portable instruments, telecommunications, point-of-sale terminals).

M146805 FAMILY PROCESSORS

Device	No. of Pins	Mem. (Bytes) ROM	Mem. (Bytes) RAM	I/O Lines	Special Features
MC146805E2	40	—	112	16 Programmable Bidirectional	External Bus
MC146805F2	28	1K	64	16 Programmable Bidirectional	Self-Check
MC146805G2	40	2K	112	32 Programmable Bidirectional	Self-Check

SPECIAL PERIPHERALS

Device	Function
MC146818	CMOS Real-Time Clock
MC146823	CMOS Peripheral Interface Adapter (Similar to MC6821)

THE HMOS M6805 FAMILY

The M6805 Family of single-chip microcomputers is designed from the ground up to be cost-effective and control-system oriented. The M6805 Family is a crossbreed of the positive traits of its M6800 heritage and the very low cost of earlier 4-bit controllers. The M6805 Family MCUs retain all of the key M6800 features, plus code compatibility throughout the M6805 Family.

M6805 FAMILY PROCESSORS

Device	No. of Pins	Memory (Bytes) ROM	Memory (Bytes) EPROM	Memory (Bytes) RAM	I/O Lines	Special Features
MC6805P2	28	1K	—	64	20 Programmable Bidirectional	Self-Check
MC6805P4	28	1K	—	112	20 Programmable Bidirectional	Self-Check, Standby RAM
MC6805R2	40	2K	—	64	2 to 5 Inputs, 24 Programmable Bidirectional	1 to 4 Channel 8-Bit A/D, Self-Check
MC6805T2	28	2.5K	—	64	2 Special Function, 19 Programmable Bidirectional	PLL, Self-Check
MC6805U2	40	2K	—	64	8 Inputs, 24 Programmable Bidirectional	Self-Check
MC68705P3	28	—	1.8K	112	20 Programmable Bidirectional	Self-Programming, Bootstrap
MC68705R3	28	—	3.8K	112	2 to 5 Inputs, 24 Programmable Bidirectional	1 to 4 Channel 8-Bit A/D, Self-Programming, Bootstrap
MC68705U3	40	—	3.8K	112	8 Inputs, 24 Programmable Bidirectional	Self-Programming, Bootstrap
MC6805U3	40	3.8K	—	112	8 Inputs, 24 Programmable Bidirectional	Self-Check
MC6805R3	40	3.8K	—	112	2 to 5 Inputs, 24 Programmable Bidirectional	1 to 4 Channel 8-bit A/D, Self Check

THE M6809 FAMILY

An 8-Bit Processor with 16-Bit Internal Capacity

With five internal 16-bit registers, this processor offers up to 5 times higher performance than the MC6800; yet, due to 8-bit output, it is fully compatible with all M6800 bus-oriented supplementary circuits and peripherals. The MC6809 is a logical step for applications that crowd the capacity limits of today's conventional 8-bit processors—yet, hardware and software (upward) compatibility with existing M6800 processors protects previous software investment.

M6809 FAMILY PROCESSORS

Device	Features
MC6809	On-Chip Oscillator
MC6809E	External Clocking for Synchronization of Multiprocessor Systems

PERIPHERALS DESIGNED FOR THE M6809

Device	Function
MC6829	Memory Management Unit
MC6839	Floating Point ROM (IEEE Standard Draft 6.0)
MC6859	Data Security Device

THE M6801 FAMILY

The MC6801 is the most advanced M6800-based microcomputer to date. It is useful in a wide variety of applications requiring both parallel and serial I/O capability, yet suitable for system expansion with external M6800 peripheral components. A full expansion bus permits up to 64K memory bytes. An expanded MC6800 instruction set offers 16-bit operations as well as an 8 x 8 multiplication producing a 16-bit result. The MC6801 retains full object code compatability with the standard M6800 instructions.
The MC68120/MC68121 Intelligent Peripheral Controller is a general purpose, mask-programmable peripheral Controller. The IPC provides the interface between an MC68000 or M6800 Family microprocessor and the final peripheral devices through a system bus and control lines. The MC68121 is a ROM-less version of the ROM-based MC68120.
A serial communications interface, 16-bit timer, dual port RAM, and semaphone registers are available for use by the IPC in all operating modes.

- System Bus Compatible with the Asynchronous M68000 Family.
- System Bus Compatible with the MC6809/MC6809E and other M6800 Family Processors/peripherals.
- Local Bus Allows Interface with all M6800 Peripherals.
- MC6801 Source and Object code compatible.

M6801 FAMILY PROCESSORS

Memory	Frequency 1 MHz	Frequency 1.25 MHz	Frequency 1.5 MHz	Frequency 2 MHz
2K ROM, 128 Bytes RAM	MC6801	MC6801-1	MC68A01	MC68B01
2K EPROM, 128 Bytes RAM	MC68701	MC68701-1	MC68A701	MC68B701
No ROM, 128 Bytes RAM	MC6803	MC6803-1	MC68A03	MC68B03
2K ROM, 128 Bytes Dual Port RAM	MC68120	MC68120-1	.....	.....
No ROM, 128 Bytes Dual Port RAM	MC68121	MC68121-1	.....	.....
4K ROM, 192	MC680104	MC680104-1	.....	.....
No ROM, 192 Bytes RAM	MC680304	MC680304-1	.....	.....
No ROM, 128 Bytes RAM External Clock	MC6803E	MC6803E-1	.....	.....

Motorola Selector Guide

EXORmacs DEVELOPMENT SYSTEM (M68000)

M68KMACSS1	68000 EXORmacs Development System with 1 Megabyte Floppy Disk
M68KMACSF1	68000 EXORmacs Floppy Disk Devel. System without Printer
M68KEXOR32A	68000 EXORmacs Development System, 512K RAM
M68KMACSH1	68000 EXORmacs Development Sys.
M68KRDS1	EXORmacs Remote Development Station with USE
M68KRDS2	EXORmacs Remote Development Station Without Use
M68KMCCM	Multi-Channel Communication Mod.

VERSABUS MEMORY MODULES

M68KVM10-2	64K Byte VERSAbus RAM Module
M68KVM10-3	128K Byte VERSAbus RAM Module
M68KEXTM	VERSAbus Extender Module
M68KWW	VERSAbus Wirewrap Module
M68BSAC	Real-Time Bus State Analyser Control Module for use with Bus State Analyzer Personality Modules
M68BSA2	Real-Time MC6800/MC6809/MC6829 Bus State Analyzer (Requires Controller Module)
M68BSA5	Real-Time VERSAbus State Analyzer Personality Module (Requires Controller Module)
M68KOPASCALH	MC68000 PASCAL Compiler on VERSAdos Cartridge

EXORciser DEVELOPMENT SYSTEMS (M6800 and M6809)

EXORciser II DEVELOPMENT SYSTEM-1, 1.5 & 2MHz WITHOUT RAM

The EXORciser II is modularized expandable development system that contains the common ingredients of a micro-computer and providethesystem designer with a low cost versatile means of developing unique systems through the selective addition of separately available optional modules.

M6800EXOR	#M6800 EXORciser II Development Sys., 110VAC including chassis, 6800 MPU II and DEbug II Modules.
M6809EXOR	#M6809 EXORciser II Development System, 110VAC including chassis, 6809 MPU II and DEbug II Modules.
MEX6809KT	#6809 Upgrade for EXORciser or EXORterm
M68PANEL220	Front panel for conversion of EXORterm 200 to 6809
M6809USE	MC6809 or MC6809E User System Evaluator (requires M6809 MPU Module)

EXORset DS35 DEVELOPMENT SYSTEM (M6800/01/09/05)

EXORset DS35 is a 6809 based development system with an access opening in the cover above the card cage permitting easy insertion and removal of M6805 emulator, PROM programmer, or other EXORbus boards. The man/machine interface consists of a full-size ASCII keyboard and 16 user-assigned function keys and a high resolution 9" CRT display capable of displaying 22 lines of 80 or 16 lines of 40 characters and simultaneously a full 320 x 256 dot graphic image. A standard parallel printer interface allows the user to connect a printer of any selected performance. The memory consists of 56K bytes of RAM, and 3 EPROM/ROM sockets accept up to 24K bytes of user firmware.

M68SETD351	EXORset 35 Development System
M68SETD351N	EXORset DS35 with no Basic-M

EXORSET DS35 WITH M6805 FAMILY EMULATOR

M68S01DS351N	DS35 with M6805 P2 Emulator
M68S02DS351N	DS35 with M146805 E2 Emulator
M68S03DS351N	DS35 with M146805F2 Emulator
M68S04DS351N	DS35 with M146805G2 Emulator

MC6805 DEVELOPMENT SYSTEM

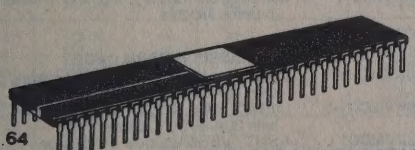
The MC6805 Development System, consisting of the 6805 Emulator Module and the 6805 Cross Assembler, enables the user to develop 6805 Systems on the EXORciser/EXORset.

MPRINT702SET 702 PRINTER

Microsystems Printer 702 is a 120 character per second (cps), 132 column bidirectional, logic seeking, 7 x 7 dot matrix serial impact, tractor feed printer.

MPRINT703SET 703 PRINTER

Microsystems Printer 703 is a 180 cps, 132 column, bidirectional, logic seeking, 7 x 7 dot matrix, serial impact, tractor, feed printer.



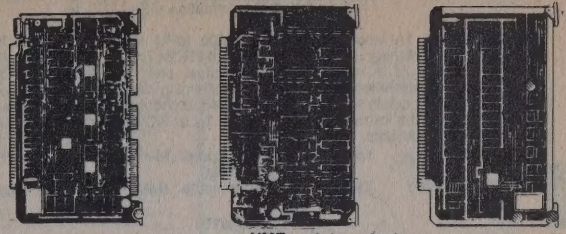
The MC68000 MPU

VMEmodules

Now the performance and flexibility of the MC68000 MPU is available in the internationally accepted Eurocard format. The Single and Double Eurocard circuit boards and card cages in the VMEmodule product line offer a convenient size, plus pin-and-socket bus connectors to give you an extra margin of confidence of reliability in the more severe application environments.

MVME110-1	M68000 Microcomputer
MVME200	64K RAM
MVME201	256K RAM
MVME210	128K ROM/Static RAM

MICROMODULES



VMEmodules Cont.

MVME400	Dual Serial Ports
MVME410	Dual Parallel Ports
MVME420	SASI Adapter
MVME435	9 Track Tape Adapter
MVME910-1	400 w/power supply with PF
MVME920	20 Slot Backplane
MVME921	9 Slot Backplane
MVME922	5 Slot I/O Channel Backplane
MVME940	9 Slot chassis with I/O Module backplane
MVME941	9 Slot card cage with I/O module backplane
MVME942	20 Slot Card Cage
M68RI01-1	Solid State Relay
M68RAD1-1	A/D Conversion

PERIPHERALS

The EXORterm 155 is a M6800-based display terminal and console incorporating an expanded keyboard and extended display features which allow utilization of the Resident CRT Editor.

M68SXD10155	EXORterm 155
M68SVS20155	EXORterm 150 to 155 Conversion Kit

EXORdisk II is a dual drive, single sided, single density floppy disk system to be used with the EXORciser/EXORterm Development Systems.

M68DSK2	EXORdisk II 110VAC

EXORdisk III is a dual drive, double sided, single density floppy disk system to be used with the EXORciser/EXORterm development systems.

M68DSK3	EXORdisk III, 110VAC

EXORdisk III is a dual drive, double sided, single density floppy disk system to be used with the EXORciser/EXORterm development systems.

M68KFD1102	EXORdisk III for Exormacs
M68SFDU1102E	EXORdisk IIIE Expansion Unit, 110VAC

This kit provides the guide rails to rack mount an EXORdisk II or III Floppy Disk System.

M68SFDRK3	Rack Mounting Kit, EXORdisk II & III

Microsystems Printer 702 is a 120 character per second (cps), 132 column, bidirectional, logic seeking, 7 x 7 dot matrix, serial impact, tractor feed printer.

M68SP702C10	Microsystems Printer 702, 110VAC

This module provides the interface between the 700 series printers and the 8-bit Development System.

MEX68P12	EXORbus Printer Interface Module

Printer Interconnect Cable. This flatribbon cable assembly connects the 700 series printer to the EXORbus Printer Interface Module.

MEX68PIC	Printer Interconnect Cable

MEMORIES

This memory module, consisting of sixteen 2101-1, 1024 x 1 bit RAMS or equivalent n-channel MOS memories, provides the EXORciser with 2048 x 8 bits of memory. 1MHz.

MEX6812-1	2K Static RAM Module
MEX6816-1HR	16K Dynamic RAM Mod w/Hidden Refresh
MEX6832-1HR	32K Dynamic RAM Mod w/Hidden Refresh
MEX6848-1HR	48K Dynamic RAM Mod w/Hidden Refresh
MEX6864-1HR	64K Dynamic RAM Mod w/Hidden Refresh

These modules provide 16K, 32K, 48K or 64K bytes of dynamic RAM with parity. 2MHz.

MEX6816-22D	16K Dynamic RAM Module w/Parity
MEX6832-22	32K Dynamic RAM Module w/Parity
MEX6816-22S	16K Static RAM Module with Parity

SUPPORT MODULES

This analyzer is an advanced, portable test instrument for use in locating faults in M6800-based systems. An M6800 In-Circuit Emulator with 40-pin connector, Signature Analysis Probe and Time Domain Analysis Probe is included with this analyzer. The Signature and Time Domain analysis features permit fault location at the component, module and system level.

M68UCANA1	Microcomputer Analyzer—110 VAC
M68PP3	PROM Programmer III w/software on MDOS Diskettes for 6800 and 6809 based Development Systems
M68PP3-1	Personality module and software for PP III to allow programming of MCM2532 and MCM68764
MEX68WW	Wirewrap Module

MICROMODULES*

Micromodule I can provide the solution for most processing and control applications. This micromodule contains all of the processing and control power of the MC6800 MPU plus: 1K byte of static RAM, three MC6821 PIA's providing a total of six parallel I/O ports, four sockets for EROM/ROM devices. This module also incorporates the clock and timing circuitry, power-on reset circuitry, and bus drivers to interface this module with the EXORciser/Micromodule bus.

M68MM01	Monoboard Microcomputer
M68MM01-1	Monoboard Microcomputer (MM1 with four connectors & three 4.7K termination pkgs.)

M68MM01-2 Monoboard Microcomputer (MM1 with four connectors & three 330/220 termination pkgs.)

Micromodule 1A incorporates an MC6800 MPU 1K byte of static RAM, sockets for installing up to four 1Kx8 EROM/ROM (or 2K x 8 ROM) devices, one MC6850 ACIA with RS-232C interface, and two MC6821 PIA's. In addition, this module contains the clock and timing circuitry and bus drivers to interface this module with the EXORciser/Micromodule bus. Micromodule 1A2 differs in that the four sockets support the 1K or 2K, single or multiple supply EROM/ROM devices.

M68MM01A2 Monoboard Microcomputer (MM1A with four 1K or 2K x 8 EROM/ROM sockets)

M68MM01A2-1 Monoboard Microcomputer (MM1A2 with four connectors)

M68MM01B

This module incorporates the MC6802 MPU with a crystal clock, one MC6821 PIA providing two parallel I/O ports, one MC6840 triple 16-bit Programmable Timer/Clock, sockets for mounting two 2K EROM devices, and address decode logic.

M68MM01B1A

Micromodule 1B1A is an upgrade of MM01B. This module incorporates the MC6802 with crystal clock, one MC6821 PIA providing two parallel I/O ports, an MC6850 ACIA with RS-232 interface port, one MC6840 Triple 16-bit Programmable Timer/Clock, sockets for mounting two 2K EROM devices, additional 256 bytes of RAM, and the bus buffers to interface this module with the EXORciser/Micromodule bus.

*All Micromodules are rated to operate at a clock frequency of 1MHz unless otherwise indicated.

M68MM17

Micromodule 17 utilizes the M6809 with five sockets for 2K EPROM, PROM, ROM, or RAM devices. 4K, 8K, 16K or 32K devices can be accommodated with a revised address decode PROM. The module has two RS-232C serial I/O ports, a triple 16-bit programmable counter/timer and a buffered PIA parallel port. In addition, this module has the clock and timing circuitry, power-on or switch operated reset circuitry and bus drivers to interface this module with the EXORciser/Micromodule bus.

M68MM19-1/M68MM19A1

Micromodule 19-1/19A1 Features the MC6809 advanced microprocessor with four sockets for 1K, 2K, 4K or 8K byte EPROM, PROM, ROM or RAM devices; 2K bytes of static RAM; a serial I/O port with user option of baud rate and RS-232C, RS-422, or RS-423 interface; a parallel I/O port that can be configured as a Centronics type printer interface or buffered data and control I/O; and a triple 16-bit programmable counter/timer. In addition, this module incorporates the clock and timing circuitry, +5 VDC option to parallel I/O port connector, power-on or switch operated reset circuitry, and bus drivers to interface this module with the EXORciser/Micromodule bus.

M68MM02 CPU Module

Micromodule 2 is the prime building block of a totally modular microcomputer system. Micromodule 2 combines all of the processing and control power of the MC6800 MPU with the necessary clock and timing circuitry, and bus drivers to interface this module with the EXORciser/Micromodule bus.

M68MM14/M68MM14A

Micromodules 14 and 14A provide hardware math functions in 16 or 32-bit fixed point or 32-bit floating point formats. Micromodule 14 operates with an on-board 2MHz clock and Micromodule 14A operates with an on-board 3 MHz clock. MM14A must be used with 2MHz MPU systems.

M68MM04 16K EROM/ROM Module
M68MM04A 16 Socket EPROM, ROM or RAM Module
M68MM06 2K Static RAM Module
M68MM09 4K CMOS RAM with Battery Backup

COMBO ROM, RAM, I/O MICROMODULE

M68MM16-1 Combo Micromodule for MM01 Series
M68MM16-2 Combo Micromodule for MM19 Series
M68MM16-3 Combo Micromodule for use with EXORset

DIGITAL I/O MICROMODULES

M68MM03 32/32 Input/Output Module
M68MM03-1 32/32 Input/Output Module with 4.7K Termination Packages
M68MM03-2 32/32 Input/Output Module with 330/220 Termination Packages
M68MM07 Quad Communications Module
M68MM10A Power Fail Detect Module
M68MM10B Power Fail Detect/Clock Module
M68MM10C Battery backed up clock/calendar
M68MM11 RS-232 to TTY Adapter Module
M68MM12 IEEE 488 Listener/Talker/Controller Module—6800 Firmware
M68MM12A GPIB Listener/Talker Module
M68MM12-1 IEEE 488 Listener/Talker/Controller Module—6809 Firmware
M68MM12-2 IEEE 488 Listener/Talker/Controller Module—EXORset Firmware
M68MM13A Digital Output (Contact Closure) Module—16 Outputs
M68MM13B Digital Output (Contact Closure) Module—32 Outputs
M68MM13C Optically Isolated Digital Input Module—24 Voltage Inputs
M68MM13D Optically Isolated Digital Input Module—24 Contact Closure Inputs
M68MM22 Quad Parallel Interface Adapter
M68MM23 Optically Isolated I/O Module

ANALOG MICROMODULES

M68MM05A 8-Channel, 12-Bit Differential Input A/D Module
M68MM05B 16-Channel, 12-Bit Single-ended Input A/D Module
M68MM15A High Level A/D Module
M68MM15A1 High-Level A/D Module
M68MM15B Low-Level A/D Module
M68MM15BEX1 1-Channel Low-Level Expander Module
M68MM15BEX2 2-Channel Low-Level Expander Module
M68MM15BEX3 3-Channel Low-Level Expander Module
M68MM15BEX4 4-Channel Low-Level Expander Module
M68MM05C Quad 12-Bit D/A Module
M68MM15CV1 High-Level Voltage D/A Module, single channel
M68MM15CV2 High-Level Voltage D/A Module, two-channel
M68MM15CV3 High-Level Voltage D/A Module, three-channel
M68MM15CV4 High-Level Voltage D/A Module, four-channel
M68MM15C11 Current D/A Module, single channel
M68MM15C12 Current D/A Module, two-channel
M68MM15C13 Current D/A Module, three-channel
M68MM15C14 Current D/A Module four-channel

MICROMODULE SUPPORT HARDWARE

M68MMCC05 5-Card Cardcage
M68MMCC10 10-Card Cardcage
M68MM23IKIT M68MM23 Installation Kit

MICROMODULE SOFTWARE/FIRMWARE
M6800 MONITOR

M68MM08 MICROBUG Module—consists of MICROBUG ROM and MEX6850 Module (used with M68MM01 and M68MM02).
M68MM08A MICROBUG Module—consists of MICROBUG ROM (used with M68MM01A and M68MM01A2).

M6809 MONITOR

M68MM19SB SUPERbug Firmware ROM Set

RESIDENT EDITOR/ASSEMBLER ROM SET

M68XEARC1 Resident Editor/Assembler ROM Set

VERSAMODULES
MONOBOARD MICROCOMPUTERS

M68KVM01A2 68000 16-Bit Monoboard Microcomputer, 64K Bytes RAM
M68KVM02-3 MC68000 16-Bit Monoboard Microcomputer, 128K Bytes Ram

VERSABUS MEMORY MODULES

M68KVM11-1 256K Byte VERSAbus RAM module
M68KVM11-2 512K Byte VERSAbus RAM module

FLOPPY DISK/CONTROLLER MODULE

M68KVM20 Intelligent Floppy Disk Controller Module

UNIVERSAL DISK CONTROLLER MODULE

M68KVM21 Intelligent Universal Disk Controller Module
M68KVMCFD1 VERSAmodule System Chassis (M68KVMCH1) rear panel mountable Cable Assembly provides external connection for an EXORdisk II or III floppy disk system to the UDC module via the VERSAbus backplane.
M68KVMCHD1 VERSAmodule System Chassis rear panel mountable Cable Assembly provides external connection for two SMD interface compatible hard disk drives to the UDC module.
M68KVMSMDR Industry standard SMD Interface 15 foot Radial Data Cable.

MULTI-CHANNEL COMMUNICATIONS MODULE

M68KVM30 Multi-Channel Communication Mod.
M68KVM232CP VERSAmodule chassis cable assembly

COMBINATION MEMORY I/O &
TIME-OF-DAY CLOCK EXPANSION MODULE

M68KVM80-1 Combination Memory, I/O and Time-of-Day Clock Expansion Module without RAM
M68KVM80-4 Combination Memory, I/O and Time-of-Day Clock Expansion Module

CHASSIS & CARD CAGES

M68KVMCH1-1 115VAC, 60Hz, 4-SLOT VERSAmodule System Chassis with 15A-5VDC Capacity
M68KVMCH1-2 115VAC, 60Hz, 4-SLOT VERSAmodule System Chassis with 30A-5VDC Capacity
M68XVMCC1 4-SLOT VERSAmodule Card Cage
M68KVMCHD VERSAmodule Chassis Decorative Cover Kit
M68KVMCCC VERSAmodule Card Cage Mating I/O Connector Kit

EXORset 35 OEM DESK TOP

MC6809 based CRT terminal with full ASCII keyboard, 16 function keys, parallel (printer) port, serial port, programmable counter/timer, 56K Bytes of RAM, sockets for up to 24K Bytes of EPROM/ROM and includes a monitor/debug ROM. Four slots in an internal card cage are available for EXORbus/Micromodule Input/Output cards.

M68SET351-0 EXORset 35 with no Floppy Disks
M68SET351-1 EXORset 35 with one Floppy Disk
M68SET351-2 EXORset 35 with two Floppy Disks

IDI Product Selection Guide

International Devices, Inc.

In order of collector current for optimized h_{FE}, then in numeric sequence.

Type	Case	h_{FE} @ I_C Min/Max	Amps
2N176	TO-3	25/-	0.5
2N669	TO-3	75/250	0.5
2N375	TO-3	35/90	1.0
2N1532	TO-3	20/40	3.0
2N1535	TO-3	35/70	3.0
2N1537	TO-3	35/70	3.0
2N1539	TO-3	50/100	3.0
2N1540	TO-3	50/100	3.0
2N1542	TO-3	50/100	3.0
2N3611	TO-3	35/70	3.0
2N3612	TO-3	.....	3.0
2N3613	TO-3	60/120	3.0
2N3614	TO-3	.....	3.0
2N3617	TO-3	45/90	3.0
2N3618	TO-3	45/90	3.0
2N456A	TO-3	30/90	5.0
2N457A	TO-3	30/90	5.0
2N458A	TO-3	30/90	5.0
2N1546	TO-3	75/-	5.0
2N1547	TO-3	75/-	5.0

GERMANIUM SWITCHING TRANSISTORS

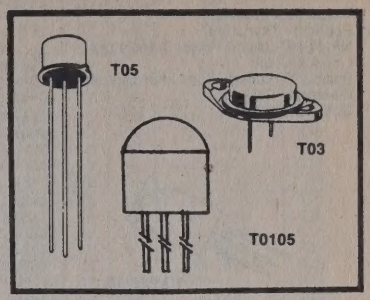
Type	Case	Pwr. Diss. mW	Coll. Curr. ma	Coll. Volt v	fhfb MHz Min.
2N1302	TO-5	150	300	25	3
2N1303	TO-5	150	300	25	3
2N1304	TO-5	150	300	25	5
2N1305	TO-5	150	300	30	5
2N1306	TO-5	150	300	25	10
2N1307	TO-5	150	300	30	10
2N1309	TO-5	150	300	30	15
2N404	TO-5	150	100	25	4
2N404A	TO-5	150	150	40	..

LOW-POWER GERMANIUM TRANSISTORS

Type	BV_{CEO} Volts	h_{FE} @ I_C Min/Max	I_C mA	Fab MHz Min	Pd mW
200 mA max					
2N1192	25	40/135	10	2.0	200
2N1193	25	70/300	10	2.5	200
300 mA max					
2N1008	20	40/150	10	...	200
2N1008A	40	40/150	10	...	200
500 mA max					
2N466	20	56/...	1.0	1.0	200
500 mA (Base connected to case)					
2N524	30	25/42	20	0.8	225
2N525	30	30/	20	3.0	225
2N526	30	53/90	20	1.3	225
2N527	30	72/121	20	1.5	225
2N1415	25	53/90	20	1.3	225

GERMANIUM ALLOY PNP GENERAL PURPOSE AMPLIFIERS

Type	Case	Pd mW	I_C mA	Coll. Volt v	h_{FE} Min
2N1375	TO-5	250	200	25	75
2N1377	TO-5	250	200	12	95



SILICON LOW POWER TRANSISTORS

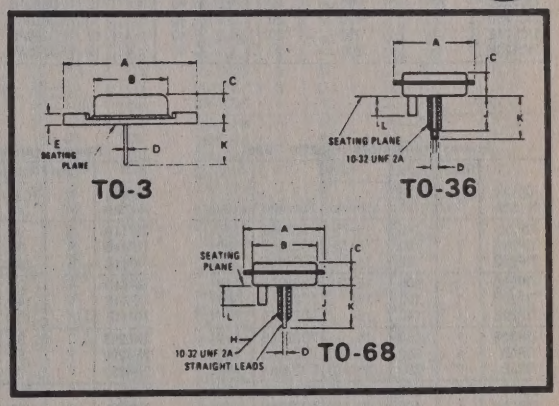
Device	Case	h_{FE}	VCBO
2N3638	TO-105	25	25
2N3642	TO-105	40	60
2N3566	TO-105	80	40
2N3568	TO-105	80	40
2N3644	TO-105	80	45
2N3645	TO-105	80	60
2N3569	TO-105	80	100
2N3638A	TO-105	100	25
2N3643	TO-105	100	60
2N4249	TO-105	100	60
2N3565	TO-105	120	30
2N4250	TO-105	250	40

Product Selection Guide

LANSDALE

HIGH POWER ALLOY TRANSISTORS

Type	Case	V_{CES}	V_{CEO}	P_D	V_{CE} (sat)
2N441	TO-36	40	25	170	@12A
2N442	TO-36	45	30	170	@12A
2N443	TO-36	50	45	170	@12A
2N2076	TO-36	70	55	170	@12A
2N2075	TO-36	80	65	170	@12A
2N2078	TO-36	40	25	170	@12A
2N2077	TO-36	50	45	170	@12A
2N174	TO-36	70	55	170	@12A
2N1100	TO-36	80	65	170	@12A
2N277	TO-36	40	25	170	@12A
2N278	TO-36	45	30	170	@12A
2N173	TO-36	50	45	170	@12A
2N1099	TO-36	70	55	170	@12A
2N2079	TO-36	80	65	170	@12A
2N2082	TO-36	40	25	170	@12A
2N2081	TO-36	50	45	170	@12A
2N2080	TO-36	70	55	170	@12A
2N1166	TO-3/50	75	..	106	.8@25A
2N1167	TO-3/50	75	..	106	.8@25A
2N2152	TO-36	45	30	170	.3@25A
2N2153	TO-36	60	45	170	.3@25A
2N2154	TO-36	75	60	170	.3@25A
2N2156	TO-36	45	30	170	.3@25A
2N2157	TO-36	60	45	170	.3@25A
2N2158	TO-36	75	60	170	.3@25A
2N1522	TO-36	50	40	106	.....
2N1523	TO-36	80	60	106	.....
MP504	TO-36	45	30	170	.45@50A
MP505	TO-36	60	45	170	.45@50A
MP506	TO-36	75	60	170	.45@50A
2N4048	TO-68	45	30	170	.3@6yA
2N4049	TO-68	60	45	170	.3@60A
2N4050	TO-68	75	60	170	.3@60A
2N4053	TO-68	75	60	170	.3@60A
2N4280	TO-3/60	60	45	170	.2@60A
2N4282	TO-3/60	75	60	170	.3@60A
2N4279	TO-3/60	45	30	170	.3@60A
2N4281	TO-3/60	60	45	170	.3@60A
2N4283	TO-3/60	75	60	170	.3@60A



This selector guide reflects the "preferred" germanium power transistor that can be used as a quick reference to find the best device for your application.

HIGH POWER, DIFFUSED BASE TRANSISTORS

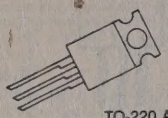
Type	Case	V_{CE}	V_{CEO}	P_D	V_{CE} (sat)
MP110B	TO-3/60	90	40	85	.75@25A
MP600A	TO-3/60	75	50	85	.75@25A
MP601A	TO-3/60	75	60	85	.75@25A
MP602A	TO-3/60	90	70	85	.75@25A
MP603A	TO-3/60	80	90	85	.75@25A
MP2400B	TO-3/60	140	120	106	.6@25A
2N1651	TO-3/60	60	30	106	.3@25A
2N1652	TO-3/60	100	60	106	.3@25A
2N2357	TO-3/60	60	30	120	.5@25A
2N2358	TO-3/60	100	60	120	.5@25A
2N2359	TO-3/60	120	80	120	.5@25A

Texas Instruments Selection Guide

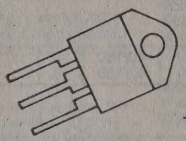
INDEX

Texas Instruments
Economy Thyristors 49
NPN-PNP Silicon Power Transistors 48, 49
Linear Circuits 53, 54, 55
Special Circuits & Consumer Circuits 61
Fiberoptic Data Link 51
Optoelectronics 51, 52
Triacs 49
TM 990 Micromodules & Ampl Prototyping System 59, 60, 61
Microprocessor & Memory Chips 58
Low Power Schottky-Clamped Digital 55, 56, 57
Series 74LS 55, 56, 57
TTL Logic and Memory 55, 56, 57, 58
Advanced Low Power Schottky 55, 56, 57

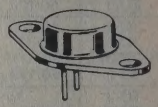
ECONOMY THYRISTORS



TO-220 AB



TO-218



TO-3

Thyristors: SCR's

Device Number	Rated I_T (A)	Rated V_{DRM}&V_{RRM} (V)	I_{GT} Max (mA)	V_{GT} Max (V)	I_H Max (mA)	V_{TM} Max (V)	V_{TM} @I_{TM} (A)	Package
TIC106Y	5	30	0.2	1	5	1.7	5	TO220AB
TIC106F	5	50	0.2	1	5	1.7	5	TO220AB
TIC106A	5	100	0.2	1	5	1.7	5	TO220AB
TIC106B	5	200	0.2	1	5	1.7	5	TO220AB
TIC106C	5	300	0.2	1	5	1.7	5	TO220AB
TIC106D	5	400	0.2	1	5	1.7	5	TO220AB
TIC116F	8	50	20	1.5	40	1.7	8	TO220AB
TIC122F	8	50	25	1.5	30	2.2	8	TO220AB
TIC116A	8	100	20	1.5	40	1.7	8	TO220AB
TIC116B	8	200	20	1.5	40	1.7	8	TO220AB
TIC122B	8	200	25	1.5	30	2.2	8	TO220AB
TIC116C	8	300	20	1.5	40	1.7	8	TO220AB
TIC116D	8	400	20	1.5	40	1.7	8	TO220AB
TIC122D	8	400	25	1.5	30	2.2	8	TO220AB
TIC116E	8	500	20	1.5	40	1.7	8	TO220AB
TIC122E	8	500	25	1.5	30	2.2	8	TO220AB
TIC116M	8	600	20	1.5	40	1.7	8	TO220AB
TIC126F	12	50	20	1.5	40	1.4	12	TO220AB
TIC126A	12	100	20	1.5	40	1.4	12	TO220AB
TIC126B	12	200	20	1.5	40	1.4	12	TO220AB
TIC126C	12	300	20	1.5	40	1.4	12	TO220AB
TIC126D	12	400	20	1.5	40	1.4	12	TO220AB
TIC126E	12	500	20	1.5	40	1.4	12	TO220AB
TIC126M	12	600	20	1.5	40	1.4	12	TO220AB

Thyristors: Triacs

Device Number	Rated $I_{T(rms)}$ (A)	Rated V_{DRM} (V)	Rated I_{TSM} (A)	I_{GTM} Max(mA) MT2+ G+	I_H Max(mA) MT2+	V_{TM} Max (V)	Package
TIC206A	3	100	20	5	30	2.2	TO220AB
TIC206B	3	200	20	5	30	2.2	TO220AB
TIC206D	3	400	20	5	30	2.2	TO220AB
TIC216A	6	100	60	5	30	1.7	TO220AB
TIC216B	6	200	60	5	30	1.7	TO220AB
TIC216D	6	400	60	5	30	1.7	TO220AB
TIC226B	8	200	70	50	60	2.1	TO220AB
TIC226D	8	400	70	50	60	2.1	TO220AB
TIC226E	8	500	70	50	60	2.1	TO220AB
TIC226M	8	600	70	50	60	2.1	TO220AB
TIC236B	12	200	100	50	50	2.1	TO220AB
TIC236D	12	400	100	50	50	2.1	TO220AB
TIC236E	12	500	100	50	50	2.1	TO220AB
TIC236M	12	600	100	50	50	2.1	TO220AB
TIC246B	16	200	125	50	50	1.7	TO220AB
TIC246D	16	400	125	50	50	1.7	TO220AB
TIC246E	16	500	125	50	50	1.7	TO220AB
TIC246M	16	600	125	50	50	1.7	TO220AB
TIC253B	20	200	150	50	50	1.7	TO218AA
TIC253D	20	400	150	50	50	1.7	TO218AA
TIC253E	20	500	150	50	50	1.7	TO218AA
TIC253M	20	600	150	50	50	1.7	TO218AA
TIC263B	25	200	175	50	50	1.7	TO218AA
TIC263D	25	400	175	50	50	1.7	TO218AA
TIC263E	25	500	175	50	50	1.7	TO218AA
TIC263M	25	600	175	50	50	1.7	TO218AA

Power Transistors: Plastic Case

Device Number	Rated I_C (A)	Rated V_{CEO} (V)	hFE Min-Max	Package	Polarity
TIP29	1	40	15–75	TO220AB	NPN
TIP29A	1	60	15–75	TO220AB	NPN
TIP29B	1	80	15–75	TO220AB	NPN
TIP29C	1	100	15–75	TO220AB	NPN
TIP29D	1	120	15–	TO220AB	NPN
TIP29E	1	140	15–	TO220AB	NPN
TIP29F	1	160	15–	TO220AB	NPN
TIP47	1	250	30–150	TO220AB	NPN
TIP48	1	300	30–150	TO220AB	NPN
TIP49	1	350	30–150	TO220AB	NPN
TIP50	1	400	30–150	TO220AB	NPN
TIP110	2	60	1000–	TO220AB	NPN
TIP111	2	80	1000–	TO220AB	NPN
TIP112	2	100	1000–	TO220AB	NPN
TIP31	3	40	10–50	TO220AB	NPN
TIP31A	3	60	10–50	TO220AB	NPN
TIP31B	3	80	10–50	TO220AB	NPN
TIP31C	3	100	10–50	TO220AB	NPN
TIP31D	3	120	5–	TO220AB	NPN
TIP31E	3	140	5–	TO220AB	NPN
TIP31F	3	160	5–	TO220AB	NPN
TIP75	3	200	30–250	TO220AB	NPN
TIP51	3	250	30–150	TO218AA	NPN
TIP52	3	300	30–150	TO218AA	NPN
TIP53	3	350	30–150	TO218AA	NPN
TIP54	3	400	30–150	TO218AA	NPN
2N6121	4	45	10–	TO220AB	NPN
2N6122	4	60	10–	TO220AB	NPN
2N6123	4	80	9–	TO220AB	NPN
TIP120	5	60	1000–	TO220AB	NPN
TIP121	5	80	1000–	TO220AB	NPN
TIP122	5	100	1000–	TO220AB	NPN
TIP41	6	40	15–75	TO220AB	NPN

Power Transistors: Plastic Case

Device Number	Rated I_C (A)	Rated V_{CEO} (V)	hFE Min-Max	Package	Polarity
TIP41A	6	60	15–75	TO220AB	NPN
TIP41B	6	80	15–75	TO220AB	NPN
TIP41C	6	100	15–75	TO220AB	NPN
TIP41D	6	120	15–	TO220AB	NPN
TIP41E	6	140	15–	TO220AB	NPN
TIP41F	6	160	15–	TO220AB	NPN
2N6288	7	30	2.3–	TO220AB	NPN
2N6290	7	50	2.3–	TO220AB	NPN
2N6292	7	70	2.3–	TO220AB	NPN
TIP151	7	350	150–	TO220AB	NPN
TIP152	7	400	150–	TO220AB	NPN
TIP55A	7.5	250	10–100	TO218AA	NPN
TIP56A	7.5	300	10–100	TO218AA	NPN
TIP57A	7.5	350	10–100	TO218AA	NPN
TIP58A	7.5	400	10–100	TO218AA	NPN
TIP100	8	60	1000–20K	TO220AB	NPN
2N6043	8	60	100–	TO220AB	NPN
TIP101	8	80	1000–20K	TO220AB	NPN
2N6044	8	80	100–	TO220AB	NPN
TIP102	8	100	1000–20K	TO220AB	NPN
2N6045	8	100	100–	TO220AB	NPN
TIP33	10	40	20–100	TO218AA	NPN
TIP33A	10	60	20–100	TO218AA	NPN
TIP140	10	60	1000–	TO218AA	NPN
TIP33B	10	80	20–100	TO218AA	NPN
TIP141	10	80	1000–	TO218AA	NPN
TIP33C	10	100	20–100	TO218AA	NPN
TIP33D	10	120	20–	TO218AA	NPN
TIP33E	10	140	20–	TO218AA	NPN
TIP33F	10	160	20–	TO218AA	NPN
TIP142	10	100	1000–	TO218AA	NPN
TIP160	10	320	200–	TO218AA	NPN
TIP161	10	350	200–	TO218AA	NPN

Power Transistors: Plastic Case

Device Number	Rated I_C (A)	Rated V_{CEO} (V)	hFE Min-Max	Package	Polarity
TIP162	10	380	200–	TO218AA	NPN
TIP73	15	40	20–150	TO220AB	NPN
2N6486	15	40	5–	TO220AB	NPN
TIP73A	15	60	20–150	TO220AB	NPN
2N6487	15	60	5–	TO220AB	NPN
TIP3055	15	70	20–70	TO218AA	NPN
TIP73B	15	80	20–150	TO220AB	NPN
2N6488	15	80	5–	TO220AB	NPN
TIP35	25	40	10–50	TO218AA	NPN
TIP35A	25	60	10–50	TO218AA	NPN
TIP35B	25	80	10–50	TO218AA	NPN
TIP35C	25	100	10–50	TO218AA	NPN
TIP35D	25	120	8–	TO218AA	NPN
TIP35E	25	140	8–	TO218AA	NPN
TIP35F	25	160	8–	TO218AA	NPN
TIP30	1	40	15–75	TO220AB	PNP
TIP30A	1	60	15–75	TO220AB	PNP
TIP30B	1	80	15–75	TO220AB	PNP
TIP30C	1	100	15–75	TO220AB	PNP
TIP30D	1	120	15–	TO220AB	PNP
TIP30E	1	140	15–	TO220AB	PNP
TIP30F	1	160	15–	TO220AB	PNP
TIP115	2	60	1000–	TO220AB	PNP
TIP116	2	80	1000–	TO220AB	PNP
TIP117	2	100	1000–	TO220AB	PNP
TIP32	3	40	10–50	TO220AB	PNP
TIP32A	3	60	10–50	TO220AB	PNP
TIP32B	3	80	10–50	TO220AB	PNP
TIP32C	3	100	10–50	TO220AB	PNP
TIP32D	3	120	5–	TO220AB	PNP
TIP32E	3	140	5–	TO220AB	PNP
TIP32F	3	160	5–	TO220AB	PNP
TIP125	5	60	1000–	TO220AB	PNP

Texas Instruments Selection Guide

NPN-PNP SILICON POWER TRANSISTORS

PNP POWER TRANSISTORS: PLASTIC CASE

Device No.	Rated I_C (A)	Rated V_{CEO} (V)	h_{fe} Min—Max	Package
2N6124	4	45	10—	TO220AB
2N6125	4	60	10—	TO220AB
2N6126	4	80	7—	TO220AB
TIP126	5	80	1000—	TO220AB
TIP127	5	100	1000—	TO220AB
TIP42	6	40	15—75	TO220AB
TIP42A	6	60	15—75	TO220AB
TIP42B	6	80	15—75	TO220AB
TIP42C	6	100	15—75	TO220AB
TIP42D	6	120	15—	TO220AB
TIP42E	6	140	15—	TO220AB
2N6107	7	30	2.3—	TO220AB
2N6109	7	50	2.3—	TO220AB
2N6111	7	70	2.3—	TO220AB
TIP42F	6	160	15—	TO220AB
TIP105	8	60	1000—20K	TO220AB
2N6040	8	60	100—	TO220AB
TIP106	8	80	1000—20K	TO220AB
2N6041	8	80	100—	TO220AB
TIP107	8	100	1000—20K	TO220AB
2N6042	8	100	100—	TO220AB
TIP34	10	40	20—100	TO218AA
TIP34A	10	60	20—100	TO218AA
TIP145	10	60	1000—	TO218AA
TIP34B	10	80	20—100	TO218AA
TIP146	10	80	1000—	TO218AA
TIP34C	10	100	20—100	TO218AA
TIP34D	10	120	20—	TO218AA
TIP34E	10	140	20—	TO218AA
TIP34F	10	160	20—	TO218AA
TIP147	10	100	1000—	TO218AA
TIP74	15	40	20—150	TO220AB
2N6489	15	40	5—	TO220AB
TIP74A	15	60	20—150	TO220AB
2N6490	15	60	5—	TO220AB
TIP2955	15	70	20—70	TO220AB
TIP74B	15	80	20—70	TO220AB
2N6491	15	80	5—	TO220AB
TIP74C	15	100	20—150	TO220AB
TIP36	25	40	10—50	TO218AA
TIP36A	25	60	10—50	TO218AA
TIP36B	25	80	10—50	TO218AA
TIP36C	25	100	10—50	TO218AA
TIP36D	25	120	8—	TO218AA
TIP36E	25	140	8—	TO218AA
TIP36F	25	160	8—	TO218AA

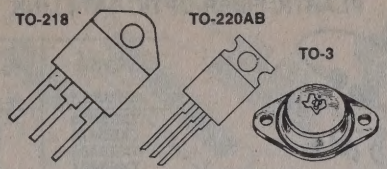
NPN FAST SWITCHING TRANSISTORS: 800-1000V

Device No.	Rated I_C (A)	Rated $V_{(BR)CEO}$ (V)	100°C Inductive Switching t_{sv} (μs) Max	100°C Inductive Switching t_{xo} (μs) Max	Package
TIPL760	4	375	3	0.75	TO-220AB
TIPL761	4	375	3	0.75	TO-218AA
TIPL751	4	375	3	0.75	TO-3
TIPL760A	4	420	3	0.75	TO-220AB
TIPL761A	4	420	3	0.75	TO-218AA
TIPL751A	4	420	3	0.75	TO-3
TIPL762	6	350	3	0.5	TO-218AA
TIPL752	6	375	3	0.5	TO-3
TIPL762A	6	400	3	0.5	TO-218AA
TIPL752A	6	420	3	0.5	TO-3
TIPL763	8	350	3	0.5	TO-218AA
TIPL753	8	375	3	0.5	TO-3
TIPL763A	8	400	3	0.5	TO-218AA
TIPL753A	8	420	3	0.5	TO-3
TIPL765	10	375	3	0.5	TO-218AA
TIPL755	10	375	3	0.5	TO-3
TIPL765A	10	420	3	0.5	TO-218AA
TIPL755A	10	420	3	0.5	TO-3
TIPL757	15	375	3	0.5	TO-3
TIPL757A	15	420	3	0.5	TO-3

NPN HIGH ENERGY DARLINGTONS: 550V

Device No.	Rated I_C (A)	Rated $V_{(BR)CEO}$ (V)	Forward Pulse Energy (mj)	Package
TIPL784	20	450	300	TO-218AA
TIPL774	20	450	300	TO-3

TO-218 TO-220AB TO-3



NPN FAST SWITCHING DARLINGTONS: 150-400V

Device No.	Rated I_C (A)	Rated $V_{(BR)CEO}$ (V)	100°C Inductive Switching t_{sv} (μs) Max	100°C Inductive Switching t_{xo} (μs) Max	Package
TIPL790	10	120	0.45*	0.32*	TO-220AB
TIPL785	10	120	0.45*	0.32*	TO-218AA
TIPL775	10	120	0.45*	0.32*	TO-3
TIPL790A	10	150	0.45*	0.32*	TO-220AB
TIPL785A	10	150	0.45*	0.32*	TO-218AA
TIPL775A	10	150	0.45*	0.32*	TO-3
TIPL780	8	150	2	1	TO-220AB
TIPL781	8	150	2	1	TO-218AA
TIPL780A	8	200	2	1	TO-220AB
TIPL781A	8	200	2	1	TO-218AA

NPN POWER TRANSISTORS: METAL CASE

Device No.	Rated I_C (A)	Rated V_{CEO} (V)	h_{FE} Min-Max	Package
2N3902	2.5	400	30—90	TO3
2N5838	3	275	8—40	TO3
2N5839	3	300	10—50	TO3
TIP575B	3	300	30—250	TO3
2N5840	3	375	10—50	TO3
MJ480	4	40	30—200	TO3
MJ481	4	60	30—200	TO3
MJ4000	4	60	1000—	TO3
MJ4001	4	80	1000—	TO3
2N5067	5	40	20—80	TO3
2N4913	5	40	25—100	TO3
2N5068	5	60	20—80	TO3
2N5869	5	60	20—100	TO3
2N4914	5	60	25—100	TO3
2N5069	5	80	20—80	TO3
2N5870	5	80	20—100	TO3
2N4915	5	80	25—100	TO3
2N4347	5	120	15—60	TO3
MJ1800	5	250	40—120	TO3
MJ3430	5	300	15—45	TO3
2N6542	5	300	12—60	TO3
2N6671	5	300	10—40	TO3
2N6672	5	350	10—40	TO3
2N6543	5	400	12—60	TO3
2N6673	5	400	10—40	TO3
2N5758	6	100	25—100	TO3
2N5759	6	120	20—80	TO3
2N5760	6	140	15—60	TO3
2N5873	7	60	20—100	TO3
2N5874	7	80	20—100	TO3
MJ3040	7	300	100—	TO3
MJ3041	7	300	250—	TO3
MJ3042	7	350	250—	TO3
2N6306	8	250	12—60	TO3
2N6307	8	300	15—75	TO3
2N6544	8	300	12—60	TO3
2N6308	8	350	12—60	TO3
2N6545	5	400	12—60	TO3
MJ2840	10	60	20—100	TO3
2N5877	10	60	20—100	TO3
2N3713	10	60	25—75	TO3
2N3715	10	60	50—150	TO3
TIP640	10	60	1000—	TO3
MJ3000	10	60	1000—	TO3
MJ2841	10	80	20—100	TO3
2N5878	10	80	20—100	TO3
2N3714	10	80	25—75	TO3
2N3716	10	80	50—150	TO3
TIP641	10	80	1000—	TO3
MJ3001	10	80	1000—	TO3
TIP642	10	100	1000—	TO3
2N3442	10	140	20—70	TO3
2N6262	10	150	20—70	TO3
2N6249	10	225	10—50	TO3
2N6250	10	300	8—50	TO3
2N6674	10	300	8—20	TO3
2N6675	10	400	8—20	TO3

NPN Cont

Device No.	Rated I_C (A)	Rated V_{CEO} (V)	h_{FE} Min-Max	Package
2N6251	10	375	6—50	TO3
2N6057	12	60	750—18K	TO3
2N6058	12	80	750—18K	TO3
2N6360	12	100	15—60	TO3
2N6059	12	100	750—18K	TO3
MJ2801	15	40	15—60	TO3
2N6253	15	45	20—150	TO3
2N6470	15	50	20—150	TO3
2N5881	15	60	20—100	TO3
2N6471	15	70	20—150	TO3
2N5882	15	80	20—100	TO3
2N6472	15	90	20—150	TO3
2N6371	16	50	15—60	TO3
MJ4033	16	60	1000—	TO3
2N6359	16	80	15—60	TO3
MJ4034	16	80	1000—	TO3
2N5629	16	100	25—100	TO3
MJ4035	16	100	1000—	TO3
2N6302	16	120	15—60	TO3
2N5630	16	120	20—80	TO3
2N5631	16	140	15—60	TO3
2N6257	20	40	15—75	TO3
2N5303	20	80	15—60	TO3
2N5885	25	60	20—100	TO3
2N5886	25	80	20—100	TO3
2N3771	30	40	15—60	TO3
2N5301	30	40	15—60	TO3
2N6326	30	60	6—30	TO3
2N3772	30	60	15—60	TO3
2N5302	30	60	15—60	TO3
2N6327	30	80	6—30	TO3
MJ802	30	90	25—100	TO3
2N6328	30	100	6—30	TO3

PNP POWER TRANSISTORS: METAL CASE

MJ490	4	40	30—200	TO3
MJ491	4	60	30—200	TO3
MJ4010	4	60	1000—	TO3
MJ4011	4	80	1000—	TO3
MJ2267	5	40	20—100	TO3
2N4901	5	40	20—80	TO3
2N4904	5	40	25—100	TO3
MJ2268	5	55	20—100	TO3
2N4902	5	60	20—80	TO3
2N5867	5	60	20—100	TO3
2N4905	5	60	25—100	TO3
2N4903	5	80	20—80	TO3
2N5868	5	80	20—100	TO3
2N4906	5	80	25—100	TO3
2N5871	7	60	20—100	TO3
2N5872	7	80	20—100	TO3
MJ2940	10	60	20—100	TO3
2N5875	10	60	20—100	TO3
2N3789	10	60	25—90	TO3
2N3791	10	60	50—180	TO3
TIP645	10	60	1000—	TO3
MJ2500	10	60	1000—	TO3
MJ2941	10	80	20—100	TO3
2N5876	10	80	20—100	TO3
2N3790	10	80	25—90	TO3
2N3792	10	80	50—180	TO3
TIP646	10	80	1000—	TO3
MJ2501	10	80	1000—	TO3
TIP647	10	100	1000—	TO3
2N6248	10	110	20—100	TO3
2N6050	12	60	750—18K	TO3
2N6051	12	80	750—18K	TO3
2N6052	12	100	750—18K	TO3
MJ2901	15	40	15—60	TO3
2N6469	15	50	20—150	TO3
MJ2955	15	60	20—70	TO3
2N5879	15	60	20—100	TO3
2N6246	15	70	20—100	TO3
2N5880	15	80	20—100	TO3
2N6247	15	90	20—100	TO3
MJ4030	16	60	1000—	TO3
MJ4031	16	80	1000—	TO3
MJ4032	16	100	1000—	TO3
2N5883	25	60	20—100	TO3
2N5884	25	80	20—100	TO3
2N4398	30	40	15—60	TO3
MJ450	30	40	20—	TO3
2N6329	30	60	6—30	TO3
2N4399	30	60	15—60	TO3
2N6330	30	80	6—30	TO3
MJ4502	30	90	25—100	TO3
2N6331	30	100	6—30	TO3

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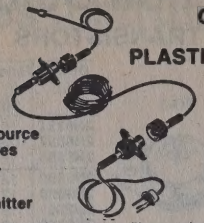
OPTO ELECTRONICS

PLASTIC FIBER-OPTIC DATA LINK



TXES478 thru TXES483 Series Source
TXES488 thru TXES493 Assemblies

- **Plastic dual-in line package for PCB mounting**
- **High-efficiency GaAlAs I-R Emitter**

All source assemblies consist of a GaAlAs emitter, a fiber optic cable and a cable termination. A six lead dual-in line package suitable for PCB mounting is used. Lead frame with I-R diode attached is assembled in a pre-molded plastic case that is epoxy filled to produce a solid assembly.

Fiber-optic cable has an outer jacket diameter of 1.9mm (0.075 inch) and optical cladding and core diameters of 0.40 mm (0.016) inch and 0.37 mm (0.016 inch), respectively. Core diameter of single plastic optical fiber is also compatible with coupling to various commercially available 7 and 19 strand glass-fiber bundles.

DEVICE NUMBER	P_O TYPICAL I_F = 100 mA	θ HL BEAM ANGLE	AVAILABLE LENGTHS (C = CENTIMETER)
TXES478	120 W	56°	C025,C050,C100
TXES479	200 W	56°	C025,C050,C100
TXES480	120 W	56°	C005,C010,C025
TXES481	200 W	56°	C005,C010,C025
TXES482	120 W	56°	C005,C010,C025
TXES483	200 W	56°	C005,C010,C025
TXES488	120 W	56°	C025,C050,C100
TXES489	200 W	56°	C025,C050,C100
TXES490	120 W	56°	C005,C010,C025
TXES491	100 W	56°	C005,C010,C025
TXES492	120 W	56°	C005,C010,C025
TXES493	200 W	56°	C005,C010,C025

TXEF402 SERIES CABLE ASSEMBLY

Fiber-optic cable assembly consisting of a length of infrared transmitting plastic fiber-optic cable which has an attenuation of 350 decibel per kilometer; at 790 nm, and a numerical aperture of 0.53. Each end of the cable is terminated with a fiber-optic connector. Cable lengths of 1 meter (3.3 ft.) to 50 meters (165 ft.) are available.

DEVICE NUMBER	ATTENUATION MAX PER km	AVAILABLE LENGTHS (M = METERS)
TXEF402	350 dB @ 790 nm	M001,M003,M006,M010 M020,M030,M040,M050

GALLIUM ARSENIDE INFRARED SOURCES

Type	Fig.	No. of Elements	Min. P_O at I_F mW	mA
TIL23	CL2	1	0.4	50
TIL24	CL2	1	1.0	50
TIL25	CL2	1	0.75	50
TIL31	CL18	1	3.3	100
TIL32	CL9	1	0.5	20
TIL33	CL18	1	2.5	100
TIL34	CL18	1	1.6	100
TIL38	CL9	2	6	100
TIL39	CL9	1	11	100
TIL40	CL62	1	100	20

ELECTRO OPTICAL COMPONENTS

AMPLIFIERS

Type	Equivalent Input Noise Current	Z_I TYP	Z_O TYP	Z_f TYP	Bandwidth TYP	Features
TIEF150	7.5 pA/√Hz TYP	35Ω	0.5Ω	1 kΩ	100 MHz	Low-noise, high-speed amplifiers designed for use with photodiodes
TIEF151	4.5 pA/√Hz TYP	100Ω	2Ω	4 kΩ	50 MHz	
TIEF152	3 pA/√Hz TYP	300Ω	4Ω	12 kΩ	20 MHz	

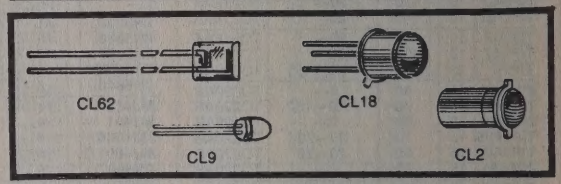
INFRARED-EMITTING DIODES

Type	Power Output Min@IF mW	mA	OHI TYP	VF Max@IF V	mA	λp TYP µm	Features
TIES06	0.6	500	115″	2.3	500	0.91	0.0075-inch-dia emitting area
TIES12	40	300	130″	2	300	0.93	0.036-inch-dia-hemispherical dome emitting area.
TIES13	20	300	130″	2	300	0.93	
TIES14	60	1000	130″	2	1000	0.93	0.072-inch-dia-hemispherical dome emitting area
TIES15	30	1000	130″	2	1000	0.93	
TIES16A	100	2000	150″	2	2000	0.93	0.072-inch-dia-dome emitting area
TIES16B	200	2000	150″	2	2000	0.93	
TIES16C	350	3000	150″	2.2	3000	0.94	
TIES27	15	300	135″	2.2	300	0.93	Stud header with epoxy lens.
TIES35	0.9	50	135″	2	50	0.91	0.018-inch-dia-dome emitting area
TIES36	1	50	25″	2	50	0.91	Pill package with built-in reflector.

TXED453 THRU TXED457 SERIES DETECTOR ASSEMBLY

All detector assemblies consist of a high-performance silicon photodiode designed to operate in a reverse-bias mode. The photodiode is in a six-lead dual-in line package. Risetimes vary from 8 ns at 5 volts to 5 ns at 12 volts.

DEVICE NUMBER	Re (a) TYPICAL	TYPICAL RISE TIME ns @ 5V	AVAILABLE LENGTHS (C = CENTIMETER)
TXED455	0.30 A/W	8	C025,C050,C100
TXED456	0.30 A/W	8	C005,C010,C025
TXED457	0.30 A/W	8	C005,C010,C025



AVALANCHE PHOTODIODES

Type	Brkdown Voltage V@I_r = 100µA Min	Max	Ava-lanche Gain (TYP)	Capaci-tance pF	Features
TIED56	155	185	600	1.2	Low noise, High gain. Designed to operate in avalanche region
TIED59	155	185	600	8.5	
TIED69	155	185	600	30	
TIED83	80	120	600	4	
TIED84	80	120	600	17	
TIED85	80	120	600	4	Photodiode and reference diode have matched breakdown characteristics. High gain. High speed.
TIED86	80	120	600	17	
TIED87	155	185	600	2.5	
TIED88	155	185	600	9	
TIED89	155	185	600	30	

OTHER PHOTODIODES

Type	Radiant Responsivity (TYP) A W @λ = 0.9µm	Dark Current nA	Capaci-tance pF	Diameter of Active Area mils	Features
TIED80	0.6	15	4.5	100	15ns rise time
TIED98	0.5	2	2	40	Wide spectral bandwidth

AVALANCHE PHOTODETECTOR MODULES

Type	Ava-lanche Gain (TYP)	Band width MHz	Noise Equiv-alent Power pW/√Hz	Dia-meter of Active Area mils	Features
TIED90	200	20	0.12	10	Optimized to high-speed detection of visible light Low power consumption (0.63µm)
TIED91	100	20	0.27	30	
TIED92	200	50	0.15	10	
TIED93	100	50	0.34	30	
TIED94	200	20	0.15	10	Optimized for high speed detection of near-infrared light. Low power consumption (0.9µm)
TIED95	100	20	0.29	30	
TIED96	200	50	0.20	10	
TIED97	100	50	0.43	30	

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

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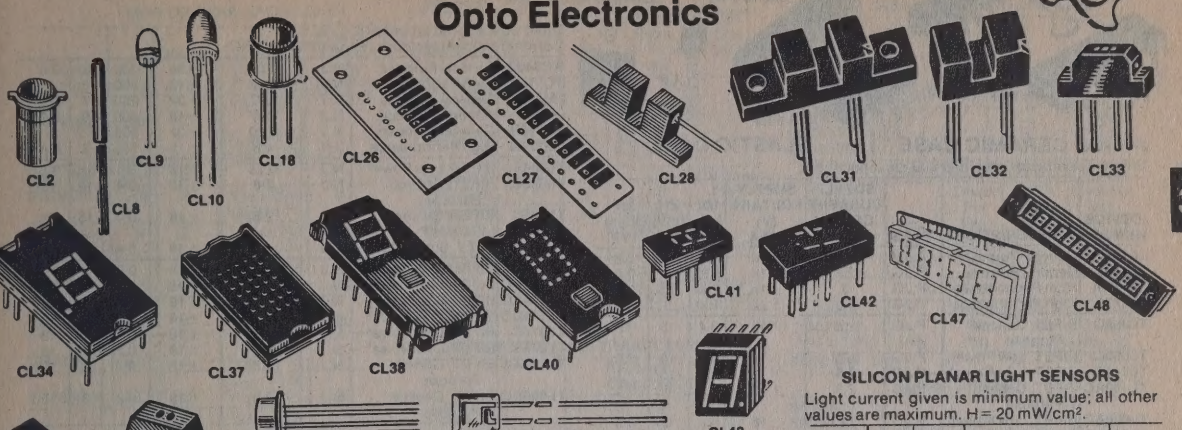
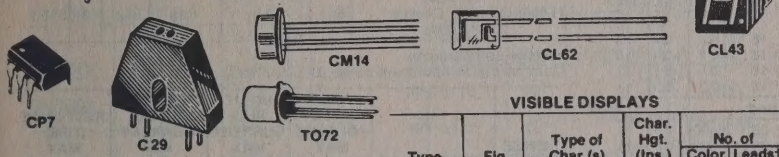
Opto Electronics





OPTOCOUPLERS/ISOLATORS

Device Number	Isolation Voltage (kV) Peak	Isolation Voltage (kV) RMS	Package
3N261	1.0	—	TO-72
3N262	1.0	—	TO-72
3N263	1.0	—	TO-72
4N22*	1.0	—	TO-39
4N23*	1.0	—	TO-39
4N24*	1.0	—	TO-39
4N25†	2.5	—	CP-7
4N26	1.5	—	CP-7
4N27	1.5	—	CP-7
4N28	0.5	—	CP-7
4N36	2.5	1.75	CP-7
4N37	1.5	1.05	CP-7
TIL 102	1.0	—	TO-39
TIL 103	1.0	—	TO-39
TIL 120	1.0	—	TO-72
TIL 21	1.0	—	TO-72
MCT2	1.5	—	CP-7
MCT2E	2.5	—	CP-7
TIL 111	1.5	—	CP-7
TIL 112	1.5	—	CP-7
TIL 113	1.5	—	CP-7
TIL 114	2.5	)	CP-7
TIL 115	2.5	—	CP-7
TIL 116	2.5	—	CP-7
TIL 117†	2.5	—	CP-7
TIL 118	1.5	—	CP-7
TIL 119†‡	1.5	—	CP-7
TIL 124	5.0	—	CP-7
TIL 25	5.0	—	CP-7
TIL 126	5.0	—	CP-7
TIL 127	5.0	—	CP-7
TIL 128	5.0	—	CP-7
TIL 153	3.54	2.5	CP-7
TIL 154	3.54	2.5	CP-7
TIL 156	3.54	2.5	CP-7
TIL 156	3.54	2.5	CP-7
TIL 157	3.54	2.5	CP-7

VISIBLE LIGHT SOURCES

Type	Fig.	No. of Elements	Light Color	Output Min. (μcd)	Output @ IF (mA)F
TIL209A	C19	1	Red	500	20
TIL212	CL9	1	Yellow	1000	10
TIL216	CL9	1	Red	1500	10
TIL220	CL10	1	Red	800	20
TIL221	CL10	1	Red	1000	20
TIL224	CL10	1	Yellow	1500	10
TIL228	CL10	1	Red	2000	10
TIL232	CL9	1	Green	700	10
TIL234	CL10	1	Green	1000	10
5082-4550	CL10	1	Yellow	1.0	10
5082-4650	CL10	1	Yellow	2.2	10
5082-4655	CL10	1	Red	2.6	10
5082-4950	CL10	1	Red	.8	10
5082-4955	CL10	1	Green	2.1	20

VISIBLE DISPLAYS

Type	Fig.	Type of Char.(s)	Char. Hgt. (Ins.)	No. of Color	No. of Leads†
TIL302	CL34	7-seg.	.27	Red	14
TIL303	CL34				
TIL304	CL34	Pol. & overflow	.27	Red	14
TIL305	CL37	5 x 7 o.n.	.30	Red	14
TIL306	CL38	7-seg.	.27	Red	16
TIL307	CL38				
TIL308	CL38				
TIL309	CL38				
TIL311	CL40	Hexodec.	.27	Red	14
TIL312	CL41	7-seg.	.30	Red	14
TIL313	CL41				
TIL321A	CL43	7-seg.	.50	Red	10
TIL322A	CL43				
TIL327	CL42	Pol. &	.30	Red	14
TIL330A	CL43		.50	Red	10
TIL339	CL-41	7-segment, R & L LHDP	0.3"	Yellow	.....
TIL340	CL-41	7-segment, RHDP	0.3"	Yellow	.....
TIL341	CL-42	± 1, LHDP	0.3"	Yellow	.....
TIL345	CL-43	7 segment Disp RHDP	0.5"	Yellow	.....
TIL346	CL-43	7 segment Disp RHDP	0.5"	Yellow	.....
TIL347	CL-43	Overflow RHDP Disp	0.5"	Yellow	.....
TIL373	CL147			Red	.....
TIL804-8	CL48	7-seg. 8-digit	.27	Red	.....
TIL804-10	CL48	7-seg. 10-Digit	.27	Red	.....
TIL804-12	CL48	7-seg. 12-digit	.27	Red	.....
5082-7730	C141	7-seg.	.3	Red	.....
5082-7731	CL41	7-seg.	.3	Red	.....
5082-7740	CL41	7-seg.	.3	Red	.....
TIL393-6	C448	7-seg. 6-digit	.102	Red	18
TIL393-8	C448	7-seg. 8-digit	.102	Red	18
TIL393-9	C448	7-seg. 9-digit	.102	Red	18
TIL829	CL-51	7-seg timer	0.5"	Red	.....
TIL830	CL-51	7-seg timer	0.5"	Red	.....
TIL831	CL-51	7-seg timer	0.5"	Red	.....
TIL832	CL-51	7-seg timer	0.5"	Red	.....
TIL833	CL-51	7-seg timer	0.5"	Red	.....
TIL834	CL-51	7-seg timer	0.5"	Red	.....
TIL835	CL-51	7-seg CA	0.5"	Red	.....
TIL836	CL-51	7-seg CC	0.5"	Red	.....
TIL837	CL-51	7-seg CC	0.27"	Red	.....
TIL838	CL-51	7-seg CC	0.27"	Red	.....
TIL839	CL-51	7-seg CA	0.5"	Red	.....
TIL840	CL-51	7-seg CC	0.5"	Red	.....
TIL842	CL-51	7-seg CA	0.5"	Red	.....
TIL844	CL-47	7-seg & RHDPs	0.102"	Red	.....

SILICON PLANAR LIGHT SENSORS

Light current given is minimum value; all other values are maximum. H = 20 mW/cm².

Type	Fig.	No. of Elements	Current at Voltage Light mA	Light V	Dark nA	Dark V	PD mW
1N5722	CL2	1	0.5	5	25	30	50
1N5723	CL2	1	2	5	25	30	50
1N5724	CI2	1	4	5	25	30	50
1N5725	CL2	1	7	5	25	30	50
LS600	CL2	1	0.8*	5	25	30	50
TIL78	CL9	1	1	5	25	30	50
TIL81	CL18	1	5	5	100	10	250

SILICON PLANAR LIGHT SENSORS

Type	Fig.	No. of Elements	Current at Voltage Light mA	Light V	Dark nA	Dark V	PD mW
TIL601	CL2	1	0.5	5	25	30	50
TIL602	CL2	1	2	5	25	30	50
TIL603	CL2	1	4	5	25	30	50
TIL604	CL2	1	7	5	25	30	50
TIL411	CL62	1	400	5	100	5	50
TIL412	CL62	1	.8	1	100	5	50
TIL413	CL62	1	10	10	5	10	150

*H = 9 mW/CM², wavelength = 0.7 to 1μm.
†Less lens.
refer to figures on opposite page.

SENSOR/EMITTER ARRAYS

Type	Fig.	Description
TIL131	CL26	Nine-element LED array
TIL132	CL26	Nine-element photo-transistor array
TIL133	CL26	Nine-channel LED/ phototransistor array
TIL134	CL27	Twelve-element LED array

#Watch display. †Plastic DIP.

SENSOR/EMITTER ARRAYS (Cont.)

Type	Fig.	Description
TIL135	CL27	Twelve-element photo-transistor array
TIL136	CL27	Twelve-channel LED/ phototransistor array
TIL138	CL28	One-channel trans-missive assembly
TIL139	CL29	One-channel reflective assembly
TIL141	.....	Twelve-channel optical reader
TIL142	.....	Twelve-channel optical reader w/plug-in conn.
TIL143	CL31	One-channel trans-missive assembly
TIL144	CL31	
TIL145	CL31	
TIL146	CL31	
TIL147	CL32	
TIL148	CL32	
TIL149	CL33	One-channel reflective assembly
TIL158	CL-32	One-channel trans-missive assembly
TIL159		
TIL160	CL-32	One-channel trans-missive assembly
TIL161	CL-32	One-channel trans-missive assembly

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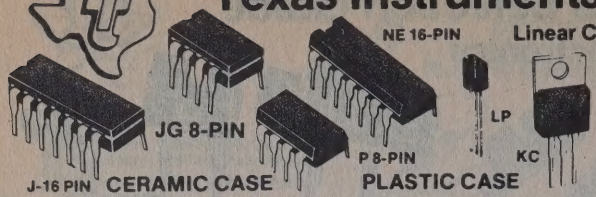


Linear Circuits

3

Single operational amplifiers: Uncompensated

DEVICE NUMBER	DESCRIPTION	PKGS.	SUPPLY CURRENT ICC (mA) MAX	SUPPLY VOLTAGE (V) MAX	IIB (nA) MAX	V10 (mV) MAX	SR (V/μs) TYP
μA709C	General Purpose	P,JG	5.5	± 18	1500	7.5	0.3
μA748C	General Purpose	P,JG	2.8	± 18	500	6	0.5
LM301A	High Performance	P,JG	3	± 18	250	7.5	0.5
μA777C	High Performance	P,JG	3.3	± 22	100	5	0.5
TL080C	BIFET, General Purpose	P,JG	2.8	± 18	0.4	15	13
TL060C	BIFET, Low Power	P,JG	0.25	± 18	0.4	15	3.5
TL070C	BIFET, Low Noise*	P,JG	2.5	± 18	0.4	15	13
TL080AC	BIFET, General Purpose	P,JG	2.8	± 18	0.2	6	13
TL060AC	BIFET, Low Power	P,JG	0.25	± 18	0.2	6	3.5
TL060BC	BIFET, Low Power	P,JG	0.25	± 18	0.2	3	3.5
TL070AC	BIFET, Low Noise*	P,JG	2.5	± 18	0.2	6	13
TL070BC	BIFET, Low Noise*	P,JG	2.5	± 18	0.2	3	13

Single operational amplifiers: Internally compensated

NE5534	Low Noise	P,JG	8	± 22	1500	4	13
NE5534A	Low Noise	P,JG	8	± 22	1500	4	13
μ A741C	General Purpose	P,JG	2.8	± 18	500	6	0.5
LM318	High Performance	P,JG	10	± 20	500	10	70
LM307	High Performance	P,JG	3	± 18	250	7.5	0.5
TL321C	General Purpose, Single Supply	P,JG	0.5	± 32	250	7	0.5
OP-07D	Very Low Offset V.	P,JG	5.0	± 18	12	0.15	0.2
OP-07C	Very Low Offset V.	P,JG	5.0	± 18	7	0.15	0.2
μA-714C	Very Low Offset V.	P	5.0	± 18	7	0.15	0.2
OP-07E	Very Low Offset V.	P,JG	4.0	± 18	4	0.075	0.2
μA-714E	Very Low Offset V.	P,JG	4.0	± 18	4	0.075	0.2
TL061C	BIFET, Lower Power	P,JG	0.25	± 18	0.4	15	3.5
TL066C	BIFET, Low Power with Power Control	P,JG	0.25	± 18	0.4	15	3.5
TL018C	BIFET, General Purpose	P,JG	2.8	± 18	0.4	15	13
TL087C	BIFET, Low V10	P,JG	2.8	± 18	0.4	0.5	13
TL088C	BIFET, Low V10	P,JG	2.8	± 18	0.4	2	13
TL091C	NFET, Single Supply	P,JG	2.5	± 18	0.4	15	0.6
TL061AC	BIFET, Low Power	P,JG	0.25	± 18	0.2	6	3.5
TL061BC	BIFET, Low Power	P,JG	0.25	± 18	0.2	3	3.5
TL066AC	BIFET, Low Power with Power Control	P,JG	0.25	± 18	0.2	6	3.5
TL066BC	BIFET, Low Power with Power Control	P,JG	0.25	± 18	0.2	3	3.5
TL071AC	BIFET, Low Noise*	P,JG	2.5	± 18	0.2	6	13
TL071C	BIFET, Low Noise*	P,JG	2.5	± 18	0.2	10	13
TL081AC	BIFET, General Purpose	P,JG	2.8	± 18	0.2	6	13
TL081BC	BIFET, General Purpose	P,JG	2.8	± 18	0.2	3	13
TL068C	BIFET, Buffet	LP	0.25	± 18	0.2	15	7

Dual operational amplifiers:
Commercial temperature range (0° C to 70° C)

NE5532	Low Noise	P,JG	16	± 22	800	4	9
NE5532A	Low Noise	P,JG	16	± 22	800	4	9
MC1458	General Purpose	P,JG	2.8	± 18	500	6	0.5
RC4558	High Performance	P,JG	2.8	± 18	500	6	1
TL322C	General Purpose	P,JG	4	+ 36	500	10	0.6
μA747C	General Purpose	N,J	2.8	± 18	500	6	0.5
LM358	General Purpose	P,JG	0.6	+ 32	250	7	0.3
TL022C	Low Power	P,JG	0.125	± 18	250	5	0.5
TL062C	BIFET, Low Power	P,JG	0.25	± 18	0.4	15	3.5
TL082C	BIFET, General Purpose	P,JG	2.8	± 18	0.4	15	13
TL083C	BIFET, General Purpose	N,J	2.8	± 18	0.4	15	13
TL287C	BIFET, Low Offset	P,JG	2.8	± 18	0.4	0.5	13
TL288C	BIFET, General Purpose	P,JG	2.8	± 18	0.4	3	13
TL092C	NFET, Single Supply	P,JG	5	± 18	0.4	15	0.6
TL062AC	BIFET, Low Power	P,JG	0.25	± 18	0.2	6	3.5
TL062BC	BIFET, Low Power	P,JG	0.25	± 18	0.2	3	3.5
TL072AC	BIFET, Low Noise*	P,JG	2.5	± 18	0.2	6	13
TL072BC	BIFET, Low Noise*	P,JG	2.5	± 18	0.2	3	13
TL072C	BIFET, Low Noise*	P,JG	2.5	± 18	0.2	10	13
TL082AC	BIFET, General Purpose	P,JG	2.8	± 18	0.2	6	13
TL082BC	BIFET, General Purpose	P,JG	2.8	± 18	0.2	3	13
TL083AC	BIFET, General Purpose	N,J	2.8	± 18	0.2	6	13

Quad operational amplifiers:
Commercial temperature range (0° C to 70° C)

MC3403	General Purpose	N,J	7	± 36	500	10	0.6
RC4136	High Performance	N,J	2.8	± 18	500	6	1
LM324	General Purpose	N,J	0.5	+ 32	250	7	0.5
LM348	General Purpose	N,J	4.5	± 18	200	6	0.5
LM3900	General Purpose	N,J	0.10	+ 32	200	1.2	5
LM324A	High Performance	J,N	4.8	± 15	100	3	NA
TL064C	BIFET, Low Power	N,J	0.25	± 18	0.4	15	3.5
TL084C	BIFET, General Purpose	N,J	2.8	± 18	0.4	15	13
TL085C	BIFET, General Purpose	N	2.8	± 18	0.4	15	13
TL094C	NFET, Single Supply	J,N	10	± 18	0.4	15	0.6
TL064AC	BIFET, Low Power	N,J	0.25	± 18	0.2	6	3.5
TL064BC	BIFET, Low Power	N,J	0.25	± 18	0.2	3	3.5
TL074AC	BIFET, Low Noise*	N,J	2.5	± 18	0.2	6	13
TL074BC	BIFET, Low Noise*	N,J	2.5	± 18	0.2	3	13
TL074C	BIFET, Low Noise*	N,J	2.5	± 18	0.2	10	13
TL075C	BIFET, Low Noise*	N	2.5	± 18	0.2	10	13
TL084AC	BIFET, General Purpose	N,J	2.8	± 18	0.2	6	13
TL084BC	BIFET, General Purpose	N,J	2.8	± 18	0.2	3	13

Voltage comparators:
Commercial temperature range (0° C to 70° C)

DEVICE NUMBER	TYPE	PKGS.	INPUT OFFSET VOLTAGE MAX (mV)	INPUT BIAS CURRENT MAX (μA)	LOW-LEVEL OUTPUT CURRENT MIN (mA)	RESPONSE TIME MAX (ns)
LM306	Single	P,JG	5	40	100	
LM311*	Single	P,JG	10	0.3	8	165(Typ)
TL311*	Single	P,JG	13	0.01	8	210(Typ)
TL331C*	Single	P,JG	5	0.25	6	1300(Typ)
TL810C	Single	P,JG	4.5	30	0.5	80
μA710C	Single	P,JG,J	5	25	1.6	
LM393*	Dual	P,JG	5	0.25	6	1300(Typ)
TL506C	Dual	N,J	5	25	100	
TL514C	Dual	N,J	4.5	30	0.5	80
TL811C	Dual	N,J	5	30	0.5	
TL820C	Dual	N,J	4.5	30	0.5	80
μA711C	Dual Channel Dual Channel	P,JG N,J	10	150	0.5	400(Typ)
LM339*	Quad	N,J	5	−0.25	6	1300(Typ)
LM338A*	Quad	N,J	2	0.25	6	
TL306*	Hex	N,J	5	−.25	6	

FIXED OUTPUT VOLTAGE REGULATORS

Available output voltage for above regulator series

DEVICE SERIES	VOLTAGE SELECTIONS 2.6	5	5.2	6	8	8.5	9	10	12	15	16	20	22	24	PKGS.
Positive output regulators															
LM340		X		X	X			X	X	X	X			X	KC
TL780-00C		X							X	X					KC
μA7800C		X		X	X	X		X	X	X	X		X	X	KC
μA78L00C	X	X		6.2	X		X	X	X	X					LP
μA78L00AC	X	X		6.2	X		X	X	X	X					LP
μA78M00C*		X		X	X	X		X	X	X		X	X	X	KC
Negative output regulators															
MC79L00AC		X							X	X					LP
μA7900C		X	X	X	X				X	X	X			X	KC
μA79M00C*		X		X	X				X	X		X		X	KC

*Also available in Military temperature range (M suffix with JG and FC packages)

VARIABLE OUTPUT VOLTAGE REGULATORS

Positive output series regulators

DEVICE NUMBER	OUTPUT VOLTAGE MIN	OUTPUT VOLTAGE MAX	DIFFERENTIAL VOLTAGE MAX	OUTPUT VOLTAGE RATING	PACKAGES
LM317	1.2 V	37 V	VIN—1.2 V	1.5A	KC
TL317	1.2 V	32 V	VIN—1.2 V	100 mA	LP,P
TL783C	10 V	125 V	125 V	700 mA	KC
μA723C*	3 V	38 V	37 V	25 mA	J,N

Negative output series regulator

LM337	1.2 V	37 V	VIN + 1.2 V	1.5A/0.5 A	KC

Positive shunt regulators

DEVICE NUMBER	SHUNT MIN	VOLTAGE MAX	SHUNT MIN	CURRENT MAX	TEMP. COEFF MAX
TL430C*	3 V	30 V	2 mA	100 mA	200 ppm/°C
TL431C*	3 V	30 V	0.5 mA	100 mA	100 ppm/°C
TL4311**	2.55 V	36 V	1 mA	100 mA	100 ppm/°C

*Also available in Military temperature range (M suffix).
**I — Suffix for Industrial Temperature Range.

Texas Instruments Linear Circuits

MOS DRIVERS (0°C to 70°C)

Device No.	Pkg.	Drivers Per Pkg.	Power Supplies (Nominal)	Propagation Delay Time(ns)
SN75368	J,N	2	V_{cc1} = 5V V_{cc3} = 24V V_{EE} = 5.2V	
SN75369	JG,P	2		
SN75370	J,N	2	V_{ss} = 20V V_{REF} = 7V	80
SN75322	N	2	V_{cc1} = 5V V_{cc2} = 12V	31
SN75357	J,N	4	V_{cc1} = 5V V_{cc2} = 12V	25
SN75367	N	4	V_{cc1} = 5V V_{cc2} = 12V	20
SN75350	JG,P	2	V_{cc1} = 5V V_{cc2} = 15V	31
SN75361A	JG,P	2	V_{cc1} = 5V V_{cc2} = 20V	36
SN75375	J,N	4	V_{cc1} = 5V V_{cc2} –1V V_{cc2} = 20V	31
SN75363	J,N NE	2	V_{cc1} = 5V V_{cc2} = 12V V_{cc3} = 15V	33
SN75365	J,N	4	V_{cc1} = 5V V_{cc2} = 20V V_{cc3} = 24V	31
SN75366	J,N	4	V_{cc1} = 5V V_{cc2} = 20V V_{cc3} = 24V	33

SINGLE-ENDED LINE TRANSCEIVERS

Device Number 0°C to 70°C	Pkg.	Receiver/Driver Characteristics: Output Current Cap.	tPD Typical (ns)	Strobe OR Enable
AM26S10C	J,N		10	Strobe
AM26S11C	J,N	100mA	12	Strobe
SN75138	J,N		15	Strobe
SN75136	J,N	40mA	16	Enable
N8T26	J,N		1.4	Enable
N8T26A	J,N		11	Enable
MC3446	J,N	48mA	30	Strobe
SN75160A	J,N		12	Enable
SN75161A	J,N			
SN75162A	N			
SN75163A	N	48mA	12	Enable

DISPLAY DRIVERS (0°C TO 70°C)

Device Number	Pkg.	Drivers Per Pkg.	Power Supplies	Display Type
SN75426B SN75427B	J,N J,N	4	V_{cc1} = 12V V_{cc12} variable	from 40V to 90V
SN75500A SN75502A SN75501A SN75503A	N	32	V_{cc1} = 12V V_{cc2} variable from 40V to 100V	AC Plasma Displays
SN75520	N	7	V_{cc1} = 12V V_{cc2} variable from	12V to 150V
SN75491 SN75491A	N N	4 4	10V 20V	
SN75492 SN75492A	N N	6 6	10V 20V	
SN75494	N	6	Variable from 3.2V to 8.8V	LED Displays
SN75496 SN75496A	N N	6 6	10V 20V	
SN75497	N	7	Variable from	2.7V to 6.6V
SN75498	N	9	Variable from 2.7V to	
SN75480	NA	7	5V	
SN75584A	N	7½	Variable from 4.75V to 15V	Gas Discharge
SN75516 SN75517	N	32	V_{cc1} = 8.5V V_{cc1} = 70V	
SN75581	N	7	V_{cc1} = 5V V_{cc2} = 12V V_{OUT} –150V	
SN75490 SN75270	J,N J,N	6 7	±5V 5V	Thermal Print
UCN4810A SN75512A	N J,N	10	V_{cc1} = 12 V_{cc2} = 0-60V	Vacuum
SN75513A	N,J		V_{cc1} = 12 V_{cc2} = 0 to 60V	Flourescent

DIFFERENTIAL LINE TRANSCEIVERS

Device Number 0°C to 70°C	Pkg.	Receiver/Driver Characteristics: Strobe or Enable	Type* of Output	Common Mode Range
SN75116	J,N	Strobe	O-C or T-P	±15V
SN75117	JG,P		T-P O-C or	OV to 6V
SN75118	J,N	Enable	T-P	±15V
SN75119	JG,P		T-P	OV to 6V
SN75176	P,JG			±12
SN75177	P,JG	Enable	T-P	–7
SN75178	P,JG			

*T,P = Totem pole, O-C = Open-Collector

MEMORY DRIVERS

Device No. 0°C to 70°C	Pkg.	Power Supplies	Max. Output Current (mA)	Prop. Delay Time (ns)
SN75325	J,N	V_{cc1} = 5V, V_{cc2} variable to 24V	600	35
SN75326	J,N	V_{cc} = 5V	600	30
SN75327	J,N	V_{cc1} = 5V, V_{cc2} variable to 24V	600	35
SN75328 SN75330	N	V_{cc1} = 5V, V_{cc2} variable to 24V	600	40

TTL-compatible inputs Core memory applications

LINE DRIVERS
GENERAL PURPOSE DRIVERS

Device Number 0°C to 70°C	Pkg Type	Drivers Per Pkg	S = Single Ended D = Differential	Strobe or Enable
SN75450B	J,N	2	S,D	Yes
SN75451B	JG,P	2	S	Yes
SN75361A	JG,P	2	S	Yes
SN75121	J,N	2	S	Yes
N8T13	J,N	2	S	Yes
SN75183	J,N	2	D	Yes
SN75114	J,N	2	D	Yes
SN75113	J,N	2	D	Yes
DS8831	J,N	2,4*	S,D	Yes
DS8832	J,N	2,4*	S,D	Yes
9614C	J,N	2	D	Yes
DS8830	J,N	2	D	Yes

DRIVERS MEETING EIA STANDARDS

SN75172	J,N	4	D	Yes
SN75174	J,N,G	4	D	Yes
MC3487	J,N	4	D	Yes
SN75158	JG,P	2	D	Yes
SN75159	J,N	2	D	Yes
SN75151	J,N	4	D	Yes
SN75153	J,N	4	D	Yes
AM26LS31	J,N	4	D	Yes
µA9638C	JG,P	2	D	No
µA9636A	JG,P	2	S	No
SN75150	JG,P	2	S	Yes
SN75188	J,N	4	S	Yes
MC1488	J,N	4	S	Yes

360/370 I/O INTERFACE

SN75123	J,N	2	S	Yes
N8T23	J,N	2	S	Yes
SN75126	J,N	4	S	Yes
SN75130	J,N	4	S	Yes

CURRENT MODE DRIVERS

SN75112	J,N	2	D	Yes
SN75110A	J,N	2	D	Yes
SN75109A	J,N	2	D	Yes

PERIPHERAL DRIVERS

Device Number 0°C to 70°C	Pkg.	Drivers Per Pkg.	Off-St. Volt Max.(V)	Latch-Up Volt Min. (V)
100 mA DRIVERS				
SN75441	J,N	2	30	20
1.0A DRIVER				
SN75438	NE	4	70	35
300 mA DRIVERS				
SN75430				
SN75431	J,N	2	15	15
SN75450B	J,N	2	30	20
SN75451B				
SN75460				
SN75461		2	35	30
SN75470				
SN75471		2	70	55
SN75476		2	70	55
SN75432		2	15	15
SN75452B		2	30	20
SN75462		2	35	30
SN75472		2	70	55
SN75477		2	70	55
SN75433		2	15	15
SN75453B	JG,P	2	30	20
SN75463		2	35	30
SN75473		2	70	55
SN75478		2	70	55
SN75434		2	15	15
SN75454B		2	30	20
SN75464		2	35	30
SN75474		2	70	55
SN75479		2	70	55
350 mA DRIVERS				
SN75446		2	70	50
SN75447	JG,P	2	70	50
SN75448		2	70	50
SN75449		2	70	50
ULN2001A		7	50	50
SN75466		7	100	60
ULN2002A		7	50	50
SN75467	J,N	7	100	60
ULN2003A		7	50	50
SN75468		7	100	60
ULN2004A		7	50	50
SN75469		7	100	60
500 mA DRIVERS				
SN75401		2	35	30
SN75411		2	70	55
SN75416		2	70	55
SN75402		2	35	30
SN75412		2	70	55
SN75417		2	70	55
SN75436		4	70	50
SN75437A		4	70	35
SN75403	NE	2	35	30
SN75413		2	70	55
SN75418		2	70	55
SN75404		2	35	30
SN75414		2	70	55
SN75419		2	70	55
TL376		2	22	18
1.5A DRIVERS				
ULN2064		4	50	35
SN75064		4	50	35
ULN2065		4	80	50
SN75065		4	80	50
ULN2066		4	50	35
SN75066		4	50	35
ULN2067		4	80	50
SN75067		4	80	50
ULN2068	NE	4	50	35
SN75068		4	50	35
ULN2074		4	50	35
SN75074		4	50	35
UDN2841		4	50	35
UDN2845		4	50	35
ULN2069		4	80	50
SN75069		4	80	50
ULN2075		4	80	50
SN75075		4	80	50

Texas Instruments Selection Guide

LINEAR CIRCUITS

SWITCHING VOLTAGE REGULATORS

FEATURES	DEVICE NUMBER								
	SG3524	SG3525A	SG3527A	TL493AC	TL494AC	TL495AC	TL496C	TL497AC	TL497AI*
Fixed on Time							X	X	X
Fixed Frequency PWM	X	X	X	X	X	X		X	X
General Purpose	X	X	X	X	X	X			
Special Purpose							X		
On Chip Reference	X	X	X	X	X	X	X	X	X
On Chip Precision Reference		X	X	X	X	X			
Inhibit Control	X	X	X	X	X	X		X	X
Dual Time ADJ.		X	X	X	X	X			
On Chip Regulator						X			
Current Sense Amp.				X			X	X	X
Error Amp.	2	X	X	X	2	2		X	X
Expandable		X	X	X	X	X			
Double Pulse Prot.			X	X	X	X			
Operatable to 40V	X	35 V	35 V	X	X	X			
Operatable above 40V						X			
Internal soft start		X	X						
Under Voltage Lockout			X	X	X	X			
Totem Pole Output		X	X						
Parralable outputs				X	X	X			
Single ended output							X	X	X
Double ended output	X	X	X	X	X	X			
Packages	J,N	J,N	J,N	J,N	J,N	J,N	P,JG	J,N	J,N

*I — Suffix is for Industrial Temperature Range.

Line Receivers:

Receivers for 360/370 I/O interface

DEVICE NUMBER 0° C to 70° C	PKG. TYPE	RECEIVERS PER PACKAGE	S=SINGLE ENDED D=DIFFERENTIAL	TYPE OF OUTPUT	POWER SUPPLIES (V)	STROBE OR ENABLE
SN75124 N8T24	J,N J,N	3	S	T-P	5	Yes
SN75125 SN75127	J,N J,N	7	S	T-P	5	No
SN75128 SN75129	K,N J,N	8	S	T-P	5	Yes
General Purpose receivers						
SN75207 SN75207B	J,N J,N			T-P		Yes
SN75208 SN75208B	J,N J,N			O-C		Yes
SN75107A SN75107B	J,N J,N	2	D	T-P	±5	Yes
SN75108A SN75108B	J,N J,N			O-C		Yes
SN75122 N8T14	J,N J,N	3			5	Yes
SN75140 SN75141 SN75142A SN75143A	JG,P JG,P J,N J,N	2	S	T-P	5	Yes

Receivers meeting EIA standard RS-422/423

AM26LS32A AM26LS33A MC3486 μA9637A SN75157 SN75173 SN75175	N,J J,N N,J P,JG JG,P N,J N,J	4 4 4 2 2 4 4	S,D	T-P	6 5 5 5 5	 E No E/E E

Receivers with response time control

9615C	J,N	2	D	O-C or T-P	5	Yes
SN75182	J,N			T-P		
DS8820A	J,N			O-C		
SN75115	J,N	2		or T-P T-P		

Receivers meeting EIA standard RS-232-C

SN75154	J,N,FC	4	S	T-P	5 or 12	No
SN75189 MC1489 SN75189A MC1489A	J,N J,N J,N J,N	4	S	R	5	No
SN75152	J,N	2	D	R	±12	Yes

DATA ACQUISITION FUNCTIONS

LEVEL DETECTORS

Device Number	Resolution	Output Structure	Cascadable	Pkg.
TL489C	5-Level	Open-Collector	No	P,JG
TL487C	5-Level	Open-Collector	No	P,JG
TL490C	10-Level	Open-Collector	Yes	N,J
TL491C	10-Level	Open-Emitter	Yes	N,J

A-to-D CONVERTERS

Device Number	Function	Pkg.

DUAL-SLOPE CONVERTERS

TL500C	Analog processor	N
TL501C	Analog processor	N
TL505C	Analog processor	N
TL502C	4½ digit seven segment output digital processor	N
TL503C	Multiplexed BCD output digital processor	N

SINGLE-SLOPE CONVERTER

TL507C	Pulse width modulator	P

SUCCESSIVE-APPROXIMATION CONVERTERS

TL520C	8-Wide analog input mux Switched capacitor ± ½ LSB	N
ADC0808	8-Wide analog input mux Resistor Ladder ± ½ LSB	N
ADC0809	8-Wide analog input mux Resistor Ladder ± 1 LSB	N

LINEAR PARTS ALSO AVAILABLE IN MILITARY AND INDUSTRIAL RANGES.

ANALOG SWITCHES: BI-MOS (30 mA CAPABILITY)

Device Number 0 to 70°C	Function	Z_{SW}(TYP) OHMSΩ	Analog Range (V)	Pkgs.
TL182C	Twin SPST	100	±10	N
TL185C	Twin DPST	150	±10	N
TL188C	Dual Comp. SPST	100	±10	N
TL191C	Twin Dual Comp. SPST	150	±10	N

ANALOG SWITCHES: PMOS (10 mA CAPABILITY)

TL601C	SPDT	200	±10	P
TL604C	Dual Comp. SPST	200	±10	P
TL607C	SPDT with enable	200	±10	P
TL610C	SPST with 3 logic inputs	100	±10	P

CURRENT MIRRORS (FIXED RATIO)

Device Number	Current Ratio Input	to Output	Package
TL011C	1	1	LP
TL012C	1	2	LP
TL014C	1	4	LP
TL021C	2	1	LP

CURRENT MIRRORS (SELECTABLE RATIO)

Device No.	33 Available ratios Input	Output	V in (Min)	V out (Min)	Max Ratio Error	Pkg.
TL010	1 to 31	to 15	2 V_{BE}	V_{BE} + SAT	10%	P

HALL EFFECT SWITCHES

Device Number	Description	ON (G)	OFF (G)	HYS (G)
TL170	Gen. Purp. Sw.	+350	-350	200
TL172	Norm. Off	+600	+100	230

TIMERS

Device Number 0-70°C	Timing		Output Current	Pkgs.
NE555	1μS	1S	±200 mA	P,JG
	1μS	1S	±200 mA	P,JG,U,FC
NE556*	1μS	1S	±200 mA	N,J,FC
μA2240C	10μS	DAYS	-4 mA	N,J

AMPLIFIERS (0°C to 70°C)

Device No.	Pkgs.	Description
TL441C	N,J	Logrithmic Amplifier
μA733C	N,J	Differential VIDEO Amplifier
NE592	N,J	Differential VIDEO Amplifier
MC1445	N,J	2-Channel-Input VIDEO Amplifier
TL068C	LP	FET INPUT VOLTAGE follows Buffer Amplifier.
MC3470	N	DISC Read Amplifier

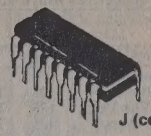
MISCELLANEOUS FUNCTIONS (0°C—70°C)

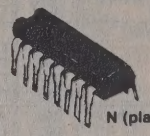
Device Number	Pkgs	Function
TL195C	N	NFET Sample-and-Hold
TL376C	NE	Three-Channel Stepper Motor Driver
TL440C	N,J	Zero-Voltage Switch
TL442C	N,J	Balanced MIXER

Texas Instruments Selection Guide
Digital Logic Products

Package information

TECHNOLOGY			STANDARD TTL	ADVANCED LOW POWER SCHOTTKY TTL	ADVANCED SCHOTTKY TTL	HIGH SPEED TTL	LOW POWER SCHOTTKY TTL	SCHOTTKY TTL
Device Series	(0°C to 70°C)	SN74	SN74	SN74ALS	SN74AS	SN74H	SN74LS	SN74S
	(−55°C to 125°C)	SN54 JANB SNJ	SN54 JANB54 SNJ54	SN54ALS JANB54ALS SNJ54ALS	SN54AS SNJ54AS	SN54H JANB54H SNJ54H	SN54LS JANB54LS SNJ54LS	SN54S JANB54S SNJ54S
Packages Available	(0°C to 70°C)	SN74	J,N	N,FN	N,FN		J,N	J,N
	(−55°C to 125°C)	SN54 JANB SNJ	J,W,FC* J J,W,FC*	J,FC J J,FC	J,FC J,FC	J,W J J,W	J,W,FC J J,W,FC	J,W,FC J J,W,FC


J (ceramic)


N (plastic)

POSITIVE-NAND GATES AND INVERTERS

Description	Device# SN74	AVAILABLE TECHNOLOGY
Hex 2-Input Gates	'804:	'AS
Hex Inverters	'04:	TTL, 'ALS, 'H, 'LS, 'S
Quadruple 2-Input Gates	'00: '1000:	TTL, 'ALS, 'H, 'LS,'S 'LS
Triple 3-Input Gates	'10: '1010:	TTL 'ALS,'H,'LS,'S 'ALS
Dual 4-Input Gates	'20: '1020:	TTL, 'ALS, 'H, 'LS, 'S 'ALS
8-Input Gates	'30:	TTL, 'ALS, 'AS, 'H, 'LS, 'S
13-Input Gates	'133:	'ALS, 'S

POSITIVE NAND GATES AND INVERTERS WITH OPEN-COLLECTOR OUTPUTS

Hex Inverters	'05:	TTL, 'ALS, 'H, 'LS, 'S
Quadruple 2-Input Gates	'01: '03:	TTL, 'ALS, 'H, 'LS TTL, 'ALS, 'LS, 'S
Triple 3-Input Gates	'1003: '12:	'ALS TTL, 'ALS, 'LS
Dual 4-Input Gates	'22:	TTL, 'ALS, 'H, 'LS, 'S

POSITIVE-AND GATES

Hex 2-Input Gates	'808:	'AS
Quadruple 2-Input Gates	'08: '1008:	TTL, 'ALS, 'H, 'LS 'ALS
Triple 3-Input Gates	'11: '1011:	'ALS, 'H, 'LS, 'S 'ALS
Dual 4-Input Gates	'21:	'ALS, 'H, 'LS

POSITIVE-AND GATES WITH OPEN-COLLECTOR OUTPUTS

Quadruple 2-Input Gates	'09:	TTL, 'ALS, 'LS, 'S
Triple 3-Input Gates	'15:	'ALS, 'H, 'LS, 'S

POSITIVE-NOR GATES

Hex 2-Input Gates	'805:	'AS
Quadruple 2-Input Gates	'02: '1002:	TTL, 'ALS, 'LS, 'S 'ALS
Triple 3-Input Gates	'27:	TTL, 'ALS, 'LS
Dual 4-Input Gates with Strobe	'25:	TTL
Dual 5-Input Gates	'260:	'S

POSITIVE-OR GATES

Description	Device# SN74	AVAILABLE TECHNOLOGY
Hex 2-Input Gates	'832:	'AS
Quadruple 2-Input Gates	'32: '1032:	TTL, 'ALS, 'LS, 'S 'ALS

SCHMITT-TRIGGER POSITIVE-NAND GATES AND INVERTERS

Hex Inverters	'14: '19:	TTL, 'LS 'LS
Dual 4-Input Positive-NAND	'13: '18:	TTL, 'LS 'LS
Quadruple 2-Input Positive NAND	'24: '132:	'LS TTL, 'LS, 'S

AND-OR INVERT GATES

2-Wide 4-Input	'55:	'H, 'LS
4-Wide 4-2-3-2-Input	'64:	'S
4-Wide-2-2-3-2-Input	'54:	'H
4-Wide 2-Input	'54:	TTL
4-Wide 2-3-3-2-Input	'54:	'LS
4-Wide 2-3-3-2-Input	'54:	
Dual 2-Wide 2-Input	'51:	TTL, 'H, 'LS, 'S

AND-OR INVERT GATES WITH OPEN COLLECTOR OUTPUTS

4-Wide 4-2-3-2-Input	'65:	'S

EXPANDABLE GATES

Dual 4-Input Positive-NOR With Strobe	'23:	TTL
4-Wide AND-OR	'52:	'H
4-Wide AND-OR-Invert	'53:	TTL, 'H
2-Wide AND-OR-Invert	'55:	'H, 'LS
Dual 2-Wide AND-OR-Invert	'50:	TTL, 'H

EXPANDERS

Dual 4-Input	'60:	TTL, 'H
Triple 3-Input	'61:	'H
3-2-2-3-Input AND-OR	'62:	'H

CURRENT-SENSING GATES

Hex	'63:	'LS

BUFFERS, CLOCK/MEMORY DRIVERS

Description	Device# SN74	AVAILABLE TECHNOLOGY
Quad 2-Input Positive-NAND	'37:	TTL, 'ALS, 'LS, 'LS
Dual 4-Input Positive-NAND	'40:	TTL, 'ALS, 'H, 'LS, 'S
Line Driver/ Memory Driver	'436:	'S
Line Driver/ Memory Driver	'437:	'S
Quad 2-Input Positive-NAND	'1000:	'ALS
Quad 2-Input Positive-NOR	'1002:	'ALS
Quad 2-Input Positive-AND	'1008:	'ALS
Triple 3-Input Positive-NAND	'1010:	'ALS
Triple 3-Input Positive-AND	'1011:	'ALS
Dual 4-Input Positive-NAND	'1020:	'ALS
Quad 2-Input Positive-OR	'1032:	'AS
Hex 2-Input Positive-NAND	'804:	'AS
Hex 2-Input Positive-NOR	'805:	'AS
Hex 2-Input Positive-AND	'808:	'AS
Hex 2-Input Positive-OR	'832:	'AS

50-OHM/75-OHM LINE DRIVERS

Dual 4-Input Positive-NAND	'140:	'S
Quad 2-Input Positive-NOR	'128:	TTL
Hex 2-Input Positive-NAND	'804:	'AS
Hex 2-Input Positive-NOR	'805:	'AS
Hex 2-Input Positive-AND	'808:	'AS
Hex 2-Input Positive-OR	'832:	'AS

BUFFER AND INTERFACE GATES WITH OPEN-COLLECTOR OUTPUTS

Hex	'07: '17:	TTL TTL
Hex Inverter	'06: '16:	TTL TTL
Quad 2-Input Positive-NAND	'26: '38:	TTL, 'LS TTL, 'ALS, 'LS, 'S
Quad 2-Input Input Positive-NOR	'1003: '33:	'ALS TTL, 'ALS, 'LS

Texas Instruments Selection Guide

Digital Logic Products

3

Gates, buffers, drivers, and bus transceivers with 3-state outputs

Description	Device# SN74	AVAILABLE TECHNOLOGY
12-Input NAND Gate	'134:	'S
Quadruple Bus Buffers/ Drivers With Independent Output Controls	'125: '126: '425: '426:	TTL, 'LS TTL, 'LS TTL TTL
Hex Buffers/ Drivers	'365: '366: '367: '368:	TTL, 'LS TTL, 'LS TTL, 'LS TTL, 'LS
Octal Bus Buffers/ Drivers	'240: '241: '244: '340: '344: '541:	'ALS, 'LS, 'S 'LS, 'S 'LS, 'S 'S 'S 'ALS, 'LS
Controller and Bus Driver for 8080A System	'428: '438:	'S 'S
Quadruple Transceivers Inverting 3-State Output	'242: '1242:@	'LS
Quadruple Transceivers Non-Inverting 3-State Output	'243:	'LS
Quadruple Transceivers With Storage	'226:	'S
Octal Transceivers	'245:	'ALS, 'LS
Octal Buffer 3-State	'465: '467:	'LS 'LS
Inv. Octal Buffer 3-State	'466: '468:	'LS 'LS

@ = Very low power

Dual and single flip-flops

Dual J-K Edge-Triggered	'73: '76: '78: '108: '106: '107: '108: '109: '112: '113: '114:	'LS 'LS 'LS 'H 'H 'LS 'H TTL, 'ALS, 'LS 'ALS, 'LS, 'S 'ALS, 'LS, 'S 'ALS, 'LS, 'S
Single J-K Edge-Triggered	'70: '101: '102:	TTL 'H 'H
Dual Pulse-Triggered	'73: '76: '78: '107:	TTL, 'H TTL, 'H 'H TTL
Single Pulse-Triggered	'71: '72:	'H TTL, 'H
Dual J-K With Data Lockout	'111:	TTL
Single J-K With Data Lockout	'110:	TTL
Dual D-Type	'74:	TTL, 'ALS, 'AS, 'H, 'LS, 'S

S-R latches

Quadruple	'279: TTL, 'LS

Monostable multivibrators with Schmitt-trigger inputs

Description	Device No.
Single	'121: 'ALS
Dual	'221: TTL, 'AS

Retriggerable monostable multivitrators

Description	Device No.SN74
Single	'122: TTL, 'LS '422: 'LS
Dual	'123: TTL, 'LS '423: 'LS

Clock generator circuits

Description	Device No.SN74
Quadruple Complementary-Output Logic Elements	'265: TTL
Dual Pulse Synchronizers/ Drivers	'120: TTL
Crystal-Controlled Oscillators	'320: 'LS '321: 'LS
Digital Phase-Lock Loop	'297: 'LS
Programmable Frequency Dividers/Digital Timers	'292: 'LS '294: 'LS
8080A Clock Drivers	'424: 'LS

Other registers

Quadruple Multiplexers With Storage	'98: 'L '298: TTL, 'LS '398: 'LS '399: 'LS
8-Bit Universal Shift Registers	'323: 'LS '299: 'LS, 'S
Quadruple Bus-Buffer Registers	'173: TTL, 'LS
Octal Storage Register	'396: 'LS

Register files

Description	Device No. SN74
Eight Words of Two Bits	'172: TTL †¡
Four Words of Four Bits	'170: TTL, 'LS
Four Words of Four Bits (3-State Outputs)	'670: 'LS

† SN74 Only

Open-collector display decoders/drivers with counters/latches

BCD Counter/4-Bit Latch/BCD-To-Decimal Decoder/ Driver	'142: TTL †
BCD Counter/4-Bit Latch/BCD-To-Seven Segment Decoder/ Led Driver	'143: TTL
BCD Counter/4-Bit Latch/BCD-To-Seven Segment Decoder /Lamp Driver	'144: TTL

Priority encoders/registers

Full BCD	'147: TTL, 'LS
Cascadable Octal	'148: TTL, 'LS
Cascadable Octal With 3-State Outputs	'348: 'LS
4-Bit Cascadable With Registers	'278: TTL

† SN74 Only

Other arithmetic operators

Description	Device No. SN 74
Quad 2-Input Exclusive-OR Gates With Totem-Pole Outputs	'86: TTL, 'LS, 'S '386: 'LS
Quad 2-Input Exclusive-OR Gates With Open-Collector Outputs	'136: TTL, 'LS
Quad 2-Input Exclusive-NOR Gates	'266: 'LS
Quad Exclusive OR/NOR Gates	'135: 'S
Bit True/Complement, Element	'87: 'H

Error detection and correction circuits, Parity generators/checkers

Description		Device # SN74	Avail. Tech.
9-Bit Odd/Even Parity Generators/Checkers		'280: 'LS, 'S	
8-Bit Odd/Even Parity Generators/Checkers		'180: TTL	
16-Bit Parallel Error Detection/ Correction Circuit	3-State OC	'630: 'LS '631: 'LS	

Memory/microprocessor controllers

System Clock for 8080A		'424: 'LS
System Controllers for 8080A		'428: 'S '438: 'S
System Controller, Universal		'482: 'S
Memory Refresh	Transparent, 4K, 16K Burst Modes 64K	'600: 'LS '601: 'LS
Controllers	Cycle Steal, 4K, 16K Burst Modes 64K	'602: 'LS '603: 'LS
Memory Cycle Controller		'608: 'LS
Memory Mappers	3-State* OC*	'612: 'LS '613: 'LS
Memory Mappers Without Output Latches	3-State* OC*	'610: 'LS '611: 'LS

*Map Output Type *OC = Open collector

Octal bi-directional bus transceivers

12mA/24mA Sink	3-State	'245*:	'ALS, 'LS
8 mA/16mA Sink	3-State	'1245**:	'ALS
12mA/24mA Sink	OC OC OC 3-State	'620: '621: '622: '623:	'LS 'LS 'LS 'LS
12mA/24mA Sink	3-State OC 3-State OC 3-State	'640: '642: '643: '644: '645:	'LS 'LS 'LS 'LS 'ALS, 'LS
8 mA/16mA Sink Very Low Power	3-State	'1645:	'ALS
Registered With Multiplexed 12/24 mA Sink	3-State OC 3-State OC	'646: '647: '648: '649:	'LS 'LS 'LS 'LS
Inverting 12/24mA Sink	OC 3-State 3-State 3-State	'638: '639: '651**: '652**:	'LS 'LS 'LS 'LS

*—1 Version = 48 mA IOL *OC = Open collector
**—1 Version = 24 mA IOL

Bi-tri-directional bus transceivers and drivers

Description	Type Output	TECHNOLOGY* Device No SN74
Controller and Bus Driver For 8080A Systems		'428: 'S '438: 'S
4-Bit With Storage	3-State	'226: 'S
Quad With Bit-Direction Controls	3-State 3-State	'446: 'LS '449: 'LS
Quad Tridirection	OC OC 3-State 3-State 3-State OC	'440: 'LS '441: 'LS '442: 'LS '443: 'LS '444: 'LS '448: 'LS

Texas Instrument Digital Products are available in the technologies as indicated:
1. TTL: SN 74 .....
2. ALS: SN 74ALS .....
3. LS: SN 74LS .....
4. AS: SN 74AS .....
5. S: SN 74S .....
6. H: SN 74H .....

Texas Instruments Selection Guide

DIGITAL LOGIC PRODUCTS

Octal D-type flip-flops

Description	Device Number SN74
True Data	3-State '374: TTL, 'LS, 'S 3-State '574: TTL, 'ALS
True Data With Clear	T-P '273: TTL, 'LS 3-State '874: 'ALS
True Data With Enable	T-P '377: 'LS
Inverting	3-State '576: 'ALS
Inverting With Preset	3-State '876: 'ALS 3-State '564: 'ALS 3-State

Octal latches

Transparent	3-State '373: 'LS, 'S 3-State '573: 'ALS 3-State '873: 'ALS
Inverting Transparent	3-State '580: 'ALS 3-State '533: 3-State '880: 'ALS 3-State '604: 'LS
2-Input Multiplexed	OC '605: 'LS 3-State '606: 'LS OC '607: 'LS

OC = Open collector T-P = Totem pole

Decoders/demultiplexers

4-To-16	T-P OC	'154: TTL '159: TTL
4-To-10 BCD-To-Decimal	T-P	'42: TTL, 'LS
4-To-10 Excess-3-To-Decimal	T-P	'43: TTL
4-To-10 Excess-3-Gray-To-Decimal	T-P	'44: TTL
3-To-8 With Address Latches	T-P	'137: 'LS
3-To-8	T-P	'138: 'LS, 'S
Dual 2-To-4	T-P T-P OC	'139: 'LS, 'S '155: TTL, 'LS '156: TTL, 'LS

OC = Open collector T-P = Totem pole

Latches

Multi-Mode Buffered	8	'412: 'S
Addressable	8	'259: TTL, 'LS
Transparent	8	'373: 'LS, 'S
Dual 4-Bit With Independent Enable	8	'100: TTL '116: TTL
Dual 2-Bit With Independent Enable	4	'75: TTL. 'LS '77: TTL, 'LS †, '375: 'LS
Quad S-R	4	'279: TTL, 'LS
Universal Decoder/ Demux with Addressable Latches	8	'859:

† SN54 Only

Quad and hex flip-flops

D Type With Enable	'378: 'LS '379: 'LS
D Type With Clear	'174: TTL, 'LS, 'S '175: TTL, 'LS, 'S
J-K, Separate Clocks	'276: TTL
J-K, Common Clock	'376: TTL
J-K	'872
D-Type	'875

Voltage-controlled oscillators

No. Vco's	Comp'l Out	Enbl.	Rng I.P.	Ext.	fmax MHz	Dev. # SN74	Avail. Tech.
1	Yes	Yes	Yes	No	20	'624:	'LS
1	Yes	Yes	Yes	Yes	20	'628:	'LS
2	No	Yes	Yes	No	60	'124:	'S
2	Yes	No	No	No	20	'625:	'LS
2	Yes	Yes	No	No	20	'626:	'LS
2	No	No	No	No	20	'627:	'LS
2	No	Yes	Yes	No	20	'629:	'LS

Bipolar bit-slice processor elements

Des.	Device No. SN74	Tech. Avail.
4-Bit Slice	481:	'LS, 'S

Shift registers

Description	No. of Bits	Device No. SN 74
8-Bit Sign Protected Registered	8	'332: 'LS
Parallel-In Parallel Out	8	'198: TTL '299: 'LS, 'S '323: 'LS
(Bidirectional)	4	'194: TTL, 'LS, 'S
Parallel-In, Parallel-Out	4	'671: 'LS
Registered Outputs	4	'672: 'LS
Parallel-In Parallel-Out	8	'199: TTL
	5	'96: TTL, 'L, 'LS
	4	'99: 'L '178: TTL '179: TTL '195: TTL, 'LS, 'S '295: 'LS '395: 'LS
Serial-In, Parallel-Out	16 8	'673: 'LS '164: TTL, 'L, 'LS
Parallel-In Serial-Out	16 8	'674: 'LS '165: TTL, 'LS '166: TTL, 'LS
Serial-In, Serial-Out	8 4	'91: TTL, 'L, 'LS '94: TTL

Shift registers with latches

Description	No. of Bits	Device No. SN74
Serial-In, Parallel-Out Shift Registers With Storage	16 T-P	'673: 'LS
Parallel-In, Serial-Out Shift Register With Storage	16	3-State '674: 'LS
I/O Ports Provide Parallel Shift Register Outputs & Multiplexed Serial Data Inputs	8	3-State '598: 'AS

OC = Open collector T-P = Totem pole

Asynchronous counters (Ripple Clock) —negative-edge triggered

Description	Load	Device No. SN74	Tech.
Decade	Set-To-9	'90: TTL, 'L, 'LS	
	Yes	'176: TTL	
	Yes	'196: TTL, 'LS, 'S	
	Set-To-9	'290: TTL, 'LS	
4-Bit Binary	None	'93: TTL, 'L, 'LS	
	Yes	'177: TTL	
	Yes	'197: TTL, 'LS, 'S	
	None	'293: TTL, 'LS	
Divide-By-12	None	'92: TTL, 'LS	
	None	'390: TTL, 'LS	
Dual Decade	Set-To-9	'490: TTL, 'LS	
Dual 4-Bit Binary	None	'393: TTL, 'LS	

Synchronous counters— positive-edge triggered

Description	Parallel Load	Device No. SN74 *
Decade	Sync	'160: TTL, 'LS
	Sync	'162: TTL, 'LS, 'S
	Sync	'668: 'LS
	Sync	'690: 'LS
	Sync	'692: 'LS
	Sync	'560:
Decade Up/Down	Sync	'168: 'S
	Async	'190: TTL, 'LS
	Async	'192: TTL, 'L, 'LS
	Sync	'696: 'LS
	Sync	'698: 'LS
	Sync	'568: 'ALS
Decade Rate, 1 Multiplier, N10	Async Set-To-9	'167: TTL
4-Bit Binary	Sync	'161: TTL, 'LS
	Sync	'163: TTL, 'LS 'S
	Sync	'561:
	Sync	'669: 'LS
	Sync	'691: 'LS
	Sync	'693: 'LS
4-Bit Binary Up/Down	Sync	'169: 'LS 'S
	Async	'191: TTL, 'LS
	Async	'193: TTL, 'L, 'LS
	Sync	'569: 'ALS
	Sync	'697: 'ALS
	Sync	'699: 'LS
6-Bit Binary Rate, 1 Multiplier, N2		'97: TTL

Open-collector display decoders/drivers

Description	Off-State Output Voltage	Device No. SN74
BCD-To-Decimal	30V	'45: TTL
	60V	'141: TTL†
	15V	'145: TTL, 'LS
	7V	'445: 'LS
BCD-To-Seven-Segment	30V	'46: TTL,
	15V	'47: TTL, 'LS
	5.5V	'48: TTL, 'LS
	5.5V	'49: TTL, LS
	30V	'246: TTL
	15V	'247: TTL, 'LS
	7V	'347: 'LS
	7V	'447: 'LS
	5.5V	'248: 'LS
	5.5V	'249: TTL, 'LS

Comparators

DESCRIPTION					TECHNOLOGY
Bits	P=Q	PQ	Type Output	Output Enable	Device No. SN74
4	Yes	Yes	T-P	Yes	'85: TTL, 'S
8 with 20-k Ω Pull-Up Input	Yes	Yes	T-P	No	'682: 'LS
	Yes	Yes	OC	No	'683: 'LS
8	Yes	Yes	T-P	No	'684: 'LS
	Yes	Yes	OC	No	'685: 'LS
	Yes	Yes	T-P	Yes	'686: 'LS
	Yes	Yes	OC	Yes	'687: 'LS
	Yes	No	T-P	Yes	'688: 'LS
	Yes	No	OC	Yes	'689: 'LS
8 with Latched P Inputs	No	Yes	T-P	Yes	'885: 'AS
P/Q Inputs	Yes	Yes	Latched	Yes	'866: 'AS

OC = Open collector T-P = Totem pole

Accumulator registers/scalers

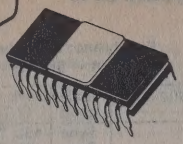
Description	No. of Bits	Device No. SN74
Sign-Protected Register	8	'322: 'LS

Texas Instrument Digital Products are available in the technologies as indicated:

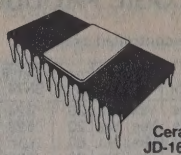
1. TTL: SN 74 .....
2. ALS: SN 74ALS .....
3. LS: SN 74LS .....
4. AS: SN 74AS .....
5. S: SN 74S .....
6. H: SN 74H .....

Texas Instruments Selection Guide

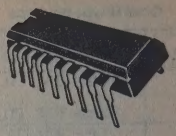
MEMORY PRODUCTS



Ceramic
J-16,18,20,24,28 pin



Ceramic-side braze
JD-16,18,20,24,28 pin



Plastic
N-16,18,20,24,28 pin

3

MOS STATIC RAMs

Device Number	Size (Bits)	Organization (Words × Bits)	Max Access Time(ns)	Max Power Dissipation Active (mW)
TMS2114—15NL	4K	1024×4	150	330
TMS2114—20NL	4K	1024×4	200	330
TMS2114—25NL	4K	1024×4	250	330
TMS2114—45NL	4K	1024×4	450	330
TMS2114L—15NL	4K	1024×4	150	248
TMS2114L—20NL	4K	1024×4	200	248
TMS2114L—25NL	4K	1024×4	250	248
TMS2114L—45NL	4K	1024×4	450	248
TMS4044—12NL	4K	4096×1	120	303
TMS4044—20NL	4K	4096×1	200	303
TMS4044—25NL	4K	4096×1	250	303
TMS4044—45NL	4K	4096×1	450	303
TMS40L44—12NL	4K	4096×1	120	220
TMS40L44—20NL	4K	4096×1	200	220
TMS40L44—25NL	4K	4096×1	250	220
TMS40L44—45NL	4K	4096×1	450	220
TMS4016—12NL	16K	2048×8	120	385
TMS4016—15NL	16K	2048×8	150	385
TMS4016—20NL	18K	2048×8	200	385
TMS4016—25NL	16K	2048×8	250	385

MEMORY CONTROLLER

Device No.	Technology	Description
TMS4500ANL	MOS	Dynamic RAM Controller, drives 8k 16k 32k 64k

MOS ROMs

Device Number	Size (Bits)	Organization (Words × Bits)	Max Access Time(ns)	Power Dissipation Active (mW)
TMS4732JL/JDL/NL	32K	4096×8	300	440
TMS4764JL/JDL/NL	64K	8192×8	300	440

BIPOLAR PROMs

Device Numbers	Size (Bits)	Organization (Words × Bits)	Typ. Access Time(ns)**	Typ Power Dissipation (mW)	Output Type*
TBP18SA030	256	32 × 8	25	400	OC
TBP18S030	256	32 × 8	25	400	3S
TBP24S10	1K	256 × 4	35	375	3S
TBP24SA10	1K	256 × 4	35	375	OC
TBP28L22	2K	256 × 8	45	375	3S
TBP28LA22	2K	256 × 8	45	375	OC
TBP28S42	4K	512 × 8	35	500	3S
TBP28SA42	4K	512 × 8	35	500	OC
TBP28S46	4K	512 × 8	35	500	3S
TBP28SA46	4K	512 × 8	35	500	OC
TBP28L42	4K	512 × 8	55	275	3S
TBP28L46	4K	512 × 8	55	275	3S
TBP24S41	4K	1024 × 4	40	475	3S
TBP24SA41	4K	1024 × 4	40	475	OC
TBP28S86A	8K	1024 × 8	35	550	3S
TBP28SA86A	8K	1024 × 8	35	550	OC
TBP28S2708	8K	1024 × 8	45	625	3S
TBP28L86A	8K	1024 × 8	65	275	3S
TBP24S81-55	8K	2048 × 4	35	625	3S
TBP24SA81-55	8K	2048 × 4	35	625	OC
TBP24S81	8K	2048 × 4	45	625	3S
TBP24SA81	8K	2048 × 4	45	625	OC
TBP28R166†	16K	2048 × 8	20	700	3S
TBP28S166-55	16K	2048 × 8	35	675	3S
TBP28SA166-55	16K	2048 × 8	35	675	OC
TBP28S166	16K	2048 × 8	45	675	3S
TBP28SA166	16K	2048 × 8	45	675	OC
TBP28L166†	16K	2048 × 8	65	350	3S

*3S = 3 State. OC = Open Collector.
**Devices can be speed screened during production to variable maximum access times.
†Planned new products.

MOS EPROMs

Device Number	Size (Bits)	Organization (Words × Bits)	Max Access Time(ns)	Max Power Dissipation Active (mW)
TMS2708–35JL	8K	1024 × 8	350	800
TMS2708–45JL	8K	1024 × 8	450	800
TMS27L08–45JL	8K	1024 × 8	450	580
TMS2716–30JL	16K	2048 × 8	300	720
TMS2716–45JL	16K	2048 × 8	450	720
TMS2516–30JL	16K	2048 × 8	300	525
TMS2516–35JL	16K	2048 × 8	350	525
TMS2516–45JL	16K	2048 × 8	450	525
TMS2532–30JL	32K	4096 × 8	300	840
TMS2532–35JL	32K	4096 × 8	350	840
TMS2532–45JL	32K	4096 × 8	450	840
TMS25L32–45JL	32K	4096 × 8	450	500
TMS2564–35JL	64K	8192 × 8	350	840
TMS2564–45JL	64K	8192 × 8	450	840

All EPROMs and ROMs have static operation (no clocks, no refresh)
All EPROMs are pin compatible with existing ROMs.

MOS DYNAMIC RAMs

Device Number	Size (Bits)	Organization (Words × Bits)	Max Access Time(ns)	Max Power Dissipation Active (mW)
TMS4116–15NL	16K	16384 × 1	150	462
TMS4116–20NL	16K	16384 × 1	200	462
TMS4116–25NL	16K	16384 × 1	250	462
TMS4164–15JL/NL	64K	65536 × 1	150	200
TMS4164–20JL/NL	64K	65536 × 1	200	200
TMS4164–25JL/NL	64K	65538 × 1	250	200
TMS4416–15JL/NL	64K	16384 × 4	150	250
TMS4416–20JL/NL	64K	16384 × 4	200	250
TMS4416–25JL/NL	64K	16384 × 4	250	250

BIPOLAR RAMs

Device Number*	Organization (Words × Bits)	Typical Access Time(ns)	Power Dissipation	Output Type**	Write Pulse (ns)
SN7481A	16 × 1	13	300	OC	20
SN7484A	16 × 1	13	300	OC	20
SN74S189B	16 × 4	25	375	3S	25
SN74S289B	16 × 4	25	375	OC	25
SN7489	16 × 4	33	375	OC	40
SN74LS189A	16 × 4	50	175	3S	60
SN74LS289A	16 × 4	50	175	OC	60
SN74LS219A	16 × 4	50	175	3S	60
SN74LS319A	16 × 4	50	175	OC	60
SN74ALS217	32 × 8	40	250	3S	30
SN74ALS317	32 × 8	40	250	OC	30
SN74ALS218	64 × 4	40	250	3S	30
SN74ALS318	64 × 4	40	250	OC	30
SN74S201	256 × 1	42	500	3S	65
SN74S301	256 × 1	42	500	OC	65

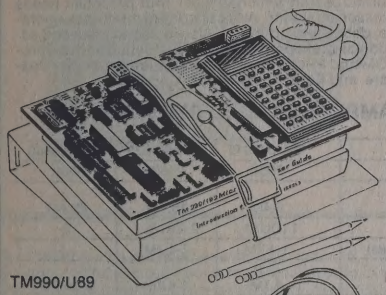
*Also Available in Military (54) Series
**OC = Open Collector, 3S = 3 State

BIPOLAR FIFO MEMORIES

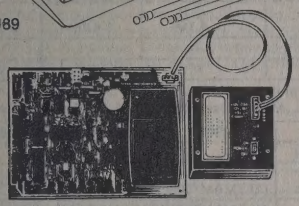
Device Number	Organization (Words × Bits)	Data Rates Input	Data Rates Output	Fall Through (ns)Typ	Power Dissipation (mW)Typ	Output* Type
SN74ALS222	16 × 4			50	445	3S
SN74ALS224	16 × 4	DC	DC	50	445	3S
SN74ALS227	16 × 4	TO	TO	50	445	OC
SN74ALS228	16 × 4	10 MHz	10 MHz	50	445	OC
SN74S225	16 × 5			190	400	3S

*3S = 3 State, OC = Open Collector

MICROPROCESSOR UNIVERSITY PROGRAM



TM990/U89



POWER SUPPLY TM990/519 Supplies necessary voltage to power the TM990/489 Module.

- **4K ROM, 1K RAM**
- **Powerful 16-bit microprocessor**
- **Audio cassette interface and optional TTY interface**
- **Assembly language programming.**

The program is an aid to institutions of higher learning as they prepare their students for careers in the microprocessor field, and an aid to hold in-house courses on microprocessor or for a self-taught course for engineers. Consists of: 1) An assembled and tested University Module (TM990/U89) offering hands-on experience with microprocessors, I/O, memory, and assembly language programming. 2) A 570-page Tutorial Text suitable for a three credit-hour university course, in-house course for industry, or as a self-taught course for engineers or serious hobbyists. 3) A 300-page User's Guide to acquaint user with full capabilities of (TM990/489). 4) Local technical support. 5) Additional microprocessor modules, development systems, software are available. Software support range from ROM resident software to software on firmware or magnetic media—i.e., POWER BASIC, TI PASCAL, FORTRAN and Run Time Executives. 6) In addition schools may obtain free software from TI. A Power Supply is available (not included).

Module itself contains: TMS9980 16-bit CPU, 45 key alphanumeric keyboard. All keys are dual function. Allows student to program in assembly language, 10 digit, 7 segment display with 64 character buffer. 1K bytes RAM expandable to 2K bytes, 4K bytes ROM containing monitor and symbolic assembler, 2K bytes expansion EPROM socket. Audio cassette interface. Sound disk for audio responses and lab experiments. TMS9901 parallel I/O controller. User addressable LEDs. Ports for memory and I/O expansion and user I/O. Optional interface allows RS232 or TTY terminal to be connected.

The microprocessor on the module offers a powerful instruction set. Multiply and divide, vectored interrupts, single bit I/O manipulation, parallel I/O, and 7 addressing modes, point out just a few of the advantages of programming with a true 16-bit microprocessor and, also, the ease of learning and applying microprocessors.

Audio cassette may be connected for off-board program storage. On-board RAM may be used for checking out a program and, after verification, the finished program may be put into EPROM, using a programmer, and plugged into the EPROM socket on the board.

Advanced circuits

Fiber optics transmitter and receiver

Device Number	Description	Operating Modes	Data Rate	Vcc (V)	Features	# Pins
SN76333	FO Transmitter	Continuous DC Sync.	Up to 1 MBIT Sec.	5	Auto. Start Up Parallel I/O MUX 8 or 16 BIT BUS	20
SN76334	FO Receiver	AC Sync.				

Complex sound generators

Device Number	Type	Microprocessor Interface	Attack/ Decay Control	Pitch Control	Enevelope Control	Audio Drive (ma)
SN76477	Analog	4/8 BIT*	Yes/Yes	Yes	Yes	10
SN76487	Analog	4/8 BIT*	Fixed/Yes	No	No	125
SN76488	Analog	4/8 BIT*	Fixed/Yes	No	Yes	125
SN76489A	Digital	8/16 BIT	Yes/Yes	Yes	Yes	10
SN76489	Digital	8/16 BIT	Yes/Yes	Yes	Yes	100
SN76493	Digital	4/8 BIT	Yes/Yes	Yes	Yes	125
SN76494	Digital	8/16 BIT	Yes/Yes	Yes	Yes	10
SN76495	Analog	4/8 BIT*	Yes/Yes	No	Yes	125

*Capable of stand-alone operation where sounds are changed by digital and analog type input control.

Remote servo controllers

Device Number	Description	Vcc (V)	Adjust-able Dead-band	Direct Motor Drive	Max Output Current (mA)	Bi-Direct-tional Drive	# Pins
SN76602	Servo Control	3.8 to 5.5	Yes	No	350	Yes	14
SN76604	Servo Control	3.8 to 5.5	Yes	Yes	400	Yes	14

Remote control transmitters and receivers

Device Number	Description	# Of Channels	Vcc (V)	Trans. Mode	Features	# Pins
SN76730	Freq/Decoder	6	5	IR, RF Ultrasonic	64 Step DAC	18
SN76881	Transmitter	30	6 to 9	IR	Direct led drive auto power-down	16
SN76891	Transmitter	30	6 to 9	IR	Same as 891 but with flag bit	16
SN76882	Transmitter	128	6 to 9	IR	Expansion bits for up to 128 channels from up to 64 keys	24
SN76832A	Receiver		12 to 15	IR	PLL demodulator serial output Microprocessor Interface	16

Advanced circuits

Radio and TV IF Amps

Device Number	Description	Vcc (V)	Max Frequency Range(MHz)	Features	Equivalent	# Pins
SN76600	Video IF Amp	12	75	6MHz BW	MC1350P	8
SN76642	FM IF Amp	16	50	Quad. Demod.	Mc1357,ULN2111	14
SN76645	Video IF Amp	5	150	45db Gain		14
SN76650	Video IF Amp	18	45	Keyed AGC	MC1352,CA1352E	14
SN76666	FM IF Amp	24	5.5	DC Vol. Ctrl.	MC1358,CA3065	14

Specialty Circuits

Device Number	Description	Vcc (V)	Input/Output	Features	# Pins
SN76566	T.V. Vertical Countdown	12	Composite Sync. Vertical Sync. Asynchronous	525/684 Countdown Vertical Blanking Voltage Regulator	14
SN76889	Video Modulator	9 to 15	Composite Video Modulated RF Out	Channels 2 thru 6	14
AC5945	AM/FM Tuning Synthesizer	5 to 24		160 MHz on Chip Prescaler Selectable IF/Channel Spacing	16
AC5947	18 Seg. L.E.D. Display Driver	5		6-BIT ASCII Input, Interfaces with HDSP 6504/6508	28
SN76940	Data Slicer	5		Sync Separator and VCO Simple TV Interface	24

Texas Instruments Selection Guide

AMPL DEVELOPMENT SYSTEM

Designed for the single user, the TMAM9000 AMPL* System can cut program development time by as much as two-thirds, compared to similar systems. This tabletop, floppy-disk development lab combines extreme ease of use with extensive, preprogrammed test and debug procedures.

AMPL high-level debug tools provide extra capability to analyze hardware or software problems via the full speed emulation and comprehensive logic trace analyzer functions. Emulation and control functions can be called from high-level control sequences written in Pascal-derived constructs, allowing design tests to be automated and repeated with a single command, a capability that facilitates production and field testing.

The TMAM9000 supports a variety of programmable-function devices: the TMS99000 16-bit microprocessors and the TM990 microcomputer modules, the TMS1000 4-bit microcomputers, and the TMS7000 8-bit microcomputers.

TMAM9000 SYSTEM SPECIFICATIONS

Main Memory (Bytes)	64K
Total Disk Storage (Formatted bytes)	2.3MB
No. of Disk Drives	2
Type	Double-side, Double-density (DSDD) 8-inch floppy disk (20.32mm)
Capacity Per Diskette	1,152K Bytes
Max. Data Transfer Rate	500K B.P.S.
Terminal Keyboard	88 Key, typewriter style plus numeric, cursor control and function key clusters. N-key rollover
CRT	12-inch (305mm) diagonal
Screen Capacity	80 Character Line-24 lines, 1720 total
Character Set	96 ASCII, upper and lower case
Printer (EIA)-RS232D	Interface included in system
AMPL Station	Interface included in system
Software Package	AMPLUS software system operating system
Features Included	Function key menus, self prompting interactive user interface
Utilities Included	• 9900 Family assembler • 9900 Family linker • Screen editor system • AMPL debug high-level language • AMPL debug procedure library including trace • Disk directory and file utilities • PROM programmer utilities

ADDITIONAL SUPPORT TOOLS

TMS9995 Evaluation Module	TMAM6095
TMS7000 Evaluation Module	TMAM6070
TI 810 Printer	TMAM7010

An entire team can now develop software and hardware simultaneously using a single system. The hard-disk Multi-AMPL* Systems from Texas Instruments allow as many as eight program designers to work at the same time.

There are three configurations from which to meet your particular needs providing multiple processor emulation. And concurrent multi-task operation: compile, assemble, debug, edit, printing. Also included: data and address trace. Data and address brakepoints. A high-level debug and test procedure language. EPROM and PROM programming. Microprocessor Pascal, Component Software, and Fortran languages supported.

MULTI-AMPL PACKAGED SYSTEMS

DESCRIPTION	TMAM9010	TMAM9020	TMAM9040
Main Memory (BYTES)	256K	256K	320K
Total Disk Storage (Formatted BYTES)	9.4M	18.8M	89.4M
No. of Disk Drives	1 (DUAL)	2 (DUAL)	2
Fixed Disk Storage (Bytes)	1-4.7M	2-4.7M	
Removable Disk Storage (BYTES)	4.7M	2-4.7M	2-44.7M
No. Terminals Included	1	2	4
AMPL Station Link	YES	YES	YES
Software	PROM Programming Utility, AMPL Utility Macro Assembler, Diagnostic Multi-Amplus OS, Link Editor Text Editor		

DESCRIPTION	TMAM9010	TMAM9020	TMAM9040
Maximum Number of Users	2	4	8
Terminal Expansion for Maximum Number of Users	(1) TMAM7003	(1) TMAM7005	TMAM7005
Printers	(1) TMAM7001	(1) TMAM7001 or (1) TMAM7002	(1) TMAM7002 or (2) TMAM7001
AMPL Station for:	Choose 1:	Choose 1-2:	Choose 1-4:
TMS9900, 9900-40	TMAM6001	TMAM6001	TMAM6001
TMS9980/9981	TMAM6002	TMAM6002	TMAM6002
SBP9900	TMAM6003	TMAM6003	TMAM6003
TMS9940	TMAM6004	TMAM6004	TMAM6004
TMS7000	TMAM6059	TMAM6059	TMAM6059
EPROM PROGRAMMER KIT	TMAM6058	TMAM6058	TMAM6058

OPTIONAL PROCESSOR SUPPORT TOOLS

AMPL Station for:	Part #
TMS7000	TMAM6059
TMS9900	TMAM6001
SBP9900A	TMAM6003
TMS9980/9981A	TMAM6002
TMS9940	TMAM6004

PROM/EPROM Programmer

Kit	TMAM6058

Voice Synthesis

SPEECH EDUCATION MODULE (SPSB 2001-1)

The Speech Education Module was designed to be used as a low cost development aid for implementing Linear Predictive Coding (LPC) speech. LPC Speech is the method used for producing synthetic speech. The Speech Education Module is virtually a portable speech editing system. Features include: Speech editor; Audio amplifier; Graphics ouput; TMS7040 microcomputer; Memory expansion to 64 bytes; Forth like programming language. TMS 5220 VSP; VM 61002 Industrial Vocab. ROM.

Voice Synthesis Processors (VSP) TMS5110 VSP

FEATURES
- Pin compatible with TMS5100 VSP
- Increases voice fidelity over TMS5100 VSP
- Optimized coding table for general voice synthesis

Voice Synthesis Evaluation Kits

Speech evaluation kits permit designes to evaluate TI's voice synthesis capability on 4-, 8-, and 16-Bit microprocessor systems. Each kit contains all the necesary hardware and complete users manual covering interfacing and software design.

TMSK102: TMS5100 EVALUATION KIT

FEATURES
- 4-bit microprocessor compatible
- Hardware includes:
  —TMS5110 Voice Synthesis Processor
  —VM61006 ROM with 206 words (industrial vocabulary)

Voice Synthesis Memories (VSM)

TMSK102A: TMS5110 EVALUATION KIT

- 4-bit microprocessor compatible
- Hardware includes:
  —TMS5110 Voice Synthesis Processor
  —VM61006 ROM with 204 words (industrial vocabulary)
  —VM71004 ROM with 50 words (industrial vocabulary)
  —VM71005 ROM with 35 words (numeric/time vocabulary)

TMSK202: TMS5220 EVALUATION KIT

FEATURES
- 8-bit and 16-bit microprocessor compatible
- Hardware includes:
  —TMS5220. Voice Synthesis Processor
  —VM 81002 32-K bit EPROM preprogrammed with 35 words/phrases
  —VM 61002 ROM with 206 words (industrial vocabulary)
  —VM 71003 ROM with 34 words (female voice, numeric/time vocabulary)

TMS5220 VSP

FEATURES
- Allophone stringing capability
- Can process male, female and children's voices, plus tones, chimes and sound effects
- Interrupt-driven service request capability
- On-chip FIFO (16-byte) buffers two frames of speech data when coming from host processors
- Pin compatible with TMS5200 VSP

TMS6100 VOICE SYNTHESIS MEMORY

- Low-cost, 128K-bit ROM

TMS6125 VOICE SYNTHESIS MEMORY

- Low-cost, 32K-bit ROM
- Optimized interface for use with TMS5100 series and TMS5200 series voice synthesis processors
- On-chip address decode logic—no address decoding required for up to 16 VSM's with the TMS6100s or up to 4 VSM's with the TMS6125s
- On-chip memory address register—autoincrements through speech data until stopped by VSP
- Look-up and branch capability allows vocabulary-independent access to speech data on chip

TMS5100 SERIES EVALUATION BOARD (SPSB1001-01)

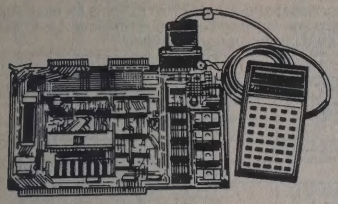
The TMS5100 speech evaluation board is a simple speech unit capable of speaking custom phrases at the touch of a button.

The board requires no external hardware or software for complete operation. 'Software instructions for the TMS5100 are stored in PROM while the LPC vocabulary data is stored in EPROM. The TMS5100 evaluation board comes with 8 custom phrases of 3 seconds duration. This capacity can be expanded with additional EPROM.

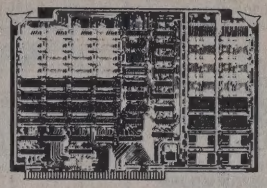
FEATURES
- 24 seconds of speech
- 8 selectable words or phrases
- easily customized to application

Texas Instruments Selection Guide

TM990 FAMILY OF MICROPROCESSOR MODULES



MICRO COMPUTER MODULES



3

The TM990 Series provides an extensive choice of preassembled, high-performance, 16 bit microcomputer modules that save design and development time, cut the number of system components, reduce costs, and improve reliability. Each module is a single, pretested, ready-to-plug-in board. The series includes: complete CPU modules with on-board memory, and I/O interface; memory and I/O expansion modules; data entry and display modules; software development modules, industrial AC and DC I/O modules; A/D and D/A interface modules; a floppy disk controller; a speech module; and industrial communication modules. In addition, OEM card cages, cables, connectors, extender, and prototyping boards are available.

MODULE	OPU	TIMER	MEMORY (BYTES)			I/O		FLOATING POINT ARITHMETIC
			EPROM	RAM	OFF BOARD	PARALLEL	SERIAL	
TM990/100MA	TMS9900	2	8K	4K	64K	16	1 RS232	NO
TM990/101MA	TMS9900	3	8K	4K	64K	16	2 RS232	NO
TM990/102	TMS9900	1	16K SOCKETS	128K	1M	0	1 RS232	NO
TM990/1481	SN74S481 BIT SLICE	1	0	0	64K	0	1 RS232	YES

Add In Memory Boards

TI MEMORY BOARDS for DEC and INTEL MINI/MICRO COMPUTERS

System	TI SERIES	BOARD DASH NUMBER								
LSI-11	TMM10010*		–01/–02	–03/–04	–05/–06					
PDP-11	TMM20000**		–05	–03	–02	–01			–04	
VAX	TMM30000						–03	–02		–01
Multibus	TMM40010**	–07	–02		–01	–04				
Capacity	Bytes	64K	128K	192K	256K	512K	512K	768K	1M	1M
	Words	32B	64K	96K	128K	256K	64K	96K	512K	128K

*Parity optional **EDAC standard

I/O Modules

MODULE	DESCRIPTION
TM990/303A	Floppy disk drive controller
TM990/306	Speech output module with 179 word vocabulary
TM990/307	Communication Expansion Modules—Provides 4 RS232/RS422 channels.
TM990/308	X.25/HDLC Communication Module Permits implementation of distributed industrial processing network. Provides an X.25/HDLC communication protocol for packet switching network.
TM990/309	High Power (AC and DC) interface via 6MT industrial I/O modules
TM990/310	48 TTL compatible I/O lines with 3 programmable timers and 6 interrupts.
TM990/311	48 TTL compatible I/O lines interface with 24-mA sink current and on-board voltage regulator for operation with 5MT industrial I/O modules.
TM990/314	IEEE 488 controller
TM990/315	Low-level analog imput module supports the thermocouple, RTD, strain gauge, and pressure transducer interface.
TM990/317	Pulse timer/event counter module
TM990/1241	Analog I/O module 16 inputs, 2 outputs
TM990/56X	Digital and Analog I/O termination panel with • Barrier strip for field wire termination • Optical isolation • Transformer isolation • Sockets for installing – Current loop imputs – Voltage dividers – Noise filtering – Decoupling capacitor etc.

Memory Modules

MODULE	DESCRIPTION
TM990/201	Combination RAM/EPROM—Up to 8KB EPROM—UP to 32KB Static RAM
TM990/202-X	RAM/EPROM/CMOS RAM Module Sockets for up to 128KB EPROM—Up to 32KB Static RAM—Up to 32KB CMOS RAM—On board battery backup
TM990/203	Up to 64KB DRAM with error detection
TM990/203A-XX	Up to 256KB DRAM with error detection. A faster access (150 msec) version for use with TM 990/1481
TM990/204	Battery backed up CMOS RAM Module—16KB max—days max data retention.

System Kits

These user configurable system kits provide the necessary hardware to run either UCSD-p system or TM990 AMPLUS or any floppy based system. All the modules in the kits are jumper-configuration and tested as a UCSD-p system.

SYSTEM KIT		CONTENTS	
TM990/601	TM990/602	PART NUMBER	DESCRIPTION
X	X	TM990/101MA	CPU
X	X	TM990/203-23	64KB DRAM
X	X	TM990/303A	Floppy Controller
X		TM990/510	4-Slot Card Cage
X		TM990/527	Floppy Cable
	X	TM990/522	System enclosure including: card cage, fan, power supply, and floppy cables

TMS7000 8-Bit Microcomputer Family

The TMS7000 is the newest, most cost-effective system solution for 8-bit microcomputer applications, such as computer peripherals, telecommunications, industrial control, automotive, appliances, toys, and games. The significantly smaller chip size of the TMS7000 means lower cost. The singular VLSI design concept provides the ability to add family members quickly and easily by simply inserting new areas on the chip for additional memory capacity or functions

Five memory expansion modes allow trade off of I/O pins for easy interface to a wide range of external memory and peripheral devices. Up to 64K may be addressed for increased configuration flexibility.

	DEVICE NUMBER					
FEATURE	**TMS7000**	**TMS7020**	**TMS7040**	**TMS70E40***	**TMS7041***	**TMS70L22***
ROM (Bytes)	0	2K	4K	4K(EPROM)	4K	2K
RAM (Bytes)	128	128	128	128	128	128
I/O BITS	32	32	32	32	32	23
SERIAL PORT	NO	NO	NO	NO	YES**	NO
NO. OF MEMORY EXPANSION MODES	5	5	5	4	4	1
NO. OF INTERRUPTS	3	3	3	3	3	3
8-BIT TIMER/EVENT COUNTER	YES	YES	YES	YES	YES (2)	YES
INTERNAL CLOCK FREQ (MHz)	2.5/4.0	2.5	2.5	2.5	2.5/4.0	.5
EXTERNAL CRYSTAL FREQ	5.0/8.0	5.0	5.0	5.0	5.0/8.0	4.0
OPERATING VOLTAGE	5	5	5	5	5	4.5 10.5
POWER CONSUMPTION (mW) @ 5 VOLTS	500/600	500	500	650	650/750	35
POWER DOWN CURRENT	—	—	—	—	—	2 mA
TECHNOLOGY	SMOS	SMOS	SMOS	SMOS	SMOS	Low Power NMOS
DIP PACKAGE	40-pin	40-pin	40-pin	40-pin	40-pin	28-pin

*Planned new product **On-Chip UART

The 99000 Family of Microprocessors and Microcomputers

TMS99000 ADVANCED PERIPHERALS

FEATURES	DEVICE NUMBER								
	TMS99110	**TMS99105**	**TMS9995***	**TMS9940M**	**SBP9989**	**SBP9900A**	**TMS9981**	**TMS9980A**	**TMS990040***
Minimal System Chip Count	5	5	3	1	5	5	3	3	6
Clock Rate (MHz)	24	24	12	4	4.4	3	2.5	2.5	3, 4
Max Memory Reach Stand-Alone Memory Mapper	 256 16M	 256 16M	 64K 16M	 2K NA	 128K 16M	 64K 16M	 16K 4M	 16K 4M	 64K 16M
On-chip Memory (Bytes) ROM RAM	 1024 32	 1024 32	 0 256	 2048 128	 NA NA	 NA NA	 NA NA	 NA NA	 NA NA
Addressing Modes	7	—	7	7	7	7	7	7	7
Number of Instructions	96	84	73	73	73	69	69	69	69
Development System	AMPL	AMPL	AMPL	AMPL	AMPL	AMPL	AMPL	AMPL	AMPL
Power Supply	+5 V	+5 V	+5 V	+5 V	400 mA	500 mA	+5 V, +12 V	±5, +12 V	±5, +12 V
On-chip Clock	Yes	Yes	Yes	Yes	No	No	Yes	No	No
CRU Address Reach	32K	32K	32K	256	32K	4K	4K	4K	4K
Package Pins Type	 40 N,J	 40 N,J	 40 N,J	 40 N,J	 64 J	 64 J	 40 N,J	 40 N,J	 64 N,J

*Available in Industrial Temperature Range (−40°C to +85°C)

The 99000 Family contains a wide selection of system support circuits used to easily and cost effectively perform peripheral and interface functions, such as data communicatios, memory functions, special signal processing, and display. Included are controllers, latches, encoders, and others. The bus structure, architecture, I/O features, and other characteristics of these peripherals and interface circuits are compatible with other members of the 99000 Family.

PERIPHERAL AND INTERFACE CIRCUITS

FUNCTION	DEVICE NUMBER	TECHNOLOGY	INTERFACE TO CPU	DATA TRANSFER RATE (MAX)	NO. OF PINS	PACKAGE
COMMUNICATIONS INTERFACE						
Async. Comm. Controller	**TMS9902A**	NMOS	Serial	19.2K Baud	18	N,J
Sync. Comm. Controller	**TMS9903**		Serial	19.2K Baud	20	
IEEE 488 Interface	**TMS9914A**		Parallel	IM Bytes/Sec	40	
FSK Model	**TMS99532**		Parallel	300 Bits/Sec	18	
Pulse DTMF Encoder	**TMS99531****		Parallel	NA	14	
Data Encrypton Unit	**TMS99541**		Parallel	5.1K/Baud	40	
MEMORY INTERFACE						
Floppy Disk Controller	**TMS9909**	NMOS	Parallel	2M Bits/Sec	40	N,J
MultiProcessor Interface	**TMS99650****		Parallel	NA	40	
VIDEO INTERFACE						
Video Display Processor	**TMS9918A**	NMOS	Parallel	Composite Video	40	N,J
	TMS9928A			525 Line		
	TMS9929A			625 Line		
CRT Controller	**TMS9927/5027*** **TMS9937/5037***	NMOS	Parallel	NA	40	N,J

*SMC second source NA = Not Applicable
**Planned new products All Power Supplies Are Rated At + 5V

Sprague Product Selection Guide

SPRAGUE
THE MARK OF RELIABILITY

DRIVERS

GAS-DISCHARGE DISPLAY DRIVERS

Type No.	Fig.	Function
UHP-480	A	Cathode drivers
UHP-481	B	w/MOS or open TTL
UHP-482	C	input capability.
UHP-490	A	Anode drivers w/MOS
UHP-491	B	or open TTL input
UHP-495	A	capability

1.5 DARLINGTON TRANSISTORS

ULN-2061M	D	TTL, DTL Schottky
ULN-2064B	E	TTL, 5 V CMOS in-
ULN-2068B	E	terface (50V Vcex)
ULN-2062M	D	TTL, DTL, Schottky
ULN-2065B	E	TTL, 5V CMOS in-
ULN-2069B	E	terface (80V Vcex)
ULN-2066B	E	6-15V CMOS, PMOS
ULN-2070B	E	interface (50V Vcex)
ULN-2076B	E	
ULN-2067B	E	6-15V CMOS, PMOS
ULN-2071B	E	interface (80V Vcex)
ULN-2077B	E	
ULN-2074B	E	General (50V Vcex)
ULN-2075B	E	General (80V Vcex)

QUAD 1.5 A DRIVERS

UDN-2841B	E	Sink drivers from
UDN-2842B	E	negative supply
UDN-2843B	E	Source drivers from
UDN-2844B	E	negative supply
UDN-2845B	E	Sink & source drivers
UDN-2846B	E	from neg. supply

SOURCE DRIVERS

UDN-2956	A	6-16V PMOS/CMOS
UDN-2957	A	intr. TTL, DTL,
		5V CMOS

SOURCE DRIVERS

UDN-2981	C	5V TTL, DTL, CMOS
UDN-2983	C	interface
UDN-2982	C	6-16V CMOS/PMOS
UDN-2984	C	interface

FLUORESCENT DISPLAY DRIVERS

UDN-6116A	B	TTL, DTL, 5V CMOS
UDN-6118A	B	interface
UDN-6138A	F	
UDN-6126A	C	6-15V PMOS, CMOS
UDN-6128A	C	interface
UDN-6148A	F	

PERIPHERAL/POWER DRIVERS

Type No.	Fig.	Function
UDN-3611M	D	Dual 2-input AND
UDN-3612M	D	Dual 2-input NAND
UDN-3613	D	Dual 2-input OR
UDN-3614	D	Dual 2-input NOR
UDN-5703A	C	Quad 2-input OR
UDN-5706A	C	Quad 2-input AND
UDN-5707A	C	Quad 2-input NAND
UDN-5711M	D	Dual AND
UDN-5712M	D	Dual NAND
UDN-5713M	D	Dual OR
IDN-5714M	D	Dual NOR
UDN-5733A	C	Quad 2-input NOR

POWER DRIVERS

UHP-400	A	Quad 2-input
UHP-400-1	A	AND Gate
UHP-500	A	
UHP-402	A	Quad 2-input
UHP-402-1	A	OR Gate
UHP-502	A	
UHP-403	A	Quad 2-input
UHP-403-1	A	OR Gate
UHP-503	A	
UHP-406	A	Quad 2-input
UHP-406-1	A	AND Gate
UHP-506	A	

POWER DRIVERS (con't)

Type No.	Fig.	Function
UHP-407	A	Quad 2-input
UHP-407-1	A	NAND Gate
UHP-507	A	
UHP-408	A	Quad 2-input
UHP-408-1	A	NAND Gate
UHP-508	A	
UHP-432	A	Quad 2-input
UHP-432-1	A	NOR Gate
UHP-532	A	
UHP-433	A	Quad 2-input
UHP-433-1	A	NOR Gate
UHP-533	A	

GAS DISCHARGE DISPLAY DRIVERS

UDN-6144A	A	For Anode Driver,
UDN-6164A	B	12-25V PMOS
UDN-6184A	C	interface
UDN-7180A	C	For Cathode Driver,
UDN-7183A	C	12-25V PMOS
UDN-7184A	C	interface
UDN-7186A	C	

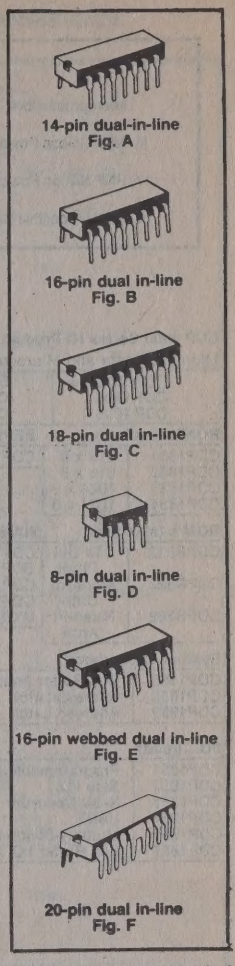
DARLINGTON TRANSISTOR ARRAYS

ULN-2001A	A	For General
ULN-2011A	A	Purpose PMOS,
ULN-2021A	A	CMOS Inter-
ULN-2801A	B	face Applications.
ULN-2811A	B	
ULN-2821A	B	
ULN-2002A	A	For 14-25V PMOS
ULN-2012A	A	Interface Applica-
ULN-2022A	A	tions
ULN-2802A	B	
ULN-2812A	B	
ULN-2822A	B	
ULN-2003A	A	For 5V TTL or
ULN-2013A	A	CMOS Interface
ULN-2023A	A	Applications
ULN-2803A	B	
ULN-2813A	B	
ULN-2823A	B	
ULN-2004A	A	For 6-15V CMOS
ULN-2014A	A	or PMOS Inter-
ULN-2024A	A	face Applications
ULN-2804A	B	
ULN-2814A	B	
ULN-2824A	B	
ULN-2005A	A	For High Output TTL
ULN-2015A	A	Interface Applica-
ULN-2025A	A	tions.
ULN-2805A	B	
ULN-2815A	B	
ULN-2825A	B	

TRANSISTOR ARRAYS

Device	Fig.	Arrays
ULN-2031A	B	interfacing between
ULN-2032A	B	MOS, TTL, or DTL outputs.
ULN-2046A	A	For D-C to UHF signal processing and temperature compensated amplifiers.
ULN-2047A	B	For switching applications.
ULN-2054A	A	For multifunction systems requiring RF/Mixer/Oscillator functions.
ULN-2081A	B	For driver
ULN-2082A	B	applications.

Complete line of State-of-the-Art Integrated circuits designed to interface with DTL, TTL, CMOS, or PMOS logic and incadescent lamps, multiplexed LED's, relays, solenoids, stepping motors, heaters, etc.



14-pin dual-in-line
Fig. A

16-pin dual in-line
Fig. B

18-pin dual in-line
Fig. C

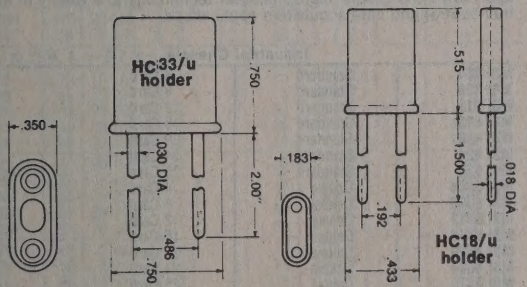
8-pin dual in-line
Fig. D

16-pin webbed dual in-line
Fig. E

20-pin dual in-line
Fig. F

3

UNITED STATES CRYSTAL CORP. MICROPROCESSOR CRYSTALS



1 MHz to 3.5795 MHz

Stock No.	Frequency	Microprocessor	Specifications	Net Each
76F820	1.0000	6800/56860	+.002 HC33/u	7.25
76F821	1.8432	MC/4411	+.002 HC33/u	7.25
76F822	2.0000	F-8/CUP 3850	+.002 HC33/u	6.50
76F824	2.097152	MM5378/MM5379	+.002 HC33/u	6.50
76F825	2.4576	34702	+.002 HC33/u	6.50
76F826	2.667	Pace	+.002 HC33/u	
76F827	3.000	MCS48	+.002 HC33/u	
76F828	3.200	RCA1803	+.200 HC33/u	6.50
76F829	3.2768	Intersil ICM 7250	+.200 HC33/u	
76F830	3.5795	NSC MM5369	+.200 HC33/u	

These high quality crystals feature lower resistance, closer tolerance for higher accuracy and are aged to assure long term stability. Crystals for replacement purposes and military types are also available.

4 MHz to 48 MHz

Stock No.	Frequency	Microprocessor	Specifications	Net Each
76F831	4.0000	4040/4004/4201 Pace	+.002 HC18/u	
76F832	4.1943	Intersil ICM 703A	+.002 HC18/u	
76F833	4.9152	Several MPU's	+.002 HC18/u	
76F834	5.0000	Several MPU's	+.002 HC18/u	
76F835	5.0688	Com 5016/Com 5016T	+.002 HC18/u	4.90
76F837	5.7143	Pace NFC	+.002 HC18/u	
76F838	6.000	MCS48	+.002 HC18/u	
76F839	6.144	Intel 8085	+.002 HC18/u	
76F841	6.5536	Intersil ICM7045	+.002 HC18/u	
76F842	8.0000	Signetics	+.002 HC18/u	
76F843	10.000	Several MPU's	+.002 HC18/u	
76F844	14.318	Several MPU's	+.002 HC18/u	
76F846	18.000	8080/8008/8224	+.002 HC18/u	
76F847	18.4320	8080/8008/8224	+.002 HC18/u	4.05
76F848	20.000	Several MPU's	+.002 HC18/u	
76F849	22.1184	8080A	+.002 HC18/u	
76F850	27.0000	Intel 8080A	+.002 HC18/u	
76F853	48.0000	T. I. Mod Tim 9904 P.N. SNLS 362	+.002 HC18/u	

3

INDEX

	Page
I Microprocessors	66
III. NPN Silicon Power Transistors	67, 68
IV. PNP Silicon Power Transistors	67, 68
V. NPN Monolithic Darlington Transistors	68
VI. Triacs	
A. Sensitive Gate	69
B. General Purpose	69, 70
C. Zero Voltage Switch	70
VII. SCR's	71
VIII. COS/MOS/CMOS Integrated Circuits	71, 72
IX. Linear Integrated Circuits	73, 74
X. SK Series	74

MICROPROCESSORS

CDP 1800 Series IC Product

Microprocessor and Microcomputer

CDP 1802 A	COSMAC CPU
CDP 1805	COSMAC CPU
CDP 1806	COSMAC CPU

ROM's (custom)		EEPROM	
CDP1831	512 x 8	CDP1842	256 x 8
CDP1832	512 x 8		
CDP1833	1024 x 8		
CDP1834	1024 x 8		

ROM's (standard)		RAM's	
CDPR512	UT4 Util Prgm	CDP1821	1024 x 1
		CDP1822	256 x 4
CDPR522	Mcrterm Cntri	CDP1823	128 x 8
		CDP1824	32 x 8
CDPR582	Fixed-Pt Arith	MWS5114	1024 x 4

System Expanders

CDP1856	Bus Buffer (memory)
CDP1858	Address Latch
CDP1859	Address Latch

I/O Circuits

CDP1851	Programmable Interface
CDP1852	Byte I/O
CDP1853	N-Bit Decorder
CDP1854	UART
CDP1855	Multiply-Divide Unit
CDP1857	Bus Buffer I/O

I/O Circuits

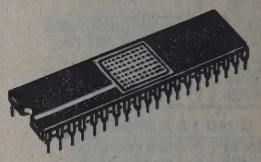
a. CDP1871A—Keyboard Encoder, ASC11/HEX
*b. CDP1872—High-Speed Input Port—8 bit
c. CDP1873—High-Speed Decoder—1 of 8
*d. CDP1875—High-Speed Output Port
e. CDP1877—Programmable Interrupt Controller
*f. CDP1874—High-Speed Input Port—8 bit
*g. CDP1878—Dual Counter Timer
h. CDP1879—Real Time Clock
i. CDP6402—Industry Standard UART

RAM Decoder Latches

CDP1866	4-Bit Latch and Decoder Memory Interface
CDP1867	4-Bit Latch and Decoder Memory Interface
CDP1868	4-Bit Latch and Decoder Memory Interface

Video Interface Circuits

CDP1861	Video Display Controller
CDP1862	Color Generator
CDP1863	Tone Generator



- Completely static circuitry
- High noise immunity
- Wide operating temperature range (55°C to +125°C)
- COS/MOS. TTL. and NMOS compatibility

Series includes all circuit elements needed for an efficient microprocessor system. This series offers user a wide variety of integrated circuits from which he can build his system.

CDP1864	PAL-Compatible TV Interface
CDP1869	Address and Sound Generator
CDP1870	Video Generator

3. Video Interface Circuits
a. CDP1876—Video Interface System (VIS)

COSMAC MICROBOARDS

Single Board Microcomputers

Type	CPU	Freq.	RAM	ROM/EPROM	Serial I/O	Parallel I/O
CDP18S601	1802	2 MHZ	4K	4K/8K	1	25
CDP18S602	1802	2.5 MHZ	2K	2K/4K/8K	1 (UART)	21
CDP18S603	1802	2 MHZ	1K	4K/8K	1	25
CDP18S604B	1802	2 MHZ	1K	2K/4K/8K	1	21
CDP18S605	1802	2.5 MHZ	2K	2K/4K/8K	1 (UART)	—
CDP18S606	1805	2 MHZ	4K	4K/8K	1	25
CDP18S607	1805	2.5 MHZ	2K	2K/4K/8K	1 (UART)	21
CDP18S608	1805	2 MHZ	1K	4K/8K	1	25
CDP18S609	1805	2 MHZ	1K	2K/4K/8K	1	21
CDP18S610	1805	2.5 MHZ	2K	2K/4K/8K	1 (UART)	—

Memory Expansion Boards

CDP18S620	4K RAM
CDP18S621	16K RAM
CDP18S622	8K RAM w/Battery
CDP18S623A	8K RAM
CDP18S625	8K/16K EPROM
CDP18S626	32K/64K EPROM
CDP18S627	4K EPROM (18U42)
CDP18S629	32K RAM

I/O Expansion Boards

CDP18S640	Control/Display	CDP18S650	Counter/Timer
CDP18S641	UART	CDP18S651	Disk Controller
CDP18S642	12 Bit D/A	CDP18S652	Audio Cassette Controller
CDP18S643	12 Bit A/D	CDP18S653V1	300 Baud Modem
CDP18S644/654	8 Bit A/D/A	CDP18S653V2	1200 Baud Modem
CDP18S646	Parallel I/O	CDP18S659	Bread Board
CDP18S647/657	8 Bit D/A	CDP18S660	Combo Memory—I/O
CDP18S648/658	8 Bit A/D	CDP18S661	Video Interface
		CDP18S662	Opto-22 Interface
		CDP18S663	Opto Isolated Parallel I/O

The CDP185600 Series offers single board computers, expansion memory and I/O Modules, plus rugged industrial chassis and low cost development systems. The microboard system allows the designer to apply low POW CMOS microprocessor technology to a variety of industrial control and data acquisition applications.

Industrial Chassis

MSI 804	Standard	4 Card
MSI 808	Standard	8 Card
MSI 812	Standard	12 Card
MSI 816	Standard	16 Card
MSI 820	Standard	20 Card
MSI 824	Standard	24 Card
MSI 825	Standard	25 Card
MSI 8804	Deluxe	4 Card
MSI 8808	Deluxe	8 Card
MSI 8812	Deluxe	12 Card
MSI 8816	Deluxe	16 Card
MSI 8820	Deluxe	20 Card
MSI 8824	Deluxe	24 Card
MSI 8825	Deluxe	25 Card

Industrial Chassis Modules

MSIM 20	Power I/O Control Module
MSIM 40	Plug-In Power Supply Module
MSIM 50	Dual 3½" Disk Drive Module

Microboard Computer Development Systems

CDP18S693—Microboard Development System
—Includes CPU Board, Audio Cassette, 5-Card Chassis, 1802 ROM Basic, Power Supply

CDP18S694—Microboard Development System
—Includes same as CDP18S693 plus 2nd Cassette, Prom Programmer, 1802 ROM Assembler/Editor

CDP18S695—Color Microboard Development System
—Same as CDP18S694 plus 10 inch Color Monitor ASCII Keyboard, Video Interface Microboard

Product Selection Guide

RCA

N-P-N SILICON POWER TRANSISTORS

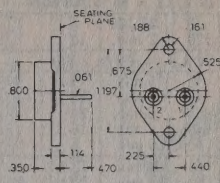
I_C (max.) 0.15 to IA F_T = 3-60 MHz.

Type No.	V_{CEO}(sus) V	P_T W	V_{CE}(sat) —V	I_C mA	t_f μs
2N3053	40	5	1.4	150	—
2N3053A	60	5	0.3	150	—
2N2102	65	5	0.5	150	30▲

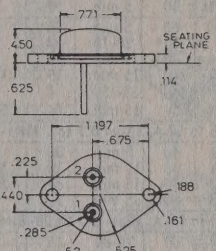
Type No.	V_{CEO} (sus) V	Current Gain h_{FE}	I_C A	V_{CE} V	P_T (Max.) W	I_C A	f_T MHz	Sw. Times▲ t_{ON} μs	t_f μs	Package	p-n-p Complement
40346	175	25 min.	0.010	10	10	1	15	—	—	TO-39	—
2N3440	250	40-160	0.020	10	10	1	15	—	—	TO-39	2N5415
40412	250*	40 min.	0.030	20	10	1	15	—	—	TO-39	—
40321	300*	25-200	0.020	10	5	1	15	—	—	TO-39	—
2N3439	350	40-160	0.020	10	10	1	15	—	—	TO-39	2N5416
2N6771	300	10-50	1	3	40	—	—	—	—	—	—
2N6772	350	10-50	1	3	40	—	—	—	—	—	—
2N6773	400	10-50	1	3	40	—	—	—	—	—	—
TIP47	250	10 min.	1	10	40	—	—	—	—	—	—
TIP48	300	10 min.	1	10	40	—	—	—	—	—	—
TIP49	350	10 min.	1	10	40	—	—	—	—	—	—
TIP50	400	10 min.	1	10	40	—	—	—	—	—	—
I_C (Max.) = 1.5 to 2A, f_T = 0.2 to 1.5 MHz											
2N1479	40	20-60	0.200	4	5	1.5	1.4	1.2	1	TO-39#	—
2N1481	40	35-100	0.200	4	5	1.5	1.4	1.2	1	TO-39#	—
40347	40	20-150	0.450	4	8.75	1.5	1.5	—	—	TO-39#	—
2N5321	50	40-250	—	4	10	500m	—	—	—	TO-66	2N5323
2N5320	75	30-130	—	4	10	500m	—	—	—	TO-66	2N5322
2N3584	250	40 min.	—	10	35	0.1	—	—	—	TO-66	2N6211
2N3585	300	40 min.	—	10	35	0.1	2.5	—	—	TO-66	2N6212
2N1480	55	20-60	0.2	4	5	1.5	1.4	1.2	1	TO-39#	—
2N1482	55	35-100	0.2	4	5	1.5	1.4	1.2	1	TO-39#	—
40348	65	10 min.	1	4	8.75	1.5	1.5	—	—	TO-39#	—
I_C (Max.) = 2.5 to 5 A, f_T = 0.2 to 1 MHz											
2N5786	40	20-100	1.6	2	10	3.5	1	5	15★	TO-39#	2N5783
2N5295	40	30-120	1	4	36	4	0.8	5	15★	TO-220AA	2N6108
2N5296	40	30-120	1	4	36	4	0.8	5	15★	TO-220AB	2N6109
2N6260	40	3 min.	4	2	29	3	0.8	—	—	TO-66	—
40250	40	25 min.	1.5	4	29	4	1	—	—	TO-66	2N5956
TIP29	40	15 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	TIP30A
TIP31	40	25 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	TIP30
2N5785	50	20-100	1.2	2	10	3.5	1	5	15★	TO-39#	2N5782
2N3054	55	5 min.	3	4	25	4	0.8	—	—	TO-66	2N5955
RCA3054	55	5 min.	3	4	36	4	0.8	—	—	TO-220AB	—
2N5297	60	20-80	1.5	4	36	4	0.8	5	15★	TO-220AA	2N6106
2N5298	60	20-80	1.5	4	36	4	0.8	5	15★	TO-220AB	2N6107
TIP29A	60	15 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	TIP30A
TIP31A	60	25 min.	1	4	36	4	0.8	2.3	6★	TO-220AB	TIP32A
2N5784	65	20-100	1	2	10	3.5	1	5	15★	TO-39#	2N5781
2N5293	70	30-120	0.5	4	36	4	0.8	5	15★	TO-220AA	2N6106
2N5294	70	30-120	0.5	4	36	4	0.8	5	15★	TO-220AB	2N6107
2N6261	80	5 min.	4	2	50	4	0.8	—	—	TO-66	—
TIP29B	80	15 min.	4	4	36	4	0.8	2.3	6★	TO-220AB	TIP30B
TIP31B	80	25 min.	4	4	36	4	0.8	2.3	6★	TO-220AB	TIP32B
I_C (Max.) = 2.5 to 5 A, f_T = 0.2 to 1 MHz											
TIP29C	100	15 min.	1	4	50	2.5	0.8	2.3	6★	TO-220AB	TIP30C
TIP31C	100	25 min.	1	4	50	2.5	0.8	2.3	6★	TO-220AB	TIP32C
2N6477	120	5 min.	2.5	4	50	2.5	0.2	—	—	TO-220AB	—
2N6263	120	3 min.	3	2	20	3	0.2	—	—	TO-66	2N6468
2N4347	120	10 min.	5	4	100	5	0.2	—	—	TO-3	2N6248
2N6478	140	5 min.	2.5	4	50	2.5	0.2	—	—	TO-220AB	—
2N3441	140	5 min.	2.7	4	25	3	0.2	—	—	TO-66	2N6468
RCA3441	140	20-150	0.5	4	36	3	0.2	—	—	TO-220AB	—
2N6264	150	5 min.	3	2	50	3	0.2	—	—	TO-66	—
I_C = 6 to 10 A, f_T = 0.2 to 1 MHz											
2N1487	40	15-45	1.5	4	75	6	0.8	—	—	TO-3	—
2N1489	40	25-75	1.5	4	75	6	0.8	—	—	TO-3	—
2N5490	40	20-100	2	4	50	7	0.8	5	15★	TO-220AB	2N6109
2N5491	40	20-100	2	4	50	7	0.8	5	15★	TO-220AA	2N6108
2N5494	40	20-100	3	4	50	7	0.8	5	15★	TO-220AB	2N6109
2N5495	40	20-100	3	4	50	7	0.8	5	15★	TO-220AA	2N6108
2N1488	55	15-45	1.5	4	75	6	0.8	—	—	TO-3	—
2N1490	55	25-75	1.5	4	75	6	0.8	—	—	TO-3	—
2N5492	55	20-100	2.5	4	50	7	0.8	5	15★	TO-220AB	2N6107
2N5493	55	20-100	2.5	4	50	7	0.8	5	15★	TO-220AA	2N6106
2N6098	60	5 min.	10	4	75	10	0.8	—	—	TO-220AA	—
2N6099	60	5 min.	10	4	75	10	0.8	—	—	TO-220AB	—
TIP41A	60	15 min.	3	4	75	10	0.8	3.2●	3.7★●	TO-220AB	TIP42A
2N5496	70	20-100	3.5	4	50	7	0.8	5	15★	TO-220AB	2N6107
2N5497	70	20-100	3.5	4	50	7	0.8	5	15★	TO-220AA	2N6106
2N6100	70	20-80	5	4	75	10	0.8	—	—	TO-220AA	—
2N6101	70	20-80	5	4	75	10	0.8	—	—	TO-220AB	—
TIP41B	80	15 min.	3	4	75	10	0.8	3.2●	3.7★●	TO-220AB	TIP42B
2N4348	120	10 min.	10	4	120	10	0.2	—	—	TO-3	2N6248
2N3442	140	7.5 min.	10	4	117	10	0.8	—	—	TO-3	—
2N6262	150	5 min.	10	2	150	10	0.8	—	—	TO-3	—
2N6078	250	12-70	1.2	1	45	7	1	0.32	0.3	TO-66	—
2N6077	275	12-70	1.2	1	45	7	1	0.32	0.3	TO-66	—
2N6079	350	12-50	1.2	1	45	7	1	0.32	0.3	TO-66	—
40851	350	12 min.	1.2	1	45	7	1	—	—	TO-66	—
2N3715	60	50-150	—	2	150	1	6	—	—	TO-3	—
2N3716	80	50-150	—	2	150	1	6	—	—	TO-3	—
2N6290	50	30-150	—	4	4	2.5	8	—	—	TO-220	2N6109

Also available in JEDEC TO-5 package. ▲ Measured at same current level as h_{FE} unless otherwise indicated.

★ t_{OFF}. *V_{CER} (sus).



TO-3



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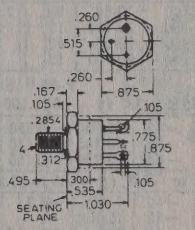
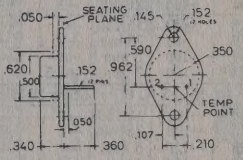
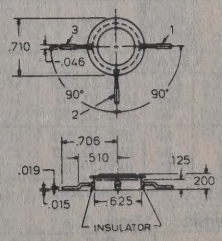


TO-63



TO-66



RADIAL PACKAGE

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

N-P-N SILICON POWER TRANSISTORS (Cont.)

Type No.	VCEO (sus) V	Current Gain hFE	IC A	VCE V	PT (Max.) W	IC A	Sw. Times▲ fT MHz	tON μs	tf μs	Package	p-n-p Complement
IC = 6 to 10 A, fT = 50 to 100 MHz											
2N3879	75	12-100	4	2	35	7	60	0.44	0.4	TO-66	—
2N6354	120	2 min.	10	2	140	10	80	1@	0.2	TO-3	—
IC = 12 to 20 A, fT = 0.2 to 2 MHz											
2N6102	40	5 min.	16	4	75	16	0.8	—	—	TO-220AA	—
2N6103	40	5 min.	16	4	75	16	0.8	—	—	TO-220AB	—
2N6257	40	5 min.	20	4	150	20	0.2	—	—	TO-3	—
2N6371	40	4 min.	16	4	117	16	0.8	—	—	TO-3	2N6469
TIP41	40	15 min.	3	4	75	16	0.8	3.23@	3.7★●	TO-220AB	—
2N6253	45	3 min.	15	4	115	15	0.8	—	—	TO-3	—
2N3055	60	5 min.	10	4	115	15	0.8	—	—	TO-3	MJ2953
2N3055H	60	5 min.	10	4	115	15	0.8	—	—	TO-3	2N6246
2N3772	60	5 min.	20	4	150	20	0.2	—	—	TO-3	2N6246
BD182	60	20-70	4	4	117	15	0.8	—	—	TO-3	—
RCA3055	60	5 min.	10	4	75	15	0.8	—	—	TO-220AB	—
RCS258	60	5 min.	20	4	250	20	0.2	—	—	TO-3	—
40363	70*	20-70	4	4	115	15	0.7	—	—	TO-3	—
2N6254	80	5 min.	15	4	150	15	0.8	—	—	TO-3	—
2N3773	140	15 min.	16	15	10	16	—	—	—	TO-3	—
MJ1501	140	25-150	4	2	200	4	4	—	—	TO-3	MJ15002
2N6259	150	15 min.	16	150	250	16	—	—	—	TO-3	—
IC = 25 to 50 A, fT = 0.2 to 1 MHz											
2N3771	40	5 min.	30	4	150	30	0.2	—	—	TO-3	—
2N5301	40	15 min.	30	.75	200	30	—	—	—	TO-204MA	2N4398
2N5302	60	15 min.	30	.75	200	30	—	—	—	TO-204MA	2N4399
2N5303	80	5 min.	30	1	200	30	—	—	—	TO-204MA	2N5745
IC = 25 to 50 A, fT = 2.5 to 25 MHz											
2N3264	60	20-80	15	3	125	25	20	0.5	0.5	Radial	—
2N3266	60	20-80	15	3	125	25	20	0.5	0.5	TO-63	—
2N3263	90	25-75	15	3	125	25	20	0.5	0.5	Radial	—
2N3265	90	25-75	15	3	125	25	20	0.5	0.5	TO-63	—
IC = 25 to 50 A, fT = 50 to 100 MHz											
2N6032	90	10-50	50	2.6	140	50	50	1@	0.5	Mod. TO-3	—
2N5671	90	20-100	15	2	140	30	50	0.5	0.5	TO-3	—
2N6033	120	10-50	40	2	140	40	50	1@	0.5	Mod. TO-3	—
2N5672	120	20-100	15	2	140	30	50	0.5	0.5	TO-3	—

P-N-P SILICON POWER TRANSISTORS

Type No.	VCEO (sus) V	Current Gain hFE	IC A	VCE V	PT (Max.) W	IC A	Sw. Times▲ fT MHz	tON μs	tf μs	Package	n-p-n Complement
IC = −0.15 to −1A, fT = 50 to 100 MHz											
2N4037	−40	50-250	−0.150	−10	7	−1	60	—	—	TO-39	2N3053
2N4036	−65	40-140	−0.150	−10	7	−1	60	0.11	0.1	TO-39	2N2102
2N4314	−65	50-250	−0.150	−10	7	−1	60	—	—	TO-39	—
IC = −2.5 to −5 A, fT = 2.5 to 25 MHz											
2N5783	−40	4 min.	−3.2	−2	10	−3.5	8	0.5	2.5★	TO-39≠	2N5786
TIP30	−40	15-150	−1	−4	30	−3	3	0.2	1★	TO-220AB	TIP 29
TIP32	−40	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	TIP31
TIP30	−40	15-150	−1	−4	30	−3	3	0.2	1	TO-220AB	TIP29
2N5782	−50	4 min.	−3.2	−4	10	−3.5	8	0.5	2.5★	TO-39≠	2N5785
TIP30A	−60	15-150	−1	−4	30	−5	3	0.2	1★	TO-220AB	TIP29A
TIP32A	−60	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	TIP31A
2N5781	−65	20-100	−1	−2	10	−3.5	8	0.5	2.5★	TO-39≠	2N5784
TIP30B	−80	15-150	−1	−4	30	−3	3	0.2	1★	TO-220AB	TIP29B
TIP32B	−80	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	TIP31B
2N6467	−100	5 min.	−4	−4	40	−4	5	—	—	TO-66	2N6465
2N6475	−100	2 min.	−2.5	−4	40	−4	10	—	—	TO-220AB	2N6473
IC = −2.5 to −5 A, fT = 2.5 to 25 MHz											
TIP30C	−100	15-150	−1	−4	30	−3	3	0.2	1★	TO-220AB	TIP29C
TIP32C	−100	25 min.	−1	−4	40	−5	3	0.2	1★	TO-220AB	TIP31C
2N6468	−120	5 min.	−4	−4	40	−4	5	—	—	TO-66	2N6466
2N6476	−120	2 min.	−4	−2.5	40	−4	10	—	—	TO-220AB	2N6474
2N6110	−30	4 min.	−7	−30	40	−7	—	—	—	TO-220AA	2N6288
2N6111	−30	4 min.	−7	−30	40	−7	—	—	—	TO-220AB	2N6289

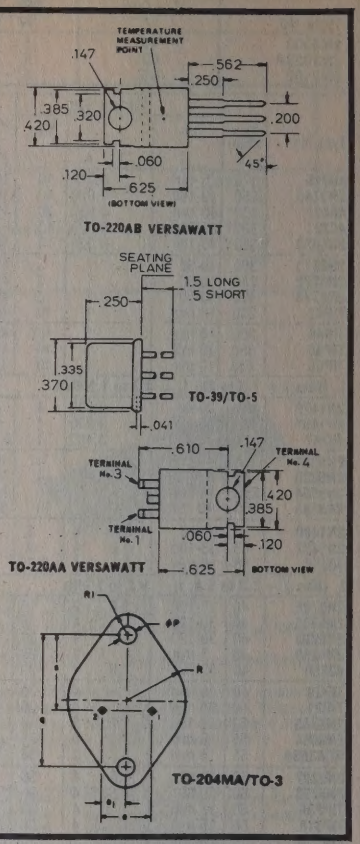
N-P-N MONOLITHIC DARLINGTON TRANSISTORS

Type No.	VCEO (sus) V	Current Gain hFE	IC A	VCE V	PT (Max.) W	IC A	Sw. Times▲ fT MHz	tON μs	tf μs	Package	p-n-p Complement
IC = 8A											
TIP120	60	1000	3		3	65	8	—	—	TO-220AB	TIP12S
TIP121	80	1000	3		3	65	8	—	—	TO-220AB	TIP12C
IC(Max.) = 10 A											
2N6383	40	1000-20,000	5		3	100	10	20	—	TO-3	2N6648
2N6386	40	1000-10,000	3		3	65	10	20	—	TO-220AB	2N6666
2N6384	60	1000-20,000	5		3	100	10	20	—	TO-3	2N6649
2N6387	60	1000-20,000	5		3	65	10	20	—	TO-220AB	2N6667
2N6385	80	1000-20,000	5		3	100	10	20	—	TO-3	2N6650
2N6388	80	1000-20,000	5		3	65	10	20	—	TO-220AB	2N6668

▲ Measured at same current level. as h_{FE} unless otherwise indicated. ● At I_C = 6A @ t_r ★ t_{OFF}.

Characteristics	Temp., T_c	Limits				
I_{CEV} (max) at $V_{CE} = V_{CEV}$	25° C	0.1 mA	0.1 mA	0.1 mA	0.1 mA	2 mA
	100° C	—	—	1 mA	—	—
	125° C	1 mA	1 mA	—	—	—
V_{CE} (sat) (max) at I_C (sat)	25° C	1 V	1 V	1 V	1 V	2 V
	100° C	—	—	1.5 V	—	—
	125° C	2 V	2 V	—	—	—
t_s (max) at I_C (sat)	25° C	0.2 μs	0.5 μs	0.4 μs	0.6 μs	1 μs
	100° C	—	—	0.6 μs	—	—
	125° C	0.5 μs	0.8 μs	—	—	—

Characteristics	Temp., T_c	Limits				
t_s (max) at I_C (sat)	25° C	2.5 μs	2.5 μs	3 μs	2.5 μs	
	100° C	—	—	4 μs	4 μs	
	125° C	4.5 μs	4 μs	—	—	
t_r (max) at I_C (sat)	25° C	0.4 μs	0.4 μs	0.4 μs	0.5 μs	
	100° C	—	—	0.7 μs	1 μs	
	125° C	1.3 μs	0.8 μs	—	—	
t_c (max) at I_C (sat)	25° C	0.4 μs	0.4 μs	0.4 μs	0.5 μs	
	100° C	—	—	0.8 μs	0.8 μs	
	125° C	1.3 μs	0.8 μs	—	—	



SwitchMax Transistors

I_C(sat)		1A	5A	5A	10A
V_{CEV}	260 V	—	—	—	—
	280 V	—	—	—	—
	300 V	—	—	—	—
	450 V	2N6771△	2N6671	—	2N6674■
		—	2N6738△	—	2N6689●
		—	—	—	—
	550 V	2N6772△	2N6672	—	—
		—	2N6739△	—	—
		—	—	—	—
	650 V	2N6773△	2N6673	—	2N6675■
		—	2N6740△	—	2N6690●
		—	—	—	—
	800 V	—	—	2N6751	—
		—	—	BUX31	—
		—	—	—	—
	850 V	—	—	2N6752	—
	900 V	—	—	2N6753	—
		—	—	—	—
		—	—	BUX32A	—
	1000 V	—	—	2N6754	—
		—	—	—	—
		—	—	—	—

All SwitchMax transistors are supplied in JEDEC TO-204MA/TO-3 packages, except as noted below:
△Supplied in JEDEC TO-220MA plastic package
● Supplied in JEDEC TO-61 isolated stud package
■ MIL Approved:
MIL-S-19500/537 — 2N6674, 2N6675
MIL-S-19500/538 — 2N6676, 2N6678

Product Selection Guide

RCA

SENSITIVE-GATE TRIACS

RCA TYPE	Current IT (RMS) A	Current ITSM A	Temp TC °C	Case	Voltage VDROM V	Temp. Range Operating °C	Max. Gate Trigger Current IGT-mA Modes I+	III−	I−	III+	Critical Rate of Rise of: Commutation Voltage dv/dt/V/μs Min.	Typ.	TC-°C	Off-State Voltage dv/dt-V/μs Min.	Typ.	TC-°C	Thermal Resistance RθJC °C/W
T2300A	2.5	25	60	A	100	−40 to 90	3	3	3	3	0.5	—	90	3	5	90	8.5
T2300B	2.5	25	60	A	200	−40 to 90	3	3	3	3	0.5	—	90	3	5	90	8.5
T2300D	2.5	25	60	A	400	−40 to 90	3	3	3	3	0.5	—	90	3	5	90	8.5
T2301A	2.5	25	60	A	100	−40 to 90	4	4	4	4	0.5	—	90	3	5	90	8.5
T2301B	2.5	25	60	A	200	−40 to 90	4	4	4	4	0.5	—	90	3	5	90	8.5
T2301D	2.5	25	60	A	400	−40 to 90	4	4	4	4	0.5	—	90	3	5	90	8.5
T2302A	2.5	25	70	A	100	−40 to 100	10	10	10	10	0.5	—	100	6	10	100	8.5
T2302B	2.5	25	70	A	200	−40 to 100	10	10	10	10	0.5	—	100	6	10	100	8.5
T2302D	2.5	25	70	A	400	−40 to 100	10	10	10	10	0.5	—	100	6	10	100	8.5
T2310A	1.6	25	25[●]	B	100	−40 to 90	3	3	3	3	0.5	—	90	3	5	90	35▲
T2310B	1.6	25	25[●]	B	200	−40 to 90	3	3	3	3	0.5	—	90	3	5	90	35▲
T2310D	1.6	25	25[●]	B	400	−40 to 90	3	3	3	3	0.5	—	90	3	5	90	35▲
T2311A	1.6	25	25[●]	B	100	−40 to 90	4	4	4	4	0.5	—	90	3	5	90	35▲
T2311B	1.6	25	25[●]	B	200	−40 to 90	4	4	4	4	0.5	—	90	3	5	90	35▲
T2311D	1.6	25	25[●]	B	400	−40 to 90	4	4	4	4	0.5	—	90	3	5	90	35▲
T2312A	1.9	25	25[●]	B	100	−40 to 100	10	10	10	10	0.5	—	100	6	10	100	35▲
T2312B	1.9	25	25[●]	B	200	−40 to 100	10	10	10	10	0.5	—	100	6	10	100	35▲
T2312D	1.9	25	25[●]	B	400	−40 to 100	10	10	10	10	0.5	—	100	6	10	100	35

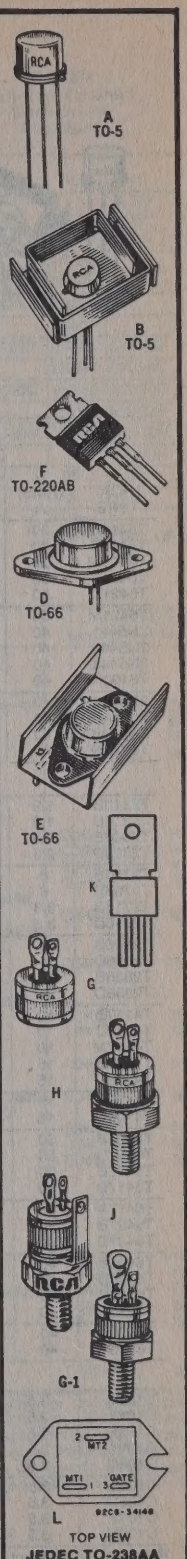
GENERAL-PURPOSE TRIACS

2N5754	2.5	25	70	A	100	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5
2N5755	2.5	25	70	A	200	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5
2N5756	2.5	25	70	A	400	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5
2N5757	2.5	25	70	A	600	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	8.5▲
T2313A	1.9	25	25[●]	B	100	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	30▲
T2313B	1.9	25	25[●]	B	200	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	30▲
T2313D	1.9	25	25[●]	B	400	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	30▲
T2313M	1.9	25	25[●]	B	600	−65 to 100	25	25	40	40	0.5	—	70	10	100	100	30
T2320F	2.5	25	70	K	50	−40 to 100	3	3	3	3	1	4	90	10	100	100	8
T2320A	2.5	25	70	K	100	−40 to 100	3	3	3	3	1	4	90	10	100	100	8
T2320B	2.5	25	70	K	200	−40 to 100	3	3	3	3	1	4	90	10	100	100	8
T2320C	2.5	25	70	K	300	−40 to 100	3	3	3	3	1	4	90	10	100	100	8
T2320D	2.5	25	70	K	400	−40 to 100	3	3	3	3	1	4	90	10	100	100	8
T2320E	2.5	25	70	K	500	−40 to 100	3	3	3	3	1	4	90	10	100	100	8
T2322F	2.5	25	70	K	50	−40 to 100	10	10	10	10	1	4	90	10	100	100	8
T2322A	2.5	25	70	K	100	−40 to 100	10	10	10	10	1	4	90	10	100	100	8
T2322B	2.5	25	70	K	200	−40 to 100	10	10	10	10	1	4	90	10	100	100	8
T2322C	2.5	25	70	K	300	−40 to 100	10	10	10	10	1	4	90	10	100	100	8
T2322D	2.5	25	70	K	400	−40 to 100	10	10	10	10	1	4	90	10	100	100	8
T2322E	2.5	25	70	K	500	−40 to 100	10	10	10	10	1	4	90	10	100	100	8
T2323F	2.5	25	70	K	50	−40 to 100	25	25	40	40	1	4	90	10	100	100	8
T2323A	2.5	25	70	K	100	−40 to 100	25	25	40	40	1	4	90	10	100	100	8
T2323B	2.5	25	70	K	200	−40 to 100	25	25	40	40	1	4	90	10	100	100	8
T2323C	2.5	25	70	K	300	−40 to 100	25	25	40	40	1	4	90	10	100	100	8
T2323D	2.5	25	70	K	400	−40 to 100	25	25	40	40	1	4	90	10	100	100	8
T2323E	2.5	25	70	K	500	−40 to 100	25	25	40	40	1	4	90	10	100	100	8
T2327F	2.5	25	70	K	50	−40 to 100	5	5	5	5	1	4	90	10	100	100	8
T2327A	2.5	25	70	K	100	−40 to 100	5	5	5	5	1	4	90	10	100	100	8
T2327B	2.5	25	70	K	200	−40 to 100	5	5	5	5	1	4	90	10	100	100	8
T2327C	2.5	25	70	K	300	−40 to 100	5	5	5	5	1	4	90	10	100	100	8
T2327D	2.5	25	70	K	400	−40 to 100	5	5	5	5	1	4	90	10	100	100	8
T2327E	2.5	25	70	K	500	−40 to 100	5	5	5	5	1	4	90	10	100	100	8
T2500B	6	60	80	F	200	−65 to 100	25	25	60	60	4	10	80	100	300	100	2.7
T2500D	6	60	80	F	400	−65 to 100	25	25	60	60	4	10	80	75	250	100	2.7
T2700B	6	100	75	D	200	−65 to 100	25	25	40	40	3	10	75	30	150	100	4
T2700D	6	100	75	D	400	−65 to 100	25	25	40	40	3	10	75	20	100	100	4▲
T2710B	3.3	100	25[●]	E	200	−65 to 100	25	25	40	40	3	10	25[●]	30	150	100	24▲
T2710D	3.3	100	25[●]	E	400	−65 to 100	25	25	40	40	3	10	25[●]	20	100	100	24
T2800B	8	100	80	F	200	−65 to 100	25	25	60	60	4	10	80	100	300	100	2.2
T2800C	8	100	80	F	300	−65 to 100	25	25	60	60	4	10	80	85	275	100	2.2
T2800D	8	100	80	F	400	−65 to 100	25	25	60	60	4	10	80	75	250	100	2.2
T2800E	8	100	80	F	500	−65 to 100	25	25	60	60	4	10	80	65	225	100	2.2
2N5567	10	100	85	G	200	−65 to 100	25	25	40	40	2	5	85	30	150	100	1
2N5568	10	100	85	G	400	−65 to 100	25	25	40	40	2	5	85	20	100	100	1
2N5569	10	100	85	H	200	−65 to 100	25	25	40	40	2	5	85	30	150	100	1
2N5570	10	100	85	H	400	−65 to 100	25	25	40	40	2	5	85	20	100	100	1
T4111M	10	100	85	H	600	−65 to 100	25	25	40	40	2	5	85	10	75	100	1
T4121B	10	100	85	J	200	−65 to 100	25	25	40	40	2	5	85	30	150	100	1.1
T4121D	10	100	85	J	400	−65 to 100	25	25	40	40	2	5	85	20	100	100	1.1
T4121M	10	100	85	J	600	−65 to 100	25	25	40	40	2	5	85	10	75	100	1.1
2N5571	15	100	80	G	200	−65 to 100	50	50	80	80	2	10	80	30	150	100	1
2N5572	15	100	80	G	400	−65 to 100	50	50	80	80	2	10	80	20	100	100	1
T4100M	15	100	80	G	600	−65 to 100	50	50	80	80	2	10	80	10	75	100	1
2N5573	15	100	80	H	200	−65 to 100	50	50	80	80	2	10	80	30	150	100	1
2N5574	15	100	80	H	400	−65 to 100	50	50	80	80	2	10	80	20	100	100	1
T4110M	15	100	80	H	600	−65 to 100	50	50	80	80	2	10	80	10	75	10	1
T4700B	15	100	70	D	200	−40 to 100	30	30	80	80	—	10	70	—	40	100	1.3
T4700D	15	100	70	D	400	−40 to 100	30	30	80	80	—	10	70	—	40	100	1.3
T6260B	25	300	75	L	200	40 to 125	50	50	80	80	5	30	75	50	200	110	1.1
T6260C	25	300	75	L	300	40 to 125	50	50	80	80	5	30	75	50	150	110	1.1
T6260D	25	300	75	L	400	40 to 125	50	50	80	80	5	30	75	50	100	110	1.1
T6260E	25	300	75	L	500	40 to 125	50	50	80	80	5	30	75	50	100	110	1.1
T6260M	25	300	75	L	600	40 to 125	50	50	80	80	5	30	75	50	100	110	1.1
T6401B	30	300	65	G-1	200	−65 to 100	50	50	80	80	3	20	65	40	200	100	0.8
T6401D	30	300	65	G-1	400	−65 to 100	50	50	80	80	3	20	65	25	150	100	0.8
T6401M	30	300	65	G-1	600	−65 to 100	50	50	80	80	3	20	65	20	100	100	0.8

[●]Ambient Temperature (T_A)

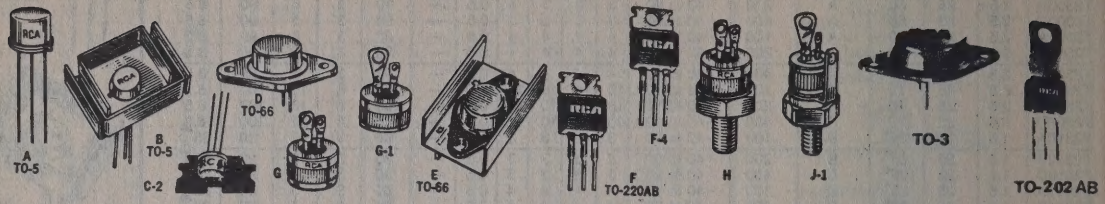
▲Junction-to-Ambient ($R\theta_{JA}$)

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.



Product Selection Guide

GENERAL PURPOSE TRIACS (Cont.)



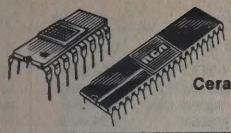
RCA TYPE	Current I_T (RMS) A	Current I_{TSM} A	Temp. T_C °C	Case	Voltage V_{DROM} V	Temp. Range Operating °C	Max. Gate Trigger Current I_{GT}-mA Modes I+	III−	I−	III+	Critical Rate of Rise of: Commutation Voltage dv/dt-V/µs Min.	Typ.	T_C-°C	Off-State Voltage dv/dt-V/µs Min.	Typ.	T_C-°C	Thermal Resistance RθJC °C/W
T6411B	30	300	60	H-1	200	−65 to 100	50	50	80	80	3	20	60	40	200	100	0.9
T6411D	30	300	60	H-1	400	−65 to 100	50	50	80	80	3	20	60	25	150	100	0.9
T6411M	30	300	60	H-1	600	−65 to 100	50	50	80	80	3	20	60	20	100	100	0.9
T6421B	30	300	55	J-1	200	−65 to 100	50	50	80	80	3	20	55	40	200	100	1
T6421D	30	300	55	J-1	400	−65 to 100	50	50	80	80	3	20	55	25	150	100	1
T6421M	30	300	55	J-1	600	−65 to 100	50	50	80	80	3	20	55	20	100	100	1
2N5441	40	300	70	G-1	200	−65 to 110	50	50	80	80	5	30	70	50	200	110	0.8
2N5442	40	300	70	G-1	400	−65 to 110	50	50	80	80	5	30	70	30	150	110	0.8
2N5443	40	300	70	G-1	600	−65 to 110	50	50	80	80	5	30	70	20	100	110	0.8
T6400N	40	300	70	G-1	800	−65 to 110	50	50	80	80	5	30	70	10	75	110	0.8
2N5444	40	300	65	H-1	200	−65 to 110	50	50	80	80	5	30	65	50	200	110	0.9
2N5445	40	300	65	H-1	400	−65 to 110	50	50	80	80	5	30	65	30	150	110	0.9
2N5446	40	300	65	H-1	600	−65 to 110	50	50	80	80	5	30	65	20	100	110	0.9
T6410N	40	300	65	H-1	800	−65 to 110	50	50	80	80	5	30	65	10	75	110	0.9
ZERO-VOLTAGE SWITCH TRIACS																	
T2316B	1.9	25	70	B	200	−40 to 100	45	—	—	45	2	—	70	10	—	100	30▲
T2316D	1.9	25	70	B	400	−40 to 100	45	—	—	45	2	—	70	10	—	100	30▲
T2306B	2.5	25	70	A	200	−40 to 100	45	—	—	45	2	—	70	10	—	100	8.5
T2306D	2.5	25	70	A	400	−40 to 100	45	—	—	45	2	—	70	10	—	100	8.5
T2706B	6	100	75	D	200	−65 to 100	45	—	—	45	3	—	75	30	—	100	4
T2706D	6	100	75	D	400	−65 to 100	45	—	—	45	3	—	75	20	—	100	4
T2716B	3.3	100	25•	E	200	−65 to 100	45	—	—	45	3	—	25•	30	—	100	24▲
T2716D	3.3	100	25•	E	400	−65 to 100	45	—	—	45	3	—	25•	20	—	100	24▲
T2806B	8	100	80	F	200	−40 to 100	45	—	—	45	4	—	80	100	—	100	2.2
T2806D	8	100	80	F	400	−40 to 100	45	—	—	45	4	—	80	75	—	100	2.2
T2856B	8	100	75	F-4	200	−65 to 100	45	—	—	45	4	—	75	100	—	100	3.1
T2856D	8	100	75	F-4	400	−65 to 100	45	—	—	45	4	—	75	75	—	100	3.1
T4117B	10	100	85	H	200	−40 to 100	45	—	—	45	2	—	85	30	—	100	1
T4117D	10	100	85	H	400	−40 to 100	45	—	—	45	2	—	85	20	—	100	1
T4117M	10	100	85	H	600	−40 to 100	45	—	—	45	2	—	85	10	—	100	1
T4106B	15	100	80	G	200	−40 to 100	45	—	—	45	2	—	80	30	—	100	1
T4106D	15	100	80	G	400	−40 to 100	45	—	—	45	2	—	80	20	—	100	1
T4706B	15	100	70	D	200	−40 to 100	45	—	—	45	—	10	70	—	40	100	1.3
T4706D	15	100	70	D	400	−40 to 100	45	—	—	45	—	10	70	—	40•	100	1.3
T6407B	30	300	65	G-1	200	−40 to 100	45	—	—	45	3	—	65	40	—	100	0.8
T6407D	30	300	65	G-1	400	−40 to 100	45	—	—	45	3	—	65	25	—	100	0.8
T6417B	30	300	60	H-1	200	−40 to 100	45	—	—	45	3	—	60	40	—	100	0.9
T6417D	30	300	60	H-1	400	−40 to 100	45	—	—	45	3	—	60	25	—	100	0.9
T6417M	30	300	60	H-1	600	−40 to 100	45	—	—	45	3	—	60	20	—	100	0.9
T6427B	30	300	55	J-1	200	−65 to 100	45	—	—	45	3	—	55	40	—	100	1
T6427D	30	300	55	J-1	400	−65 to 100	45	—	—	45	3	—	55	25	—	100	1
T6406B	40	300	70	G-1	200	−40 to 110	45	—	—	45	5	—	70	50	—	110	0.8
T6406D	40	300	70	G-1	400	−40 to 110	45	—	—	45	5	—	70	30	—	110	0.8
T6416B	40	300	65	H-1	200	−40 to 110	45	—	—	45	5	—	65	50	—	110	0.9
T6416D	40	300	65	H-1	400	−40 to 110	45	—	—	45	5	—	65	30	—	110	0.9
T6426B	40	300	60	J-1	200	−65 to 110	45	—	—	45	5	—	60	50	—	110	1
T6426D	40	300	60	J-1	400	−65 to 110	45	—	—	45	5	—	60	30	—	110	1
C106Q	3.5	20	—	K	15	−40 to 110	.2	.8	—	8	110	3	25	8
C106Y	3.5	20	—	K	30	−40 to 110	.2	.8	—	8	110	3	25	8
C106F	3.5	20	—	K	50	−40 to 110	.2	.8	—	8	110	3	25	8
C106A	3.5	20	—	K	200	−40 to 110	.2	.8	—	8	110	3	25	8
C106B	3.5	20	—	K	300	−40 to 110	.2	.8	—	8	110	3	25	8
C106C	3.5	20	—	K	300	−40 to 110	.2	.8	—	8	110	3	25	8
C106D	3.5	20	—	K	400	−40 to 100	.2	.8	—	8	110	3	25	8
C106E	3.5	20	—	K	500	−40 to 100	.2	.8	—	8	110	3	25	8
C106M	3.5	20	—	K	600	−40 to 100	.2	.8	—	8	110	3	25	8

▲Junction-to-Ambient ($R_{\theta JA}$) •Ambient Temperature (T_A)

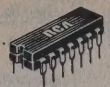
Product Selection Guide

RCA

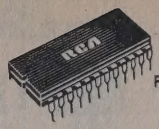
SCR PRODUCT MATRIX



D Suffix
Ceramic Dual-in-Line Packages



E Suffix
Plastic Dual-in-Line Packages



F Suffix
Frit-Seal Ceramic Dual-in-Line Packages

RCA SCR's		M	A2	B2	C2	F	P		G		H		J	K	H
$I_{T(RMS)}$		FTO* 3A	7A	3.3A	7A	10A	12.5A	20A	35A	20A	35A	20A	35A	25A	FTO* 40A■
I_{TSM}(60 Hz)		20A	100A	100A	100A	100A	200A	200A	350A	200A	350A	200A	350A	250A	400A
V_{DROM} V_{RROM}(V)	25													2N681	
	50	S3060F												2N682	
	100	S3060A				S2800A	2N3668	S6200A	2N3870	S6210A	2N3896	S6220A	S6420A	2N683	
	150													2N684	
	200	S3060B	S2600B	S2610B	S2620B	S2800B	2N3669	S6200B	2N3871	S6210B	2N3897	S6220B	S6420B	2N685	S7310B
	300					S2800C								2N687	S7310C
	400	S3060D	S2600D	S2610D	S2620D	S2800D	2N3670	S6200D	2N3872	S6210D	2N3898	S6220D	S6420D	2N688	S7310D
	500					S2800E								2N689	S7310E
	600	S3060M	S2600M	S2610M	S2620M	S2800M	2N4103	S6200M	2N3873	S6210M	2N3899	S6220M	S6420M	2N690	S7310M
	800														S7310N
I_{GT}(mA)		2	15	15	15	15	40	15	40	15	40	15	40	25	80
V_{GT}(V)		1.5	1.5	1.5	1.5	1.5	2	2	2	2	2	2	2	3	3

A1—T05—Low profile
B2—T05—with Heat Radiator
C2—T05—with Heat Spreader
F—T0220AB
P—T03
G—Press Fit (T0203AD)
H—Stud Mount
J—Isolated Stud
K—T048
*FTO—Fast Turn Off

RCA COS/MOS INTEGRATED CIRCUITS

Function Selection Chart

Function	Type No.	No. of Pins
Gates		
NOR/NAND		
Dual 4-input NOR	CD4002B	14
	CD4002UB	14
Dual 4-input NAND	CD4012B	14
	CD4012UB	14
Triple 3-input NOR	CD4025B	14
	CD4025UB	14
Triple 3-input NAND	CD4023B	14
	CD4023UB	14
Quad 2-input NOR	CD4001B	14
	CD4001UB	14
Quad 2-input NAND	CD4011B	14
	CD4011UB	14
8-input NOR/OR	CD4078B	14
8-input NAND/AND	CD4068B	14
Dual 3-input NOR plus inverter	CD4000B	14
	CD4000UB	14
Dual 2-input NAND buffer/driver	CD40107B	8,14
OR/AND		
Dual 4-input OR	CD4072B	14
Dual 4-input AND	CD4082B	14
Triple 3-input OR	CD4075B	14
Triple 3-input AND	CD4073B	14
Quad 2-input OR	CD4071B	14
Quad 2-input AND	CD4081B	14
Buffers and Inverters		
Dual complementary pair plus inverter	CD4007UB	14
	CD4007A	14
Hex inverter	CD4069UB	14
Hex inverter/buffer (3-state)	CD4502B	16
Hex buffer (3-state non-inverting)	CD4503B	16
Hex buffer/converter (inverting)	CD4009UB	16
Hex buffer/converter (inverting)	CD4049UB	16
Hex buffer/converter (non-inverting)	CD4010B	16
Hex buffer/converter (non-inverting)	CD4050B	16
Quad true/complement buffer	CD4041UB	14
Dual 2-input NAND buffer/driver	CD40107B	8,14
Multifunction/AOI		
Triple AND-OR bi-phase pairs	CD4037A	14
Quad exclusive-OR	CD4030B	14
Quad exclusive-OR	CD4070B	14
Quad exclusive-NOR	CD4077B	14
Quad AND/OR Select	CD4019B	16
Dual 2-wide, 2-input AND/OR invert (AOI)	CD4085B	14
Expandable 4-wide, 2-input AND/OR invert (AOI)	CD4086B	14
Multifunctional expandable 8-input (3-state output)	CD4048B	16
Decoders/Encoders		
BCD-to-decimal decoder	CD4028B	16
8-input priority encoder	CD4532B	16
10-line to 4-line BCD priority encoder	CD40147B	16
4-bit latch/4-to-16 line decoder (outputs high)	CD4514B	24
4-bit latch/4-to-16 line decoder (outputs low)	CD4515B	24
Dual 1-of-4 decoder/demultiplexer (outputs high)	CD4555B	16
Dual 1-of-4 decoder/demultiplexer (outputs low)	CD4556B	16
Schmitt Trigger		
Quad 2-input NAND	CD4093B	14
Hex	CD40106B	14
Interface		
Quad low-to-high voltage	CD40109B	16
Hex high-to-low voltage (inverting)	CD4009UB	16
	CD4009A	16
	CD4049UB	16
	CD4049A	16
Hex high-to-low voltage (non-inverting)	CD4010B	16
	CD4050B	16
Dual 2-input NAND buffer/driver	CD40107B	8,14
8-bit bidirectional CMOS-to-TTL level converter	CD40115▽	22
8-bit bidirectional CMOS-to-TTL level converter	CD40116▽	22
Multivibrators		
Monostable/astable	CD4047B	14
Dual monostable	CD4098B	16
Dual precision monostable	CD4538B	16
Flip-Flops		
Dual "D" with set/reset capability	CD4013B	14
Dual "J-K" with set/reset capability	CD4027B	16
Gated "J-K" (non-inverting)	CD4095B	14
Gated "J-K" (inverting and non-inverting)	CD4096B	14
Hex "D"	CD40174B	16
4-bit "D" with 3-state outputs	CD4076B	14
Latches		
Quad clocked "D"	CD4042B	16
Quad NOR R/S (3-state outputs)	CD4043B	16
Quad NAND R/S (3-state outputs)	CD4044B	16
Dual 4-bit	CD4508B	24
8-bit addressable	CD4099B	16
	CD4724B	16
Registers		
Shift Registers-Static		
Dual 4-stage with serial input/parallel output	CD4015B	16
18-stage	CD4006B	14
64-stage	CD4031B	16
Dual 64-bit	CD4517B	16
8-stage with synchronous parallel or serial input/serial output	CD4014B	16
8-stage with asynchronous parallel input or synchronous serial input/serial output	CD4021B	16
4-stage parallel-in/parallel-out with J-K input and true/complement output	CD4035B	16
	CD4035A	16
4-bit universal bidirectional with 3-state outputs	CD40104B	16
4-bit universal bidirectional with asynchronous master reset	CD40194B	16
8-stage bidirectional parallel or serial input/parallel output	CD4034B	24
32-bit left/right	CD40100B	16
8-stage shift-and-store bus	CD4094B	16
Shift Registers-Dynamic		
200-stage		
Storage Registers		
8-bit addressable latch	CD4099B	16
	CD4724B	16
4-bit "D"-type with 3-state outputs	CD4076B	16
4 × 4 Multiport	CD40108B	24
4 × 4 Multiport	CD40208B	24
FIFO Buffer Registers		
4-bit × 16 word	CD40105B	16

▽Indicates types designed for special applications. Ratings and characteristics data for these types differ in some aspects from the standardized data for A- and B-series types. Refer to RCA data bulletin on these types for specific differences. Data bulletin file numbers are shown on functional diagrams.

Multifunction/AOI (cont'd)

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

RCA Product Selection Guide

COS/MOS INTEGRATED CIRCUITS

Function	Type No.	No. of Pins
Counters		
Binary Ripple		
7-Stage	CD4024B	14
12-Stage	CD4040B	16
14-Stage	CD4020B	16
14-stage counter/divider and oscillator	CD4060B	16
Timers		
21-stage	CD4045B	14
Programmable	CD4536B	16
Synchronous		
Decade counter	CD4017B	16
Divide-by-8 counter/divider	CD4022B	16
Presettable divide-by-"N" counter	CD4018B	16
Programmable-divide-by-"N"	CD4059A	24
Presettable up/down counter	CD4029B	16
Presettable 4-bit BCD up/down counter	CD4510B	16
Presettable 4-bit binary up/down counter	CD4516B	16
Presettable 2-decade BCD down counter	CD40102B	16
Presettable 8-bit binary down counter	CD40103B	16
Presettable 4-bit BCD up/down counter	CD40192B	16
Presettable 4-bit binary up/down counter	CD40193B	16
Dual BCD up counter	CD4518B	16
Dual binary up counter	CD4520B	16
Decade counter/asynchronous clear	CD40160B	16
Binary counter/asynchronous clear	CD40161B	16
Decade counter/synchronous clear	CD40162B	16
Binary counter/synchronous clear	CD40163B	16

Function	Type No.	No. of Pins
Display Drivers With Counter		
Decade counter/divider	**CD4026B**	**16**
Up/Down Counter-Latch-Decoder Driver	CD40110B	16
For Liquid-Crystal-Display Drive		
4-segment display driver	CD4054B	16
BCD-to-7-segment decoder/driver	CD4055B	16
BCD-to-7-segment decoder/driver	CD4056B	16
4-digit decoder/driver with hexidecimal display	CD22104 ▽	40
4-digit decoder/driver with decimal display	CD22104A ▽	40
4-digit decoder/driver with hexidecimal display	CD22105 ▽	40
4-digit decoder/driver with decimal display	CD22105A ▽	40
For Light-Emitting-Diode Drive		
BCD-to-7-segment latch decoder/driver	CD4543B	16
Multiplexers/Demultiplexers		
Analog		
Triple 2-channel	CD4053B	16
Differential 4-channel	CD40528	16
Single 8-channel	CD4051B	16
Differential 8-channel	CD4097B	24
Single 16-channel	CD4067B	24
Quad bilateral switch	CD4016B	14
Quad bilateral switch	**CD4066B**	**14**
Digital (Data Selectors)		
Quad AND/OR select	CD4019B	16
Dual 1-of-4 decoder/demultiplexer (outputs high)	CD4555B	16
Dual 1-of-4 decoder/demultiplexer (outputs low)	CD4556B	16
Quad 2-line-to-1-line	CD40257B	16
8-channel	CD4512B	16

Function	Type No.	No. of Pins
Phase-Locked Loop Micropower	CD4046B	16
Arithmetic Circuits 4-bit full adder	CD4008B	16
Triple serial adder, positive logic	CD4032B	16
Triple serial adder, negative logic	CD4038B	16
4-bit magnitude comparator	CD4063B	16
Quad exclusive-OR gate	CD4030B	14
	CD4030A	14
Quad exclusive-OR gate	CD4070B	14
Quad exclusive-NOR gate	CD4077B	14
ALU/Rate Multipliers		
4-bit arithmetic logic unit	CD40181B	24
	CD4057A	28
BCD rate multiplier	CD4527B	16
Binary rate multiplier	CD4089B	16
Look-ahead-carry block	CD40182B	16
Parity Generator/Checker 9-bit	CD40101B	14
Multiport Register		
4 x 4	CD40108B	24
4 x 4	CD40208B	24
8 x 1	CD4034B	24
8 x 1	CD4034A	24
Quad Bilateral Switches		
For transmission or multiplexing of analog or digital signals	CD4016B	14
	CD4016A	14
	CD4066B	14
	CD4066A	14
Telecommunication Circuits		
4 x 4 crosspoint switch with control memory	CD22100 ▽	16
4 x 4 x 2 crosspoint switch with control memory	CD22101 ▽	24
Tone Generator		
Dual-tone multifrequency tone generator	CD22859 ▽	16

Q Mos RCA's High-Speed CMOS Line

CMOS Input Logic Level Plastic Pkg.	TTL Input Logic Level Plastic Pkg.	Pins	Description
CD74HC00E	CD74HCT00E	14	Quad 2-Input NANO Gate
CD74HC02E	—	14	Quad 2-Input NOR Gate
CD74HC04E	—	14	Hex Inverter/Buffer
CD74HC08E	—	14	Quad 2-Input AND Gate
CD74HC10E	—	14	Triple 3-Input NAND Gate
CD74HC11E	—	14	Triple 3-Input AND Gate
CD74HC14E	—	14	Hex Schmitt Trigger Inverter
CD74HC20E	—	14	Dual 4-Input NAND Gate
CD74HC27E	—	14	Triple 3-Input NOR Gate
CD74HC30E	—	14	8-Input NAND Gate
CD74HC32E	—	14	Quad 2-Input OR Gate
CD74HC42E	—	14	BCD-to-Decimal Decoder
CD74HC73E	—	14	Dual J-K Flip-Flop w/CLEAR
CD74HC74E	CD74HCT74E	14	Dual D Flip-Flop w/PRESET and CLEAR
CD74HC75E	—	16	4-Bit Bistable Latch
CD74HC76E	—	16	Dual J-K Flip-Flop w/PRESET and CLEAR
CD74HC77E	—	14	4-Bit Bistable Latch
CD74HC85E	—	16	4-Bit Magnitude Comparator
CD74HC86E	—	14	Quad 2-Input Excl. OR Gate
CD74HC107E	CD74HCT107E	14	Dual J-K Flip-Flop w/CLEAR
CD74HC109E	—	14	Dual J-K Flip-Flop w/PRESET and CLEAR
CD74HC112E	—	16	Dual J-K Flip-Flop w/PRESET and CLEAR
CD74HC123E	—	16	Dual Retriggerable Monostable Multivibrator
CD74HC132E	—	14	Quad 2-Input NAND Schmitt Trigger
CD74HC133E	—	16	13-Input NAND Gate
CD74HC138E	CD74HCT138E	16	3-to-8 Line Decoder
CD74HC139E	CD74HCT139E	16	Dual 1-of-4 Line Decoder
CD74HC147E	—	16	10-to-4 Line-Priority Encoder
CD74HC151E	—	16	8-Channel Digital Multiplexer
CD74HC153E	—	16	Dual 4-Input Multiplexer
CD74HC154E	CD74HCT154E	24	4-to-16-Line Decoder
CD74HC157E	CD74HCT157E	16	Quad 2-Input Multiplexer
CD74HC158E	CD74HCT158E	16	Quad 2-Input Multiplexer, Inverting
CD74HC160E	CD74HCT160E	16	BCD Decade Counter, Asynchronous Reset
CD74HC161E	CD74HCT161E	16	4-Bit Binary Counter, Asynchronous Reset
CD74HC162E	CD74HCT162E	16	BCD Decade Counter, Synchronous Reset
CD74HC163E	CD74HCT163E	16	4-Bit Binary Counter, Synchronous Reset
CD74HC164E	—	14	8-Bit Serial-to-Parallel Shift Register
CD74HC165E	CD74HCT165E	16	8-Bit Parallel-to-Serial Shift Register
CD74HC173E	—	16	Quad D Flip-Flop, 3-State
CD74HC174E	CD74HCT174E	16	Hex D Flip-Flop w/CLEAR
CD74HC175E	CD74HCT175E	16	Quad D Flip-Flop w/CLEAR
CD74HC192E	—	16	Synchronous Decade Up/Down Counter
CD74HC193E	—	16	Synchronous Binary Up/Down Counter
CD74HC194E	—	16	4-Bit Bidirectional Universal Shift Register
CD74HC195E	CD74HCT195E	16	4-Bit Parallel Shift Register
CD74HC221E	—	16	Dual Monostable Multivibrator
CD74HC238E	—	16	1-of-8 Decoder
CD74HC240E	CD74HCT240E	20	Octal Buffer Line Driver, 3-State, Inverting
CD74HC241E	CD74HCT241E	20	Octal Buffer Line Driver, 3-State
CD74HC242E	CD74HCT242E	14	Quad-Bus Transceiver, 3-State, Inverting
CD74HC243E	CD74HCT243E	14	Quad-Bus Transceiver, 3-State
CD74HC244E	CD74HCT244E	20	Octal-Buffer Line Driver, 3-State
CD74HC245E	CD74HCT245E	20	Octal-Bus Transceiver, 3-State

CMOS Input Logic Level Plastic Pkg.	TTL Input Logic Level Plastic Pkg.	Pins	Description
CD74HC251E	CD74HCT251E	16	8-Channel Multiplexer, 3-State
CD74HC253E	CD74HCT253E	16	Dual 4-Input Multiplexer, 3-State
CD74HC257E	CD74HCT257E	16	Quad 2-Input Multiplexer, 3-State
CD74HC259E	—	16	8-Bit Addressable Latch
CD74HC266E	—	14	Quad 2-Input Excl. NOR
CD74HC273E	CD74HCT273E	20	Octal D Flip-Flop w/CLEAR
CD74HC280E	CD74HCT260E	14	8-Bit Odd/Even Parity Generator/Checker
CD74HC299E	CD74HCT299E	20	8-Bit Universal Shift Register
CD74HC354E	—	20	8-Input Multiplexer, Latched-Data, 3-State
CD74HC356E	—	20	8-Input Multiplexer, Clocked-Latched-Data, 3-State
CD74HC365E	—	16	Hex 3-State Buffer
CD74HC366E	—	16	Hex 3-State Buffer, Inverting
CD74HC367E	—	16	Hex 3-State Buffer
CD74HC368E	—	16	Hex 3-State Buffer, Inverting
CD74HC373E	CD74HCT373E	20	Octal Transparent Latch 3-State
CD74HC374E	CD74HCT374E	20	Octal D Flip-Flop, 3-State
CD74HC390E	—	16	Dual Decade Counter
CD74HC393E	—	16	Dual 4-Bit Binary Counter
CD74HC533E	CD74HCT533E	20	Octal Transparent Latch, 3-State, Inverting
CD74HC534E	CD74HCT534E	20	Octal D Flip-Flop, 3-State, Inverting
CD74HC540E	CE74HCT540E	20	Octal Buffer Line Driver, 3-State, Inverting
CD74HC541E	CD74HCT541E	20	Octal Buffer Line Driver, 3-State
CD74HC563E	CD74HCT563E	20	Octal Transparent Latch, 3-State, Inverting
CD74HC564E	CD74HCT564E	20	Octal D Flip-Flop, 3-State, Inverting
CD74HC573E	CD74HCT573E	20	Octal Transparent Latch, 3-State
CD74HC574E	CE74HCT574E	20	Octal D Flip-Flop, 3-State
CD74HC640E	CD74HCT640E	20	Octal Bus Transceiver, 3-State, Inverting
CD74HC643E	CD74HCT643E	20	Octal Bus Transceiver, 3-State
CD74HC645E	CD74HCT645E	20	Octal Bus Transceiver, 3-State
CD74HC646E	CD74HCT646E	20	Octal Bus Transceiver, 3-State
CD74HC648E	CD74HCT648E	20	Octal Bus Transceiver, 3-State, Inverting
CD74HC688E	CD74HCT688E	20	8-Bit Equality Comparator
CD74HC4002E	—	14	Dual 4-Input NOR Gate
CD74HC4017E	—	16	Decade Counter/Divider
CD74HC4020E	—	16	14-Bit Binary Counter
CD74HC4040E	—	16	12-Bit Binary Counter
CD74HC4049E	—	16	Hex Buffer, Inverting
CD74HC4050E	—	16	Hex Buffer
CD74HC4060E	—	16	14-Stage Binary Counter w/Oscillator
—	CD74HCT4301E	20	Octal Latch Level Converer, Inverting
—	CD74HCT4302E	20	Octal Latch Level Converter
—	CD74HCT4303E	20	Octal Flip-Flop Level Converter, Inverting
—	CD74HCT4304E	20	Octal Flip-Flop Level Converter
—	CD74HCT4305E	20	Octal Buffer Level Converter, Inverting
—	CD74HCT4306E	20	Octal Buffer Level Converter
CD74HC4511E	—	16	BCD-to-7-Segment Latch/Decoder/Driver
CD74HC4514E	—	24	4-to-16-Line Decoder w/Latch
CD74HC4520E	—	16	Dual Binary Up Counter 3-State
CD74HC40104E	CD74HCT40104E	16	4-Bit Bidirectional Universal Shift Register,

Note: Add package suffix code to part number on all orders.
E=Dual-In-Line Plastic Package—Temp. Range=−40°C to +85°C.
F=Dual-In-Line Frit-Seal Ceramic Package (CERDIP)—Temp. Range=−55°C to +125°C. Q MOS Parts Also Available in Cerdip Packages.

Linear Integrated Circuits

RCA

Fig. A
T Suffix
TO-5 Style Package with straight leads

8,10, and 12-lead versions

Fig. B
V1 Suffix
TO-5 Style Package with Radial Formed Leads

8,10, and 12-lead versions

Fig. E
G and E Suffix
Dual-in-Line Plastic Package

8,14 and 16-lead versions

Fig. G
S Suffix
TO-5 Style Package with Dual-in-Line Formed Leads (DIL-CAN)

8-lead version only

Fig. F
D Suffix
Dual-in-line Welded-Seal Ceramic Package

14 and 16-lead versions

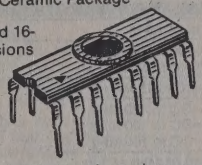


Fig. H
Q Suffix
Quad-in-Line Plastic Package (QUIP)

14 and 16-lead versions

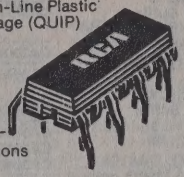
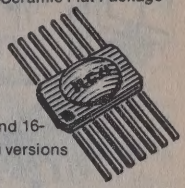


Fig. J
K Suffix
Ceramic Flat Package

14 and 16-lead versions



3

OPERATIONAL AMPLIFIERS

RCA Type	Fig.*	Description
CA080	E,T	General Purpose BiMOS
CA081	E,T	General Purpose BiMOS
CA082	E,T	General Purpose BiMOS
CA083	E,T	General Purpose BiMOS
CA3240E	E	General Purpose Dual BiMOS
CA3240AE	E	General Purpose Dual BiMOS
CA3260E	E	General Purpose Dual BiMOS
CA3260S	G	General Purpose Dual BiMOS
CA3260T	A	General Purpose Dual BiMOS
CA3260AE	E	General Purpose Dual BiMOS
CA3260AS	G	General Purpose Dual BiMOS
CA3260AT	A	General Purpose Dual BiMOS
CA3260BS	G	General Purpose Dual BiMOS
CA3260BT	A	General Purpose Dual BiMOS
CA084G	E	General Purpose Quad BiMOS
CA084S	G	General Purpose Quad BiMOS
CA084T	A	General Purpose Quad BiMOS
CA084AE	E	General Purpose Quad BiMOS
CA084AS	G	General Purpose Quad BiMOS
CA084AT	A	General Purpose Quad BiMOS
CA084BS	G	General Purpose Quad BiMOS
CA084BT	A	General Purpose Quad BiMOS
CA158AE	E	General Purpose Dual
CA158AS	G	General Purpose Dual
CA158AT	A	General Purpose Dual
CA158E	E	General Purpose Dual
CA158S	G	General Purpose Dual
CA158T	A	General Purpose Dual
CA258AE	E	General Purpose Dual
CA258AS	G	General Purpose Dual
CA258AT	A	General Purpose Dual
CA258E	E	General Purpose Dual
CA258S	G	General Purpose Dual
CA258T	A	General Purpose Dual
CA358AE	E	General Purpose Dual
CA358AS	G	General Purpose Dual
CA358AT	A	General Purpose Dual
CA358E	E	General Purpose Dual
CA358S	G	General Purpose Dual
CA358T	A	General Purpose Dual
CA2904E	E	General Purpose Dual
CA1458E	E	General Purpose Dual
CA1458S	G	General Purpose Dual
CA1458T	A	General Purpose Dual
CA1558E	E	General Purpose Dual
CA1558S	G	General Purpose Dual
CA1558T	A	General Purpose Dual
CA124E	E	General Purpose Quad
CA224E	E	General Purpose Quad
CA324E	E	General Purpose Quad
CA3401E	E	General Purpose Quad
CA741CG	E	General Purpose Quad
CA741E	E	General Purpose Quad
CA741CS	G	General Purpose Quad
CA741S	G	General Purpose Quad
CA741CT	A	General Purpose Quad
CA741T	A	General Purpose Quad
CA101S	G	Wideband
CA101T	A	Wideband
CA201S	G	Wideband
CA201T	A	Wideband
CA201T	A	Wideband
CA301AE	E	Wideband
CA301AS	G	Wideband
CA301AT	A	Wideband
CA207E	E	Wideband
CA307E	E	Wideband
CA307S	G	Wideband
CA307T	A	Wideband
CA3008	J	Wideband
CA3008A	J	Wideband
CA3010	A	Wideband
CA3010A	A	Wideband
CA3015	A	Wideband
CA3015A	A	Wideband
CA3016	J	Wideband
CA3016A	J	Wideband
CA3029	E	Wideband
CA3029A	E	Wideband
CA3030	E	Wideband
CA3030A	E	Wideband
CA3037	F	Wideband
CA3037A	F	Wideband
CA3038	F	Wideband
CA3038A	F	Wideband
CA3060AD	F	Triple transconductance
CA3060BD	F	Amplifier array (OTA)
CA3060D	F	
CA3060E	E	
CA3078AT	A	Single operational
CA3078T	A	Amplifier
CA3080	G	Single transconductance
CA3080A	G	Amplifier (OTA)
CA31005	G	BiMOS (MOS and Bipolar devices on same chip)
CA3100T	A	
CA3130E	E	Wideband
CA3130S	G	Wideband
CS3130T	A	Wideband
CA3130AE	E	Wideband
CA3130AS	G	Wideband
CA3130AT	A	Wideband
CA3130BS	G	Wideband
CA3130BT	A	Wideband
CA3140E	E	Wideband
CA3140S	G	Wideband
CA3140T	A	Wideband
CA3140AE	E	Wideband
CA3140AS	G	Wideband
CA3104AT	A	Wideband
CA3140BS	G	Wideband
CA3140BT	A	Wideband
CA3160E	E	Wideband
CA3160S	G	Wideband
CA3160T	A	Wideband
CA3160AE	E	Wideband
CA3160AS	G	Wideband
CA3160AT	A	Wideband
CA3160BS	G	Wideband
CA3160BT	A	Wideband
CA3193E	E	Low Offset & Drift
CA3193S	G	Low Offset & Drift
CA3193T	A	Low Offset & Drift
CA3193AE	E	Low Offset & Drift
CA3193AS	G	Low Offset & Drift
CA3193AT	A	Low Offset & Drift
CA6078AT	A	Low popcorn noise
CA6741AT	A	Low popcorn noise

(*) For these figures see this page or following page.

LINEAR ARRAYS

MATCHED DIODE LINEAR ARRAY

RCA Type	Fig.*	Description
CA3019	A	Individual
CA3039	A	Quad plus two
CA3141E	E	Ten general purpose (including three common-cathode pairs) high reverse-breakdown types

AMPLIFIER

CA3026	A	Dual independent
CA3035	A	Three amplifiers
CA3035V1	B	Three amplifiers
CA3048	E	Four amplifiers
CA3049	A	Dual independent
CA3054	E	Dual independent
CA3094AT	A	Programmable power switch/amplifier
CA3094BT	A	
CA3094T	A	
CA3102E	E	Dual independent

LINEAR ARRAYS

RCA Type	Fig.	Description
		TRANSISTOR
CA3018	A	Darlington connected pair plus two individual
CA3018A	A	
CA3036	A	Dual Darlingto connected
CA3045	F	Differentially connected pair plus 3 individual
CA3046	F	
CA3050	F	Dual Darlington connected
CA3051	E	Dual Darlington connected
CA3081	E	NPN general purpose
CA3082	E	NPN general purpose
CA3083	E	NPN general purpose
CA3084	E	NPN general purpose
CA3086	E	NPN general purpose
CA3093E	E	2 zener diodes, 1 diode and 3 transistors
CA3096AE	E	NPN-PNP geneal purpose
CA3096E	E	NPN-PNP general purpose
CA3118AT	A	Darlington-connected pair plus 2 individual
CA3119T	A	
CA3138E	E	4 individual high current NPN trans
CA3138AE	E	
CA3146AE	E	Differential-connected pair plus 2 individual
CA3146E	E	
CA3183AE	E	NPN general purpose
CA3183E	E	NPN general purpose
CA1724E	E	Four individual, sealed-junction high-current NPN
CA1725E	E	
CA3127E	E	Five high frequency NPN
CA3097E	E	Thyristor/transistor (PUT, SCR, PNP, Zener, PNP/NPN pair
CA3600E	E	Three comp. pairs of N-channel and P-channel enhancement MOS types

SPECIAL FUNCTION CIRCUITS

RCA Type	Fig.*	Description
CA3091D	F	Four quadrant multiplier
CA3179E	E	Divide 64 or 256 prescaler
CA3199E	E	Divide 4 prescaler

RCA Linear Integrated Circuits

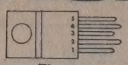


Fig. E
5-Lead
TO-220
(Vertical Mount)

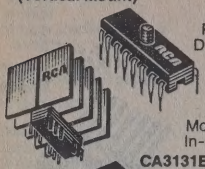


Fig. C
E Suffix
Power Stud Plastic
Dual-in-line Package
CA3134E only

Fig. D
EM Suffix
Modified 16-lead Dual-In-Line plastic Package
CA3131EM, CA3132 EM only

Fig. K
Q Suffix
Modified 16-lead
QUIP
CA810Q, CA810AQ, and CA1190Q only

MOS FIELD-EFFECT TRANSISTORS (MOS/FET's)

TYPES FOR MILITARY AND INDUSTRIAL EQUIPMENT

RCA Type	Fig.*	Description
3N128		Single-Gate
3N139		Single-Gate
3N143		Single-Gate
3N153		Single-Gate
3N138		Single-Gate
3N142		Single-Gate
3N152		Single-Gate
3N154		Single-Gate
3N140		Dual-Gate
3N141		Dual-Gate
3N159		Dual-Gate
3N187		Dual Gate-Protected
3N200		Dual Gate-Protected
40819		Dual Gate-Protected

TYPES FOR CONSUMER EQUIPMENT

RCA Type	Fig.*	Description
40467A		Single-Gate
40468A		Single-Gate
40559A		Single-Gate
40600		Dual-Gate
40601		Dual-Gate
40602		Dual-Gate
40603		Dual-Gate
40604		Dual-Gate
3N204		Dual Gate-Protected
3N205		Dual Gate-Protected
3N206		Dual Gate-Protected
3N211		Dual Gate-Protected
3N212		Dual Gate-Protected
3N213		Dual Gate-Protected
40673		Dual Gate-Protected
40820		Dual Gate-Protected
40821		Dual Gate-Protected
40822		Dual Gate-Protected
40823		Dual Gate-Protected
40841		Dual Gate-Protected

(*) Fig on this page or previous page

HIGH-GAIN WIDEBAND AMPLIFIERS

RCA Type	Fig.*	Description
CA3011	A	—1 MHz to 20 MHz
CA3012	A	FM 1F amplifiers
CA3020	A	DC to 9MHz — Multipurpose
CA3020A	A	DC to 8MHz — power
CA3021	A	DC to 6 MHz — Low power
CA3022	A	DC to 20 MHz — video
CA3023	A	DC to 40 MHz
CA3040	A	DC to 200 MHz—video

DIFFERENTIAL AMPLIFIERS

CA3000	A	DC to 30 MHz
CA3001	A	Video and wideband—DC to 55 MHz
CA3002	A	IF—DC to 15 MHz
CA3004	A	RF—DC to 100 MHz
CA3005	A	RF—DC to 100 MHz
CA3006	A	RF—DC to 100 MHz
CA3007	B	BW=0.01 MHz at 3db
CA3008	J	AF—DC to 3 kHz
CA3008A	J	AF-DC to 3 kHz
CA3028A	A	Cascade—DC to 500 MHz
CA3028B	A	Cascade—DC to 500 MHz
CA3053	A	Cascade—DC to 500 MHz

AUDIO CIRCUITS

CA2002	E	8W Audio power
CA2002M	E	8W Audio power
CA2004	E	12W Audio power
CA2004M	E	12W Audio power
CA3036	A	Dual Darlington amps., matched low noise transistors
CA3052	E	Four-channel preamp., single-supply, 4 independent amps.
CA3094E	E	Programmable power switch/
CA3094S	G	amp., operation to 24 V
CA3094T	A	
CA3094AE	E	Same, except operation
CA3094AS	G	to 36 V
CA3094AT	A	
CA3094BS	G	Same, except operation
CA3094BT	A	to 44 V
CA8100	K	6 W audio amp. w/thermal shutdown
CA3131EM	D	5 W audio amp., 48 db gain w/internal feedback
CA3132EM	D	CA3131EM without feedback
CA758E	E	PPL stereo decoder, low
CA1310E	E	THD, RC osc., excellent SCA rejection
CA3090Q	H	Multiple decoder, stereo defeat/enable, 100 mA lamp drive

COMPARATORS

RCA Type	Fig.*	Description
CA139E	E	Quad voltage comparators
CA139AE	E	Quad voltage comparators
CA239E	E	Quad voltage comparators

COMPARATORS CONT

CA239AE	E	Quad voltage comparators
CA339E	E	Quad voltage comparators
CA339AE	E	Quad voltage comparators
CA111E	E	Voltage comparators
CA111S	G	Voltage comparators
CA111T	A	Voltage comparators
CA211E	E	Voltage comparators
CA211S	A	Voltage comparators
CA211T	A	Voltage comparators
CA311E	E	Voltage comparators
CA311S	G	Voltage comparators
CA311T	A	Voltage comparators
CA3290E	E	Dual BiMOS comparator
CA3290S	G	Dual BiMOS comparator
CA3290T	A	Dual BiMOS comparator
CA3290AE	E	Dual BiMOS comparator
CA3290AS	G	Dual BiMOS comparator
CA3290AT	A	Dual BiMOS comparator
CA3290BS	G	Dual BiMOS comparator
CA3290BT	A	Dual BiMOS comparator

LINEAR POWER CONTROL CIRCUITS

VOLTAGE REGULATOR

RCA Type	Fig.*	Description
CA723E	E	VREF=7.15 V typ.;
CA723T	A	VO=2 V min.;
CA723CE	E	VI=9.5 V min.
CA723CT	A	
CA3085	A	VREF=1.6 V typ;
CA3085A	A	VO=1.6-V min.;
CA3085B	A	VI=7.5 V min.

AC THYRISTOR

CA3058	E	Zero voltage switches
CA3059	E	Zero voltage switches
CA3079	E	Zero voltage switches
CA3098E	E	Programmable Schmitt
CA3098T	E	trigger with memory
CA3099E	E	Programmable comparator with memory

LINEAR ARRAYS

Type	Fig.*	Description
		REMOTE CONTROL
CA3035	A	Single-supply, low noise,
CA3035V1	B	3A, adjustable gain

TIMER

CA555G	E	Astable or monostable
CA555S	C	Astable or monostable
CA555T	A	Astable or monostable
CA555CG	E	Astable or monostable
CA555CS	G	Astable or monostable
CA555CT	A	Astable or monostable

POWER CONTROL

CA1524E	E	Power switching regulator
CA2524E	E	Power switching regulator
CA3524E	E	Power switching regulator
CA3169E	E	VEC Driver

DATA CONVERSION

RCA Type	Fig.*	Description
CA3161E	E	Decoder Driver
CA3162E	E	3 Digit A/D Converter
CA3300D	F	6 Bit Flash A/D Converter

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- **2pA current leakage for single chips. 30pA for two chip systems.**
- **1mA full scale output. Binary digital input.**

The translating of analog information into digital signals and visa versa for display, data logging, data transmission and feedback has become increasingly important as monitoring, digital control and computational technics are applied to industrial, commercial, and military analysis and control applications. These data conversion products offer the design engineer the range of characteristics for these applications.

Digital to Analog Converters

AD75 Control analog signals from your microprocessor with this 8 bit CMOS DAC. For higher resolution choose either the AD7520 or AD7541.

ICL7134 14 Bits resolution, 14 bits accurate. For extremely high accuracy and stability this 14 bit microprocessor compatible DAC is an excellent choice. It has a fast settling time of 900 nsec and is double buffered for simple processor interface.

Digital to Analog Converters

Type	Resolution	Settling Non-linearity	Settling Time	Power Voltage	Supply Current
AD7520,30	10	.2%/.1%/.05%	500 ns	5 to 15	2 mA
AD7521,30	12	.2%/.1%/.05%	500 ns	5 to 15	2 mA
AD7523	8	.2%/.1%/.05%	150 ns	5 to 15	2 mA
AD7541	12	.02%/.01%	1 μs	5 to 15	100 μA
ICL7134	14	.01%/.006%/.003%	900 ns	5	2 mA

Analog to Digital Converters

ICL7109 This low cost 12 Bit integrating + A/D converter is the choice of many data acquisition board manufacturers. It contains all of the circuitry required for microprocessor interface making it easy to get Analog data into your computer.

ADC0804 The industry standard 8 bit microprocessor compatible A/D converter. Fast 100 μsec conversion time.

Integrating A to D converters microprocessor interface

Type	Resolution	Full Scale Accuracy	Power Voltage	Supply Current	T_c
ICL7109	±12 bit + sign binary	±400 mV to ± 4 V	±5 V	1.8 mA	20 ms
ICL7104-14 with ICL8068	±14 bit binary	±400 mV to ±10 V	±15 V, + 5	15 mA, .6 mA	80 ms
ICL7104-16 with ICL8068	±16 Bit Binary	± 400 mV to ±10 VDC	±15, + 5	15 mA, .6 mA	330 ms

Hi speed microprocessor interface A to D converters

Type	Resolution	Error	Voltage	Current	
ADC0802	8	±½ Bit no adjust	+ 5	1.3 mA	100 μs
ADC0803	8	±½ adjusted full scale	+ 5	1.3 mA	100 μs
ADC0804	8	±1 bit no adjust	+ 5	1.3 mA	100 μs

DISPLAY OUTPUT A/D CONVERTERS

ICL7106CPL—Directly drives 3½ digit LCD display, ±200.0 mV to ±2.0000 V full scale input range, ±1 count accuracy, 40 pin dip package. Operates on 9 V supply at 1.8 ma max.

ICL7107CPL—Similar to ICL7106, drives 3½ digit LED display, V supply = ± 5 V.

ICL7116CPL—ICL7106 with display hold feature.

ICL7117CPL—ICL7107 with display hold feature.

ICL7136CPL—Low power ICL7106, I supply = 100 μa max, has instant recovery from over-range readings.

ICL7135CPI—4½ digit A/D with multiplexed BcD output, ±2.0000 V F.S. input, V_s = ±5 V at 3 ma max. Use with ICM7211A or ICM7212A display drivers.

DIGITAL VOLTMETER KITS

ICL7136ev/kit—contains ICL7136, LCD display, P.C. board, all required components, and complete instructions for constructing a high quality 3½ digit DVM. Fast way to evaluate the 7136 or for making lab instruments.

ICL7107ev/kit—as above with LED display and ICL7107.

ICL7135ev/kit—contains all parts to construct a high quality A/D with 2.0000 V F.S. input and multiplexed BCD output. Combine with display driver kit to make a complete 4½ digit DVM or use as a 14 bit A/D with a microprocessor.

Type	Resolution	Full Scale input range	Output	Power Supply Voltage	Power Supply Max. Current	Package
ICL7106	3½ Digit	±200 mV to ±2 V	7 seg LCD	9 V	1.8 ma	40 pin dip
ICL7107	3½ Digit	±200 mV to ±2 V	7 seg LED	±5 V	1.8 ma	40 pin dip
ICL7116	3½ Digit	±200 mV to ±2 V	7 seg LCD	9 V	1.8 ma	40 pin dip
ICL7117	3½ Digit	±200 mV to ±2 V	7 seg LED	±5 V	1.8 ma	40 pin dip
ICL7136	3½ Digit	±200 mV to ±2 V	7 seg LCD	9 V	100 μa	40 pin dip
ICL7135	4½ Digit	±400 mV to ±2 V	MUX BCD	±5 V	3 ma	28 pin dip

INTERSIL PACKAGE INFORMATION

ALL INTERSIL PART NUMBERS, *THE LAST THREE LETTERS* ARE TEMPERATURE, PACKAGE, AND PIN NUMBER, RESPECTIVELY.

TEMPERATURE:
- C - Commercial
- I - Industrial
- M - Military

PACKAGE:
- A TO-237
- B Plastic flat-pack
- D Ceramic dual-in-line
- E Small TO-8
- F Ceramic flat-pack
- H TO-66
- I 16 pin (.6 x .7 pin spacing) hermetic hybrid dip
- J Cerdip dual-in-line
- K TO-3
- L Leadless, ceramic
- P Plastic dual-in-line
- S TO-52
- T TO-5 type (also TO-78, TO-99, TO-100)
- U TO-72 type (also TO-18, TO-71)
- V TO-39
- Z TO-92
- /W Wafer
- /D Dice

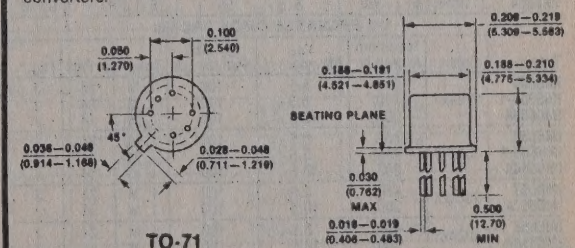
NUMBER OF PINS:

A	8	J	32	T	6
B	10	K	35	U	7
C	12	L	40	V	8 (0.200" pin circle)
D	14	M	48	W	10 (0.023" pin circle, case to pin 4)
E	16	N	18	Y	10 (0.230" pin circle, case to pin 5)
F	22	P	20	Z	8 (0.200" pin circle, case to pin 4)
G	24	Q	2		
H	42	R	3		
I	28	S	4		

Temperature Sensors

AD590 The industry's most popular temperature sensor. This is a two wire current output sensor that outputs 1 μamp/°K.

ICL8073, ICL8074 Complete temperature sensors that are the only devices available for direct reading in degrees Celsius (8073) or degrees Fahrenheit (8074). Interfaces directly to the most popular display A/D converters:



TO-71

Part Type	Grade	Temperature Range −25°C to +85°C	Temperature Range −55°C to +125°C
ICL8073I	±5°C	ICL8073IIUT	ICL8073IMUT
ICL8074I	±9°C	ICL8074IIUT	ICL8074IMUT
ICL8073J	±3°C	ICL8073JIUT	ICL8073JMUT
ICL8074J	±5.4°F	ICL8074JIUT	ICL8074JMUT
ICL8073K	±1.5°C	ICL8073KIUT	ICL8073KMUT
ICL8074K	±2.7°F	ICL8074KIUT	ICL8074KMUT
ICL8073L	±1°C	ICL8073LIUT	ICL8073LMUT
ICL8074L	±1.8°F	ICL8074LIUT	ICL8074LMUT

INTERSIL Digital Products

Bipolar PROMs

Type	Organ.	Max Access ns	#pins	Output type	Pkg*	Temp*
IM5600	32x8	50	16	OC	J,F,P	C,M
IM5610		50	16	TS	J,F,P	C,M
IM5603A	256x4	60	16	OC	D,J,F	C,M
IM5623		60	16	TS	D,J,F	C,M
IM5604	512x4	80	16	OC	J,F,P	C,M
IM5624	512x4	80	16	JC	J,F,P	C,M

Dynamic RAMs

#Pins: 16. Power: +12, ±5 V. Max Operating Power: 462 mW. Standby Power: 27 mW. Pkg*: J,P. Temp*: C

Type	Organ	Max Access Time ns	Min Read Cycle ns	Min Read/Mod Write Cycle ns	Input Levels V_{IL}/V_{IH} V
IM7027-1	4096 x 1	120	250	325	.8/2.2
MK4027-2	4096 x 1	150	320	325	.8/2.2
MK4027-3	4096 x 1	200	375	420	.8/2.2
MK4027-4	4096 x 1	250	375	480	.8/2.2

Static RAMs

#Pins: 18. Input levels VIL/VIH: .8/2.0 V. Power: +5V

Type	Organ.	Max Access Time ns	Min Read Cycle ns	Max Operating Power mW	Pkg*	Temp*
2114	1024x4	450	450	525	J,P	C
2114L		450	450	370/495	J,P	C,M
2114-3		300	300	525	J,P	C
2114L-3		300	300	370/495	J,P	C,M
2114-2		200	200	525	J,P	C
2114L-2		200	200	370/495	J,P	C,M
2148		70	70	690	J,P	C
2148-3		55	55	880	J,P	C
2147	4096x1	70	70	880	J,P	C
2147L		70	70	770	J,P	C
2147-3		55	55	990	J,P	C
IM7141		450	450	370/495	J,P	C,M
IM7141L		450	450	265	J,P	C
IM7141-3		300	300	370/495	J,P	C,M
IM7141L-3		300	300	265	J,P	C
IM7141-2		200	200	370/495	J,P	C,M
IM7141L-2		200	200	265	J,P	C

CMOS

Static RAMS

Type	Organ.	Max Access Time (ns)	Vcc (V)	Icc Max (μA) Standby	No. Pins	Package*	Temp Range
IM6512	64x12	460	5	100	18	J,F	C,I,M
IM6512A		150	10	500	18	J,F	I,M
IM65X08	1024x1	250	5	10	16	J,F,P	C,I,M
IM65X08A		200	10	500	16	J,F,P	I,M
IM65X18		250	5	10	18	J,F,P	C,I,M
IM65X18A		200	10	500	18	J,F,P	I,M
IM6504	4096x1	300	5	50	18	J,P	C,I,M
IM65X51	256x4	300	5	10	18	J,P	C,I,M
IM65X51A		235	10	500	22	J,P	I,M
IM65X61		300	5	10	18	J,P	C,I,M
IM65X61A		235	10	500	22	J,P	I,M
IM6514	1024x4	300	5	50	18	J,P	C,I,M

UV ERASABLE CMOS PROMS

Type	Organ.	Maximum Access ns	V_{CC} Maximum V	I_{CC} Max. Standby μA	Temp*	# Pins	Pkg.*
IM6653	1024x4	550	5.5	100	I, M	24	J
IM6653-1		450	5.5	100	I, M	24	J
IM6653A		300	10.5	100	I, M	24	J
IM6654	512x8	550	5.5	100	I, M	24	J
IM6654-1		450	5.5	100	I, M	24	J
IM6654A		300	10.5	100	I, M	24	J
IM6657	2048x4	450	5.5	100	I, M	24	J
IM6657A		300	10.5	100	I, M	24	J
IM6658	1024x8	450	5.5	100	I, M	24	J
IM6658A		300	10.5	100	I, M	24	J

MULTIPLEXERS

Device	Config.	rds Ω max.	I_D nA max.	t_{on} μs max.	t_{off} μs max.	Pwr.Cons. mW max.	Comments
IH6108	1 of 8	300	0.1	1.5	1.0	4.5	Lowest power, lowest leakage, lowest Error family
IH6208	2 of 8	300	0.1	1.5	1.0	4.5	
IH6116	1 of 16	600	0.2	1.5	1.0	4.5	
IH6216	2 of 16	600	0.2	1.5	1.0	4.5	
IH5108	1 of 8	1000	0.2	1.5	1.0	4.5	Only family of muxs truly protected against power down & overvoltage faults
IH5208	2 of 8	1000	0.2	1.5	1.0	4.5	

IM6100 MICROPROCESSOR. Design: Silicon gate CMOS, Static 0 to 5.7 MHz, Crystal controlled on-chip timing, Single power supply, TTL compatible, Noise immunity. **Architectural:** Executes PDP-8/E instruction set, Direct, indirect, and autoindexed memory addressability, 12-bit memory accumulator ADD instruction, I/O instruction, Single-clock, single-instruction capability, DMA, Interrupt. **Interface:** 64 I/O devices with PDP-8/E compatible interface, Control panel request input, Switch reg. select input, Async. interface btwn, CPU and memory or I/O, Device controlled I/O, Control signals produced by CPU, Power-on Reset.

IM6101 CMOS PROGRAMMABLE INTERFACE ELEMENT (PIE) addresses, interrupts and controls for variety of peripheral functions, e.g. UARTs, FIFOs, Keyboards. Eliminate ext. logic.

IM6102 CMOS MEMORY EXTENSION/DMA/INTERVAL TIMER/ CONTROLLER (MEDIC) Single power supply, add. up to 32K 12-bit words of memory, provide programmable real time clock.

IM6103 CMOS 20-BIT PARALLEL INPUT-OUTPUT PORT (PIO) For large no. of I/O bits in parallel. Eliminates ext. output latches or tristate input buffers in small microcomputer systems.

SERIAL DATA COMMUNICATION

IM6402/03 UNIVERSAL ASYNCHRONOUS RECEIVER/TRANSMITTER (UART) CMOS interface to asynchronous serial data channel. IM6403 operates from external crystal.

IM4702/12 BAUD RATE GENERATOR - provides 14 most commonly used baud rates from standard 2.4576 MHz crystal. IM4712 is pin and function compatible with the IM4702, but integrates two oscillator load capacitors and feedback resistor on chip.

Type	Baud Rate K Baud	V_{CC} Max V	V_{CC} Standby Maximum μA	Temp.*	# Pins	Pkg.*
IM6402	0 ~ 62.5	5.5	800	I, M	40	P, J
IM6402-1	0 ~ 125	5.5	100	I, M	40	P, J
IM6402A	0 ~ 250	10.5	500	I, M	40	P, J
IM6403	0 ~ 9.6	5.5	800	I, M	40	P, J
IM6403-1	0 ~ 14.0	5.5	100	I, M	40	P, J
IM6403A	0 ~ 23.4	10.5	500	I, M	40	P, J
IM4702/12	0 ~ 19.2	5.5	1000	I, M	16	P, J

ANALOG SWITCHES

Device	Config.	rds Ω max.	I_D(off) nA max.	t_{on} μs max.	t_{off} μs max.	Pwr.cons. mW max.	Comments
IH5140	SPST	50	0.1	0.1	0.075	0.035	Highest Speed, lowest power consumption, lowest leakage family
IH5141	Dual SPST	50	0.1	0.1	0.075	0.035	
IH5142	SPDT	50	0.1	0.175	0.125	0.035	
IH5143	Dual SPDT	50	0.1	0.175	0.125	0.035	
IH5144	DPST	50	0.1	0.175	0.125	0.035	
IH5145	Dual DPST	50	0.1	0.175	0.125	0.035	
IH5148	Dual SPST	25	1.0	0.175	0.125	0.035	
IH5149	Dual DPST	25	1.0	0.175	0.125	0.035	
IH5150	SPDT	25	1.0	0.175	0.125	0.035	
IH5151	Dual SPDT	25	1.0	0.175	0.125	0.035	
IH5040	SPST	75	1.0	0.5	0.25	0.035	Low leakage, low power consumption, general purpose a/s.
IH5041	Dual SPST	75	1.0	0.5	0.25	0.035	
IH5042	SPDT	75	1.0	0.5	0.25	0.035	
IH5043	Dual SPDT	75	1.0	0.5	0.25	0.035	
IH5044	DPST	75	1.0	0.5	0.25	0.035	
IH5045	Dual DPST	75	1.0	0.5	0.25	0.035	
IH5046	DPDT	75	1.0	0.5	0.25	0.035	
IH5047	4PST	75	1.0	0.5	0.25	0.035	
IH5048	Dual SPST	35	1.0	0.25	0.15	0.035	
IH5049	Dual DPST	35	1.0	0.25	0.15	0.035	
IH5050	SPDT	35	1.0	0.25	0.15	0.035	
IH5051	Dual SPDT	35	1.0	0.25	0.15	0.035	
IH5341	Dual SPST	75	0.1	0.30	0.15	0.035	Video/RF Switch
IH181	Dual SPST	30	0.1	0.25	0.13	0.35	Lowest charge injection low leakage, low power consumption family
IH182	Dual SPST	75	0.1	0.25	0.13	0.35	
IH184	Dual DPST	30	0.1	0.25	0.13	0.35	
IH185	Dual DPST	75	0.1	0.25	0.13	0.35	
IH187	SPDT	30	0.1	0.25	0.13	0.35	
IH188	SPDT	75	0.1	0.25	0.13	0.35	
IH190	Dual SPDT	30	0.1	0.25	0.13	0.35	
IH191	Dual SPDT	75	0.1	0.25	0.13	0.35	

Device	Config.	rds Ω max.	I_D(off) nA max.	t_{on} μs max.	t_{off} μs max.	Pwr.Cons. mW max.	Comments
IH5009	Quad compensated	100	0.2	0.5	0.05	None	Family of low cost compensated/uncompensated single pole single throw switches that need no power supply, used with up amp in inverting gain configuration.
IH5010	Quad comp.	150	0.2	0.5	0.05	None	
IH5011	Quad uncomp.	100	0.2	0.5	0.05	None	
IH5012	Quad uncomp.	150	0.2	0.5	0.05	None	
IH5013	Triple comp.	100	0.2	0.5	0.05	None	
IH5014	Triple comp.	150	0.2	0.5	0.05	None	
IH5015	Triple uncomp.	100	0.2	0.5	0.05	None	
IH5016	Triple uncomp.	150	0.2	0.5	0.05	None	
IH5017	Dual comp.	100	0.2	0.5	0.05	None	
IH5018	Dual comp.	150	0.2	0.5	0.05	None	
IH5019	Dual uncomp.	100	0.2	0.5	0.05	None	
IH5020	Dual uncomp.	150	0.2	0.5	0.05	None	
IH5021	Single comp.	100	0.2	0.5	0.05	None	
IH5022	Single comp.	150	0.2	0.5	0.05	None	
IH5023	Single uncomp.	100	0.2	0.5	0.05	None	
IH5024	Single uncomp.	150	0.2	0.5	0.05	None	
IH5200	Dual SPST	70	0.2	0.7	0.25	3.25	Low leakage low power cons. general purpose family
DG200	Dual SPST	70	2.0	1.0	0.50	30	
IH5201	Quad SPST	75	0.2	0.5	0.25	11.4	
DG201	Quad SPST	80	1.0	1.0	0.50	30	

* TEMPERATURE RANGE: I = −40 ~ +85°C, M = −55 ~ +125°C
PACKAGE: J - CERDIP, P - PLASTIC

Linear Integrated Circuits

INTERSIL

Operational Amplifiers—Low Power Programmable

Type	Description	V_{OS} (mV)	I_S (nA)	A_{VOL} (V/V)	GEW (MHz)	I_{SUPP} (μA)	@ I_{OS} (μA)	@ V_S (V)	T_A (°C)	Packages*
4250C	Programmable, Compensated	5.0	10	25,000	—	8.0	1	+1.5	0 to +70	T
8021C	Programmable, Compensated	6.0	30	50,000	0.27	50	30	+6.0	0, +70	T
8022C	Dual 8021C	6.0	30	50,000	0.27	50	30	+6.0	0, +70	J, P
8023C	Triple 8021C	6.0	30	50,000	0.27	50	30	+6.0	0 to +70	J, P

Operational Amplifiers—FET Input

Type	Description	V_{OS} (mV)	I_B (nA)	A_{VOS} (V/V)	GEW (typ) (MHz)	Slow Rate (V/μs)	I_{SUPP} (mA)	T_A (°C)	Packages*
AD503	High Accuracy, Low Offset	20	10	50,000		3	7 max	0, +70	T
740C	General Purpose	110	2.0	20,000	1	6	8.0	0, +70	T
8007C	General Purpose, Compensated	50	50	20,000	1.0	6	6	0, +70	T
8043C	Dual 8007C	50	50	20,000	1.0	6.0	6.8	0 to +70	J, P
8500	MOSFET Input, Compensated	50	0.1	20,000	0.7	0.5	2.7	−25, +85	T
8500A	MOSFET Input, Super Low I_S	50	0.01	20,000	0.7	0.5	2.7	−25, +85	T

Operational Amplifiers—CMOS

Type	Description	Compensation	Offset Null	V_{OS} Selection	I_{OS}	I_S	Output Swing	Input CMR	Packages*
7611	Single, Selectable I_O	Internal	Yes	2, 5, 15mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, T
7612	Single, Selectable I_O Extended CMVR	Internal	Yes	2, 5, 15mV	0.5pA	1pA	V_{SUPP}+300mV	V_{SUPP}−100mV	P, T
7613	Single, Selectable I_O Input Protected	Internal	Yes	2, 5, 15mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, T
7614	Single, Fixed I_O	External	Yes	2, 5, 15mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, T
7615	Single, Fixed I_O Input Protected	External	Yes	2, 5, 15mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, T
7621	Dual, Fixed I_O	Internal	No	2, 5, 15mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, T
7622	Dual, Fixed I_O	Internal	Yes	2, 5, 15mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, J
7631	Triple, Selectable I_O	Internal	No	5, 10, 20mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, J
7632	Triple, Selectable I_O	None	No	5, 10, 20mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, J
7641	Quad, Fixed I_O	Internal	No	5, 10, 20mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, J
7642	Quad, Fixed I_O	Internal	No	5, 10, 20mV	0.5pA	1pA	V_{SUPP}−100mV	V_{SUPP}−100mV	P, J

Precision Operational Amplifiers

Type	Description	V_{OS} (μV)	ΔV_{OS} (μV)/°C)	ΔV_{OS} (μV/year)	I_{SUPP} (mA)	A_V (dB min.)	Packages*	T_A (°C)
ICL7600C	Compensated	+2	+0.01	0.2	1.7	90	J, P	0 to +70
ICL7601C	Uncompensated	+2	+0.01	0.2	1.7	90	J, P	0 to +70

Precision Instrumentation Amplifiers, V_{SUPP} = ±2V to ±5V, I_{SUPP} = 1.7mA

Type	Description	V_{OS} (μV)	ΔV_{OS} (μV/°C)	ΔV_{OS} (μV/year)	V (dB min.)	Slow Rate Rate (V/μs)	I_{SIAS} (pA)	Packages*	T_A (°C)
ICL7605C	Compensated	+2	+0.01	0.5	90	0.5	+300	J, P	0 to +70
ICL7606C	Uncompensated	+2	+0.01	0.5	90	0.5	+300	J, P	0 to +70
ICL7650C	Chopper Stabilized	+1	+0.01	100nV/√month	126	2.5	+1.5	J, P, T	0 to +70

CMOS Power Supply Circuits

Type	Desctiption	
ICL7660	Voltage Converter	The ICL7660 performs the complete supply voltage conversion from positive to negative for an input range of +1.5V to +10.0V, resulting in complementary output voltages of −1.5V to −10.0V.
ICL7663 ICL7664	Positive Regulator Negative Regulator	The ICL7663 (positive) and ICL7664 (negative) series regulators are low-power, high-efficiency devices which accept inputs from 1.6V to 16V and provide adjustable outputs over the same range at currents up to 40mA. Operating current is typically less than 40μA, regardless of load.
ICL7665	Programmable Micropower Voltage Detector	The ICL7665 contains two individually programmable voltage detectors on a single chip. Requiring only A3μA for operation, the device is intended for battery-operated systems and instruments which require high or low voltage warnings, settable trip points, or fault monitoring and correction.

Special Function Circuits

Type	Description	Accuracy	V_{SUPP} (V)	T_A (°C)	Packages*
8013AC 8013BC 8013CC	Four quadrant multiplier. Output proportional to algebraic products of two input signals. Features ±0.5% accuracy; internal% amp. for level shift, division and square root functions; full ± 10V input/output range; 1MHz bandwidth.	±0.5% ±1.0% ±2.0%	±15 ±15 ±15	0, +70 0, +70 0, +70	T T T
8038CC	Simultaneous Sine, Square, and Triangle wave outputs T^2L compatible to 28V over frequency range from 0.01Hz to 1.0MHz. Low distortion (≤1%), high linearity (0.1%); low frequency drift with temperature (50ppm/°C max); variable duty cycle (2%-98%).	5.0%	±5 to ±15	0, +70	P
8048BC 8048CC	Log amp 1V/decade (Adjustable). 120dB range. with current input. Error referred to output.	±30mV ±60mV	±15 ±15	0, +70 0, +70	J, P J, P
8049BC 8049CC	Antilog amplifier adjustable scale factor. Error referred to input.	±10mV ±30mV	±15 ±15	0, +70 0, +70	J, P J, P
8211C 8212C	Micropower voltage detector/indicator/voltage regulator/ programmable zenner. Contains1.15V micropower reference plus comparator and hysteresis output. Main output inverting (8212) or non-inverting (8211).		2 to 30 2 to 30	0, +70 0, +70	P, T P, T

*Package Key: D—Solder lid side brazed ceramic dual-in-line.
F—Ceramic flat package. J—Glass frit seal ceramic dual-in-line.
P—Plastic dual-in-line. T—Metal can.

INDUSTRIAL CIRCUITS

Intersil's Industrial product line consists of three distinct product groups, all of which are manufactured with low-power CMOS. In our "timers" group, along with our very popular ICM7555 (CMOS RC timer), we have a complete line of programmable timers. The "counters" group provides system solutions all on one chip (counting, measuring and display driving). Our third group "display drivers" behave as μP peripheral circuits. All of our drivers have on-board character sets and an input architecture that allows for simple μP interface . . . Quick Design-in.

COUNTERS, TIMERS

TYPE	CIRCUIT DESCRIPTION	PACKAGE
ICM7207	Frequency Counter, time base (.01, .1 or 1 second count window). This device when used in conjunction with any of our counters, makes an excellent frequency counter.	14 pin DIP
ICM7209 ICM7213	High Frequency Clock Generator for 5V systems Oscillator and Frequency Divider.	8 pin DIP 14 pin DIP
ICM7240 ICM7250 ICM7260	Programmable CMOS Counters/Timers using external RC time base. Programmable from μS to years.	16 pin DIP
ICM7555 ICM7556	Single or dual low power CMOS version of Industry standard 555 timer. 80 μA typical supply current 500 Khz (2—18 V supply).	8 pin DIP 14 pin DIP

Linear Integrated Circuits (Cont.)

COUNTERS-DISPLAY DRIVERS

TYPE	CIRCUIT DESCRIPTION	PACKAGE
ICM7208 ICM7216 ICM7226	Seven-digit (LED) Unit Counter Eight-digit (LED) Universal Counter measures frequency period, frequency ratio, time, interval unit counter (7226/BCD I/O's).	28 pin DIP 28 pin DIP 40 pin DIP
ICM7217 ICM7227	Four-digit (LED) up/down Counter with presettable registers. Cascadable for 8 or more digits. (7227 µP applications).	28 pin DIP
ICM7224 ICM7225 ICM7236	4½ digit high speed Unit Counter. Capable fo counting at speeds up to 25 Mhz—7224 (LCD); 7225 (LED); 7236 (Vacuum Fluorescent).	40 pin DIP

DISPLAY DRIVERS

ICM7211 ICM7212 ICM7235	Four Digit Display Driver. Non-multiplexed for low noise. On board character sets. 7211 (LCD); 7212 (LED); 7235 (Vacuum Fluorescent).	40 pin DIP

DISPLAY DRIVERS

ICM7218	Eight Digit (LED) Multiplexed Display Driver. On board character sets as well as a no-decode feature that allows individual control of 64 segments.	28 pin DIP
ICM7231 ICM7232	Eight Digit Tri-plexed (LCD) Display Driver. Parallel input. Ten Digit Tri-plexed (LCD) Display Driver. SERial input. *Both Drivers provide two annunciators per digit allowing for message panel capability. Onboard character sets.	40 pin DIP 40 pin DIP
ICM7233	Four Character (18 segment) Tri-plexed Alphanumeric (LCD) Display Driver.	40 pin DIP
ICM7234	Five Character (18 segment) Tri-plexed Alphanumeric (LCD) Display Driver. *Both Drivers accept popular 6 bit ASCII input. Onbaard character sets. Eight Character (14 or 16 segment) Multiplexed	40 pin DIP
ICM7243	Alphanumeric (LED) Display Driver. Accepts popular 6-bit ASCII. Onboard character sets.	40 pin DIP

SYSTEM CLOCKS, PRECISION TIMERS

DIGITAL CLOCKS

Part Number	Circuit Description	Package	Output
ICM1424C	3½ digit LCD clock circuit displays Hours: Minutes, can alternate with Month—Date	40 pin DIP	Drives LCD
ICM7223	3½ digit LCD clock with alarm and snooze. 24 hour format by Bond Option. 1.5 volt system	40 pin DIP	Drives LCDs; alarm
ICM7223A	3½ digit LCD clock with alarm, Radio Enable, Sleep and Snooze. 9 volts.	40 pin DIP	Drives LCDS; alarm, Radio Enable
ICM7223VF	3½ digit vacuum fluorescent clock with alarm, radio enable, sleep and snooze. 12 volts	40 pin DIP	Drives Vacuum fluorescent displays, alarm, radio enable

All the above clocks use a 32.768 lcHz crystal.

Stopwatches/Interval Timers

Part Number	Circuit Description	Crystal Frequency	Pakcage	Output
ICM7045	8 Digit 4 Function LED stopwatch circuit. Features Hours: Minutes: Seconds: 100ths. Provides Time Out, Taylor, Split and Rally modes. Direct drive for LEDs. May be used as 24-hour clock.	6.55 MHz	28 pin DIP	Eight-digit commom-cathode LED drive
ICM7045A	7 Digit 4 Function LED industrial stopwatch circuit, precision decade timer. counts seconds, minutes or hours by selection of suitable quartz crystal. Direct drive for LEDs.	Seconds: 1.31 MHz Minutes: 2.18 MHz Hours: 3.64 MHz	28 pin DIP	Seven-digit common-cathode LED drive
ICM7215	6 Digit 4 Function LED stopwatch circuit. Features Minutes: Seconds: 100ths. provides Time Out, Taylor and Split modes. Direct drive for LEDs.	3.28 MHz	24 pin DIP	Six-digit common-cathode LED drive

TONE DIALLERS

Part Number	Circuit DEscription	Package	Crystal FRequency	Output
ICM7206	Touch-tone™ encoder; requires single contact per key.	16-Pin DIP	3.57954 MHz	2-of-8 sine wave for tone dialing
ICM7206A	Touch-tone™ encoder; requires one contact per key with common line connected to + supply.	16-Pin DIP	3.57954 MHz	2-of-8 sine wave for tone dialing
ICM7206B	Touch-tone™ encoder; requires 2 contacts per key with common line connected to negative supply; oscillator enabled when key is pressed.	16-Pin DIP	3.57954 MHz	2-of-8 sine wave for tone dialing
ICM7206C	Touch-tone™ encoder requires single contact per key; oscillator enabled only when key is depressed. Disable line tied to V−	16-Pin DIP	3.57954 MHz	2-of-8 sine wave for tone dialing
ICM7206D	Touch tone™ encoder; requires single contact per key; oscillator enabled only when key is depressed. DISABLE line tied to V+.	16-Pin DIP	3.57954 MHz	2-of-8 sine wave for tone dialing
ICM7209	High-frequency clock-generator for 5-volt systems	8-Pin DIP	to 10 MHz	Cyrstal frequency, plus ÷ 8 for microprocessor
ICM7213	Oscillator and frequency divider Precision Timebase	14-Pin DIP	to 10 MHz	1pps, 1ppm, 16 Hz, from 4.19Mhz crystal

POWER MOS TRANSISTORS

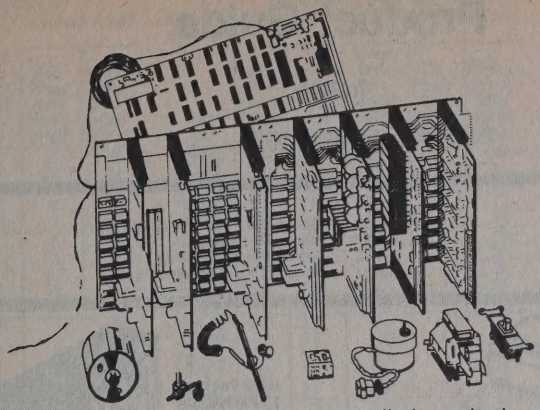
These vertical power MOS transistors are 100 times faster than a typical bipolar yet have essentially infinite beta (input leakage current only). The 100 mA to 10 amp drain current is controlled by applying +5V to +15V to the gate of these devices. No negative voltages or series input resistors are required. Devices may be paralleled for greater current handling capability.

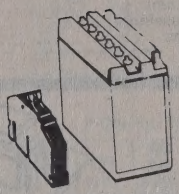
N—CHANNEL POWER MOS

Type	Description	Type	Description
IVN6300ANE	Lowest cost VMOS device. 60V, 250 mA, 7.5 ohm small signal transister. 4 nanosecond switching time. TO-237 pkg.	IVN6100TNV	High voltage VMOS power transistor. 500V, 300 mA, 15Ω device in a TO-39 pkg.
IVN6300SNP	Medium voltage, low current switch or linear amplifier, 250V, 120 mA, 25 ohm signal transistor. TO-52 pkg.	IVN6200KND	Low cost 100W VMOS power transistor. 0.35 ohm, 10A, 40V device in a TO-3 pkg.
IVN6300SNT	High voltage VMOS device. 500V, 100mA, 75 ohm transistor in a TO-52 pkg.	IVN6200KNE	Low "ON" resistance 100W power transistor. 0.25 ohm, 10A, 60V device in a TO-3 pkg.
IVN6000CNE	Low "ON" resistance power MOS device. 0.5 ohm, 80V, 5.0A power transistor in a TO-220 power pkg.	IVN6200KNP	Medium voltage 100W power transistor, 0.5 ohm 5.0 A, 250V device in a TO-3 pkg.
IVN6000KNE	Low "ON" resistance power device. 0.5 ohm, 80V, 6.0A power transistor in a TO-3 power pkg.	IVN6200KNR	Low cost, high voltage 100W power transistor. 2.5 ohm, 5A, 395V device in a TO-3 pkg.
IVN6000TNE	Low "ON" resistance transistor. 0.5 ohm, 80V, 3.0A in a TO-39 pkg.	IVN6200KNV	High voltage 100W power transistor. 1.5 ohm, 5A, 500V device in a TO-3 pkg.
IVN6002CND	Low cost, low "ON" resistance power transistor. 0.7 ohm, 40V, 4.5A in a TO-220 pkg.		
IVN6002KND	Low cost, low "ON" resistance power transistor. 0.7 ohm, 40V, 5.0A in a TO-220 pkg.		
IVN6002TND	Low cost, low "ON" resistance switching transfer. 0.7Ω ohm, 40V, 3.0A in a TO-39 pkg.		

Remdacs II

INTERSIL





Twisted-Pair Data Link Dramatically Reduces Installation Cost.

REMDACS II employs low-cost twisted-pair wiring to reliably transmit and receive data to and from sensors. Even sensors miles away from your computer.

Local signal conditioning, analog multiplexing and 12-bit A/D conversion of data from multiple transducers is performed by microcomputer-controlled cards located near the sensors. So true 12-bit data is actually delivered to your computer.

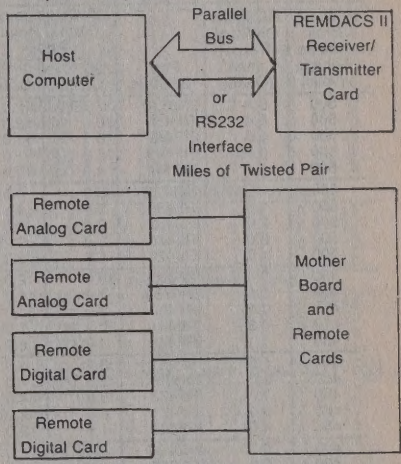
REMDACS II connects your computer with up to 256 remote digital and analog cards via a single, multi-drop or 'party line' twisted pair.

The result? A REMDACS II system not only eliminates the high cost of a dedicated cable per sensor—it frees your computer of all communications overhead.

PART NUMBER	DESCRIPTION
ANALOG REMOTE STATIONS	
REM24-L216E-AC	16-Channel, 4mA to 20mA, 50 Hz, 24VAC
REM24-L216E-DC	16-Channel, 4mA to 20mA, 50 Hz, 8VDC to 20VDC
REM24-L216U-AC	16-Channel, 4mA to 20mA, 60 Hz, 24VAC
REM24-L216U-DC	16-Channel, 4mA to 20mA, 60 Hz, 8VDC to 20VDC
REM24-T216E-AC	16-Channel, Temperature, 50 Hz, 24VAC
REM24-T216E-DC	16-Channel, Temperature, 50 Hz, 8VDC to 20VDC
REM24-T216U-AC	16-Channel, Temperature, 60 Hz, 24VAC
REM24-T216U-DC	16-Channel, Temperature, 60 Hz, 8VDC to 20VDC
REM24-V216E-AC	16-Channel, Voltage, 50 Hz, 24VAC
REM24-V216E-DC	16-Channel, Voltage, 50 Hz, 8VDC to 20VDC
REM24-V216U-AC	16-Channel, Voltage, 60 Hz, 24VAC
REM24-V216U-DC	16-Channel, Voltage, 60HZ, 8VDC to 20VDC
REM24-V208E-AC	8-Channel, Voltage, 50 Hz, 24VAC
REM24-V208E-DC	8-Channel, Voltage, 50 Hz, 8VDC to 20VDC
REM24-V208U-AC	8-Channel, Voltage, 60HZ, 24VAC
REM24-V208U-DC	8-Channel, Voltage, 60 Hz, 8VDC to 20VDC
DIGITAL REMOTE STATIONS	
REM24-D210-AC	24-Bit General Purpose, 24VAC
REM24-D210-DC	24-Bit General Purpose, 8VDC to 20VDC
MOTHER-BOARDS	
REM-MB-A201	One Slot Analog
REM-MB-A202	Two Slot Analog
REM-MB-A203	Three Slot Analog
REM-MB-A204	Four Slot Analog
REM-MB-D202	Two Slot Digital
REM-MB-D203	Three Slot Digital
REM-MB-D204	Four Slot Digital
REM-MB-D205	Five Slot Digital
DIGITAL-PERIPHERAL CARDS	
REM-DP-R204	4-Channel Electro-Mechanical Relay with Switch Over-Ride
REM-DP-R208	8-Channel Electro-Mechanical Relay with No Over-Ride
REM-DP-S204	4-Channel Solid-State Relay with Switch Over-Ride
REM-DP-S208	8-Channel Solid-State Relay with No Over-Ride
REM-DP-I208	8-Channel Active AC/DC Input
REM-DP-U200	Universal Breadboard
RECEIVER/TRANSMITTER	
R/T-1	General Purpose Receiver/Transmitter
SI-RS232	Serial RS232 Mother Card for R/T-1
R/T-STD BUS	STD-BUS Receiver/Transmitter
R/T-MULTIBUS	MULTIBUS Receiver/Transmitter
ACCESSORIES	
REM-RC-C202	Two Slot Ribbon Cable
REM-RC-C203	Three Slot Ribbon Cable
REM-RC-C204	Four Slot Ribbon Cable
REM-RC-C205	Five Slot Ribbon Cable
REM-RC-RS232	10 Foot RS232 Cable
REM-TR120	120VAC to 24VAC Transformer
REM-TR230	230VAC to 24VAC Transformer

Building-Block Flexibility

Each REMDACS II system is custom configured using standard off-the-shelf remote cards, each oriented to a specific analog sensing or digital I/O function. Remote cards and sensors can be added as the system expands, without disturbing the in-place equipment.



At present, more than ten unique remote cards are available for functions such as analog 4 to 20mA receiving, temperature sensing and general purpose low-level voltage input, and digital input/output. And new function cards are on the way, for even greater systems flexibility.

As Easy To Use As It Is To Install

REMDACS II communication is totally transparent to your computer, which sees it as a simple I/O-mapped peripheral. So *no* communication software development is required.

Just connect the REMDACS II receiver/transmitter card directly to your STD BUS, or MULTIBUS,® or any 8-bit computer I/O port—or use an RS-232 serial link. And you're ready to monitor and control any combination of thousands of analog and digital channels.

International Rectifier Product Guide

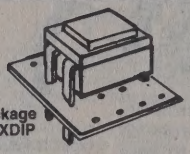
Index

International Rectifier

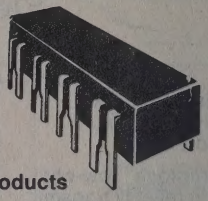
3

Power Bi-Polar Trans 81, 82
Silicon Power Transistors 81, 82
Power Darlingtons 82
Power Hex Fets 80, 81
Silicon Controlled Rectifiers 83, 84
Silicon Rectifiers 84, 85
Power Schottky Diodes 82
Molded Circuit Assemblies 84

TO-39



HD-1 Package
4-Pin HEXDIP



HD-2 Package
16-Pin HEXDIP

TO-220 Package

International Rectifier Hexfet/Mosfet Products

N-Channel Types

Electrical Characteristics at 25°C unless noted otherwise.

N-Channel Types (TO 3)

VDS Drain Source Voltage (Volts)	RDS(ON) On-State Resistance (Ohms)	Part Numbers	ID Continuous Drain Current (Amps) 90°C Case	ID Continuous Drain Current (Amps) 25°C Case	IDM Pulsed Drain Current (Amps)	PD Max. Power Dissipation (Watts)
500	0.4	2N6770	7.75(1)	12.0	38.	150
500	0.4	IRF450	10.0	12.0	50.	150
500	0.5	IRF452	8.0	11.0	40.	150
500	0.85	IRF440	5.0 (1)	7.0	25.	125
500	1.1	IRF442	4.0 (1)	6.0	20.	125
500	1.5	2N6762	3.0 (1)	4.5	15.	75
500	1.5	IRF430	3.5	4.5	17.	75
500	2.0	IRF432	3.0	4.0	15.	75
500	3.0	IRF420	2.0	2.25	10.	40
500	4.0	IRF422	1.5	2.0	7.	40
450	0.4	IRF451	10.0	12.0	50.	150
450	0.5	2N6769	7.0 (1)	11.0	35.	150
450	0.5	IRF453	8.0	11.0	40.	150
450	0.85	IRF441	50.0 (1)	7.0	25.	125
450	1.1	IRF443	4.0 (1)	6.0	20.	125
450	1.5	IRF431	3.5	4.5	17.	75
450	2.0	2N6761	2.5 (1)	4.0	12.	75
450	2.0	IRF433	3.0	4.0	15.	75
450	3.0	IRF421	2.0	2.25	10.	40
450	4.0	IRF423	1.5	2.0	7.	40
400	0.3	2N6768	9.0(1)	14.0	45.	150
400	0.3	IRF350	11.0	14.0	55.	150
400	0.4	IRF352	10.0	12.0	50.	150
400	0.55	IRF340	6.0(1)	9.0	30.	125
400	0.8	IRF342	5.0(1)	8.0	25.	125
400	1.0	2N6760	3.5(1)	5.5	17.	75
400	1.0	IRF330	4.0	5.5	20.	75
400	1.5	IRF332	3.5	4.5	17.	75
400	1.8	IRF320	3.0	3.0	15.	40
400	2.5	IRF322	2.5	2.5	12.	40
350	0.3	IRF351	11.0	14.0	55.	150
350	0.4	2N6767	7.75(1)	12.0	38.	150
350	0.4	IRF353	10.0	12.0	50.	150
350	0.55	IRF341	6.0(1)	9.0	30.	125
350	0.8	IRF343	5.0(1)	8.0	25.	125
350	1.0	IRF331	4.0	5.5	20.	75
350	1.5	2N6759	3.0(1)	4.5	15.	75
350	1.5	IRF333	3.5	4.5	17.	75
350	1.8	IRF321	3.0	3.0	15.	40
350	2.5	IRF323	2.5	2.5	7.	40
200	0.085	2N6766	19.0(1)	30.0	95.	150
200	0.085	IRF250	20.0	30.0	100.	150
200	0.12	IRF252	17.0	25.0	85.	150
200	0.18	IRF240	11.0(1)	17.0	55.	125
200	0.22	IRF242	10.0(1)	16.0	10.	125
200	0.4	2N6758	6.0(1)	9.0	30.	75
200	0.4	IRF230	7.0	9.0	35.	75
200	0.6	IRF232	6.0	8.0	30.	75
200	0.8	IRF220	4.0	5.0	20.	40
200	1.2	IRF222	3.5	4.0	17.	40

Note (1): I_D Continuous @ 100°C Case.

N-Channel Types (TO 3)

VDS Drain Source Voltage (Volts)	RDS(ON) On-State Resistance (Ohms)	Part Numbers	ID Continuous Drain Current (Amps) 90°C Case	ID Continuous Drain Current (Amps) 25°C Case	IDM Pulsed Drain Current (Amps)	PD Max. Power Dissipation (Watts)
150	0.085	IRF251	20.0	30.0	100.	150
150	0.12	2N6765	16.0(1)	25.0	80.	150
150	0.12	IRF253	17.0	25.0	85.	150
150	0.18	IRF241	11.0(1)	17.0	55.	125
150	0.22	IRF243	10.0(1)	16.0	50.	125
150	0.4	IRF231	7.0	9.0	35.	75
150	0.6	2N6757	5.0(1)	8.0	25.	75
150	0.6	IRF233	6.0	8.0	30.	75
150	0.8	IRF221	4.0	5.0	20.	40
150	1.2	IRF223	3.5	4.0	17.	40
100	0.055	2N6764	24.0(1)	38.0	120.	150
100	0.055	IRF150	28.0	38.0	140.	150
100	0.08	IRF152	24.0	31.0	120.	150
100	0.085	IRF140	17.0(1)	27.0	85.	125
100	0.11	IRF142	15.0(1)	24.0	75.	125
100	0.18	2N6756	9.0(1)	14.0	45.	75
100	0.18	IRF130	12.0	14.0	60.	75
100	0.25	IRF132	10.0	12.0	50.	75
100	0.3	IRF120	6.0	8.0	30.	40
100	0.4	IRF122	5.0	7.0	25.	40
60	0.055	IRF151	28.0	38.0	140.	150
60	0.08	2N6763	20.0(1)	31.0	100.	150
60	0.08	IRF153	24.0	31.0	120.	150
60	0.085	IRF141	17.0(1)	27.0	85.	125
60	0.11	IRF143	15.0(1)	24.0	75.	125
60	0.18	IRF131	12.0	14.0	60.	75
60	0.25	2N6755	8.0(1)	12.0	40.	75
60	0.25	IRF133	10.0	12.0	50.	75
60	0.3	IRF121	6.0	8.0	30.	40
60	0.4	IRF123	5.0	7.0	25.	40

P-CHANNEL TYPES TO-3

TO-3 Package

VDS Drain Source Voltage (Volts)	RDS(ON) On-State Resistance (Ohms)	Part Numbers	ID Continuous Drain Current (Amps) 90°C Case	ID Continuous Drain Current (Amps) 25°C Case	IDM Pulsed Drain Current (Amps)	PD Max. Power Dissipation (Watts)
200	0.8	IRF9230	5.0	6.5	25.	75
200	1.2	IRF9232	4.0	5.5	20.	75
150	0.8	IRF9231	5.0	6.5	25.	75
150	1.2	IRF9233	4.0	5.5	20.	75
100	0.3	IRF9130	8.0	11.0	40.	75
100	0.4	IRF9132	7.0	9.5	35.	75
60	0.3	IRF9131	8.0	11.0	40.	75
60	0.4	IRF9133	7.0	9.5	35.	75

Note: (1): I_D Continuous @ 100°C Case.

International Rectifier Hexfet/Mosfet Products

IOR

N-Channel Types (T0-220AB)

Electrical Characteristics at 25° C unless noted otherwise.

Part No.	VDS Drain Source Voltage (Volts)	RDS (ON) On-State Resistance (Ohms)	ID Cont. Drain Curr. (Amps) 25°C Case	IDM Pulsed Drain Current (Amps)	PD Max. Power Dissipation (Watts)
IRF840	500	0.85	7.0	25.	125
IRF842	500	1.1	6.0	20.	125
IRF830	500	1.5	4.5	15.	75
IRF832	500	2.0	4.0	12.	75
IRF820	500	3.0	2.25	7.	40
IRF822	500	4.0	2.0	5.	40
IRF841	450	0.85	7.0	25.	125
IRF843	450	1.1	6.0	20.	125
IRF831	450	1.5	4.5	15.	75
IRF833	450	2.0	4.0	12.	75
IRF821	450	3.0	2.25	7.	40
IRF823	450	4.0	2.0	5.	40
IRF740	400	.055	9.0	30.	125
IRF742	400	0.80	7.5	25.	125
IRF730	400	1.0	5.5	17.	75
IRF732	400	1.5	4.5	15.	75
IRF720	400	1.8	3.0	12.	40
IRF722	400	2.5	2.5	10.	40
IRF710	400	3.6	1.6	6.	20
IRF712	400	5.0	1.3	4.	20
IRF741	350	0.55	9.0	30.	125
IRF743	350	0.8	7.5	25.	125
IRF731	350	1.0	5.5	17.	75
IRF733	350	1.5	4.5	15.	75
IRF721	350	1.8	3.0	12.	40
IRF723	350	2.5	2.5	10.	40
IRF711	350	3.6	1.6	6.	20
IRF713	350	5.0	1.3	4.	20
IRF640	200	0.18	17.0	55.	125
IRF642	200	0.22	16.0	50.	125
IRF630	200	0.4	9.0	30.	75
IRF632	200	0.6	8.0	25.	75
IRF620	200	0.8	5.0	17.	40
IRF622	200	1.2	4.0	15.	40
IRF610	200	1.5	2.5	10.	20
IRF612	200	2.4	2.0	7.	20
IRF641	150	0.18	17.0	55.	125
IRF643	150	0.22	16.0	50.	125
IRF631	150	0.4	9.0	30.	75
IRF633	150	0.6	8.0	25.	75
IRF621	150	0.8	5.0	17.	40
IRF623	150	1.2	4.0	15.	40
IRF611	150	1.5	2.5	10.	20
IRF613	150	2.4	2.0	7.	20
IRF540	100	0.085	27.0	85.	125
IRF542	100	0.11	24.0	75.	125
IRF530	100	0.18	14.0	50.	75
IRF532	100	0.25	12.0	40.	75
IRF520	100	0.3	8.0	25.	40
IRF522	100	0.4	7.0	20.	40

Note (1) ID Continuous @ 100° C Case.

P-Channel Types

IRF510	100	0.6	4.0	15.	20
IRF512	100	0.8	3.5	12.	20
IRF541	60	0.085	27.0	85.	125
IRF543	60	0.11	24.0	75.	125
IRF531	60	0.18	14.0	50.	75
IRF533	60	0.25	12.0	40.	75
IRF521	60	0.3	8.0	25.	40
IRF523	60	0.4	7.0	20.	40
IRF511	60	0.6	4.0	15.	20
IRF513	60	0.8	3.5	12.	20

Note (1) ID Continuous @ 100° C Case.

N-Channel Types (T03)

Electrical Characteristics at 25° C unless noted otherwise.

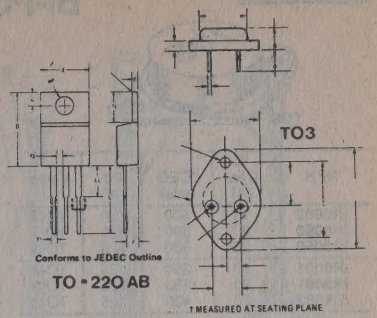
Part No.	VDS Drain Source Voltage (Volts)	RDS (ON) On-State Resistance (Ohms)	ID Cont. Drain Curr. (Amps) 25°C Case	IDM Pulsed Drain Current (Amps)	PD Max. Power Dissipation (Watts)
IRFF430	500	1.5	2.5	7.	25
IRFF432	500	2.0	2.0	6.	25
IRFF420	500	3.0	1.5	5.	20
IRFF422	500	4.0	1.4	4.	20
IRFF431	450	1.4	2.5	7.	25
IRFF433	450	2.0	2.0	6.	25
IRFF421	450	3.0	1.5	5.	20
IRFF423	450	4.0	1.4	4.	20
IRFF330	400	1.0	3.0	10.	25
IRFF332	400	1.5	2.5	7.	25
IRFF320	400	1.8	2.0	6.	20
IRFF322	400	2.5	1.75	5.	20
IRFF310	400	3.6	1.25	4.	15
IRFF312	400	5.0	1.0	3.	15
IRFF331	350	1.0	3.0	10.	25
IRFF333	350	1.5	2.5	7.	25
IRFF321	350	1.8	2.0	6.	20
IRFF323	350	2.5	1.75	5.	20
IRFF311	350	3.6	1.25	4.	15
IRFF313	350	5.0	1.0	3.	15
IRFF230	200	0.4	5.5	17.	25
IRFF232	200	0.6	4.0	13.	25
IRFF220	200	0.8	3.5	11.	20
IRFF222	200	1.2	3.0	8.	20
IRFF210	200	1.5	2.25	7.	15
IRFF212	200	2.4	1.75	5.	15
IRFF231	150	0.4	5.5	17.	25
IRFF233	150	0.6	4.0	13.	25
IRFF221	150	0.8	3.5	11.	20
IRFF223	150	1.2	3.0	8.	20
IRFF211	150	1.5	2.25	7.	15
IRFF213	150	2.4	1.75	5.	15
IRFF130	100	0.18	8.0	25.	25
IRFF132	100	0.25	7.0	22.	25
IRFF120	100	0.3	6.0	17.	20
IRFF122	100	0.4	5.0	15.	20
IRFF110	100	0.6	3.5	11.	15
IRFF112	100	0.8	3.0	10.	15
IRFF131	60	0.18	8.0	25.	25
IRFF133	60	0.25	7.0	22.	25
IRFF121	60	0.3	6.0	17.	20
IRFF123	60	0.4	5.0	15.	20
IRFF111	60	0.6	3.5	11.	15
IRFF113	60	0.8	3.0	10.	15

4-PIN N-CHANNEL TYPES

IRFD110	100	0.6	1.0	5.0	1.0
IRFD112	100	0.8	0.8	4.5	1.0
IRFD120	100	2.4	0.5	1.2	1.0
IRFD1Z2	100	3.2	0.4	0.8	1.0
IRFD111	60	0.6	1.0	5.0	1.0
IRFD113	60	8.0	0.8	4.5	1.0
IRFD1Z1	60	2.4	0.5	1.2	1.0
IRFD1Z3	60	3.2	0.4	0.8	1.0

4-PIN P-CHANNEL TYPES

IRFD9120	−100	0.6	−1.0	−5.0	1.0
IRFD9122	−100	0.8	−0.8	−4.5	1.0
IRFD9121	−60	0.6	−1.0	−5.0	1.0
IRFD9123	−60	0.8	−0.8	−4.5	1.0



P-Channel Types (T0-220AB)

Part No.	VDS Drain Source Voltage (Volts)	RDS (ON) On-State Resistance (Ohms)	ID Cont. Drain Curr. (Amps) 25°C Case	IDM Pulsed Drain Current (Amps)	PD Max. Power Dissipation (Watts)
IRF9630	200	0.8	6.5	20.	75
IRF9632	200	1.2	5.5	15.	75
IRF9620	200	1.5	3.5	10.	40
IRF9622	200	2.4	3.0	7.	40
IRF9610	200	3.0	1.75	5.	20
IRF9612	200	4.5	1.5	4.	20
IRF9631	150	0.8	6.5	20.	75
IRF9633	150	1.2	5.5	15.	75
IRF9621	150	1.5	3.5	10.	40
IRF9623	150	2.4	3.0	7.	40
IRF9611	150	3.0	1.75	5.	20
IRF9613	150	4.5	1.5	4.	20
IRF9530	100	0.3	11.0	35.	75
IRF9532	100	0.4	9.5	30.	75
IRF9520	100	0.6	5.75	20.	40
IRF9522	100	0.8	5.0	17.	40
IRF9531	60	0.3	11.0	35.	75
IRF9533	60	0.4	9.5	30.	75
IRF9521	60	0.6	5.75	20.	40
IRF9523	60	0.8	5.0	17.	40

16-PIN N-CHANNEL TYPES

IRFE110	100	0.6	1.0	5.0	4.0
IRFE112	100	0.8	0.8	4.5	4.0
IRFE111	60	0.6	1.0	5.0	4.0
IRFE113	60	0.8	0.8	4.5	4.0

16-PIN P-CHANNEL TYPES

IRFE9120	−100	0.6	−1.0	−5.0	4.0
IRFE9122	−100	0.8	−0.8	−4.5	4.0
IRFE9121	−60	0.6	−1.0	−5.0	4.0
IRFE9123	−60	0.8	−0.8	−4.5	4.0

16-PIN N-CHANNEL AND P-CHANNEL TYPES

IRFE5110	±100	0.6	±1.0	±5.0	4.0
IRFE5112	±100	0.8	±0.8	±4.5	4.0
IRFE5111	±60	0.6	±1.0	±5.0	4.0
IRFE5113	±60	0.8	±0.8	±4.5	4.0

Characteristics common to all TO-3 and TO-220AB HEXFETs.

TJ = −55° C to +150° C Operating

VGS(th) Gate Threshold = 2.0 to 4.0 Volts

See Data Sheets for conditions.

Lead Temperature = 300° C for 10 Seconds Max.

Electrical Characteristics at 25° C unless noted otherwise.

POWER BI-POLAR TRANSISTORS AND DARLINGTONS

NPN	IC Cont (A)	VCEO (sus)	Pd W	Case
IR701	1.0	600	50	TO-3
2N5838	3.0	250	100	TO-3
2N5839	3.0	275	100	TO-3
2N5840	3.0	350	100	TO-3
IR709	3.0	600	50	TO-3
IR708	3.0	600	50	TO-3
IR710	3.0	600	50	TO-3
2N5157	3.5	400	100	TO-3
IR410	5.0	200	100	TO-3
2N5804	5.0	225	110	TO-3
IR401	5.0	300	100	TO-3
2N6542	5.0	300	110	TO-3
2N5805	5.0	300	110	TO-3
IR413	5.0	325	100	TO-3
IR6542	5.0	350	100	TO-3
IR6543	5.0	400	100	TO-3
2N6543	5.0	400	100	TO-3
IR430	7.0	300	125	TO-3
IR411	7.0	300	100	TO-3

NPN	IC Cont (A)	VCEO (sus)	Pd W	Case
IR403	7.0	325	125	TO-3
IR402	7.0	325	125	TO-3
IR409	7.0	325	125	TO-3
IR431	7.0	325	125	TO-3
IR423	7.0	325	125	TO-3
IR424	7.0	350	125	TO-3
IR425	7.0	400	125	TO-3
2N6306	8.0	250	125	TO-3
2N6307	8.0	300	125	TO-3
IR13006	8.0	300	80	TO-220AB
IR13006	8.0	300	80	TO-220AB
2N6544	8.0	300	125	TO-3
2N6308	8.0	350	125	TO-3
IR6544	8.0	350	125	TO-3
2N6545	8.0	400	125	TO-3
IR6545	8.0	400	125	TO-3
IR13007	8.0	400	80	TO-220AB
2N5877	10	60	150	TO-3
IR515	10	250	125	TO-3

NPN	IC Cont (A)	VCEO (sus)	Pd W	Case
IR516	10	250	125	TO-3
IR517	10	250	125	TO-3
2N6574	10	275	125	TO-3
IR518	10	275	125	TO-3
2N6250	10	275	175	TO-3
2N6575	10	300	125	TO-3
IR519	10	300	125	TO-3
2N6251	10	350	175	TO-3
IR6582	10	350	125	TO-3
IR6583	10	400	125	TO-3
2N3055	15	60	115	TO-3
2N6546	15	300	175	TO-3
IR6546	15	350	175	TO-3
2N6547	15	400	175	TO-3
IR6547	15	400	175	TO-3
2N6338	25	100	200	TO-3
2N6339	25	120	200	TO-3
2N6340	25	140	200	TO-3
2N6341	25	150	200	TO-3

International Rectifier
Bi-Polar Power Transistors and Darlingtons

TO3

NPN	I_C Cont (A)	V_{CEO} (sus)	Pd (W)	Case
IR6002	15	400	125	TO-3
IR6060	20	300	125	TO-3
IR5060	20	300	125	TO-3
IR6061	20	350	125	TO-3
IR5061	20	350	125	TO-3
IR6062	20	400	125	TO-3

Power Darlingtons

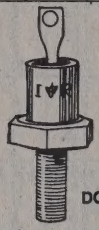
NPN	I_C Cont (s)	V_{CEO} (A)	Pd (sus)	Case
IR5251	10	350	100	TO-3
IR6251	10	350	100	TO-3
IR5252	10	400	100	TO-3
IR6252	10	400	100	TO-3
IR5253	10	450	100	TO-3
IR6253	10	450	100	TO-3
IR4039	15	300	100	TO-3
IR4041	15	300	100	TO-3
IR5000	15	300	125	TO-3
IR6000	15	300	125	TO-3

NPN	I_C Cont (A)	V_{CEO} (sus)	Pd (W)	Case
IR4040	15	325	125	TO-3
IR4045	15	325	125	TO-3
IR4059	15	320	125	TO-3
IR4061	15	350	100	TO-3
IR4050	15	350	125	TO-3
IR5001	15	350	125	TO-3
IR4055	15	350	125	TO-3
IR6001	15	350	125	TO-3
IR7001	15	350	125	TO-61
IR4060	15	400	125	TO-3
IR4065	15	400	125	TO-3
IR5002	15	400	125	TO-3

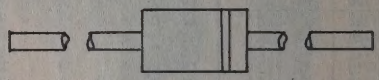
DO41

C15

TO220


DO4

DO5


31DQ

Power Schottky Rectifiers

"830" PROCESS SCHOTTKYS—175°CT_J
These Scottkys (identified with Note 1) offer extremely low reverse leakage and virtually no thermal runaway at rated voltage/temperature. Devices operate to 175°CT_J with no voltage derating, offer high current capability at high temperature, and have a guaranteed maximum repetitive transient voltage rating.

STANDARD PROCESS SCHOTTKYS—150°CT_J
Low forward voltage drop (V_F) is the most significant feature offered by IR's standard process Schottkys. Rated at 150°CT_J, these devices also have low reverse leakage characteristics, and a guaranteed maximum repetitive transient voltage rating.

Symbol	Unit														
IF(AV)	Amps	1.1A	3A	5.0A	8A	10A	12A	20A	27.5A	30A	30A	30A	30A	30A	55.5A
@ TC	°C	57° (7)	32° (7)	97° (9)	92° (9)	110	121	110	71.5	100	96	92	119°	123°	74°
IRM @ TJ @ VRWM	mA	11mA (8)(10)	30mA (10)	13mA (13)	13mA	15mA	12mA	15mA	250mA (10)	15mA	125mA	180mA	30mA	30mA	250mA (10)
VFM @ IFM	Volts & Amps	0.76@2 (8) 0.581@1(8)	0.78@6.6(8) 0.60@3.3(8)	0.77@10 0.65@5	0.7@16 0.62@8	0.76@20 0.64@10	0.94@24 0.77@12	0.93@40 0.78@20	0.84@60 0.64@30	0.99@60 0.82@30	0.75@60 0.58@30	0.68@60 0.53@30	0.83@60 0.67@30	0.75@60 0.60@30	0.88@120 0.66@60
TJ	°C	125°	125°	175°	175°	150 (5)	150 (5)	150 (5)	125 (6)	150 (5)	150	150	175°	175°	125°(6)
CASE STYLE		DO-41	C-16	C-15	C-15	TO-220AC	TO-220AB	TO-220AB	DO-4	TO-220AB	DO-4	DO-4	DO-4	DO-4	DO-5
NOTES		—	—	(1)	(1)	(1) (4)	(1) (4)	(1) (4)	—	(1) (4)	(11)	—	(1)	(1)	—

VOLTAGE RATINGS	PART NUMBERS													
20 VOLTS	—	—	—	—	—	—	—	—	—	—	20FQ020	—	—	—
30 VOLTS	11DQ03	31DQ03	50SQ030	80SQ030	10TQ030	12CTQ030	20CTQ030	1N6095	30CTQ030	21FQ030	20FQ030	30FQ030	30FQ30A	1N6097
35 VOLTS	—	—	50SQ035	80SQ035	10TQ035	12CTQ035	20CTQ035	—	30CTQ035	SD-41 21FQ035	20FQ035	30FQ035	30FQ35A	—
40 VOLTS	11DQ04	31DQ04	50SQ040	80SQ040	10TQ040	12CTQ040	20CTQ040	1N6095	30CTQ040	21FQ040	20FQ040	30FQ040	30FQ40A	1N6098
45 VOLTS	—	—	50SQ045	80SQ045	10TQ045	12CTQ045	20CTQ045	—	30CTQ045	21FQ045	20FQ045	30FQ045	30FQ45A	—
50 VOLTS	11DQ05	31DQ05	—	—	—	—	—	—	—	—	—	—	—	—
60 VOLTS	11DQ06	31DQ06	50SQ060	—	—	—	—	—	—	—	—	—	—	—
80 VOLTS	—	—	50SQ080	—	—	—	—	—	—	—	—	—	—	—
90 VOLTS	—	—	50SQ090	—	—	—	—	—	—	—	—	—	—	—
100 VOLTS	—	—	50SQ100	—	—	—	—	—	—	—	—	—	—	—

Symbol	Unit								
IF(AV)	Amps	40A	60A	60A	60A	60A	60A	75A	85A
@ TC	°C	149°	120°	91°	90°	96°	98°	115°	115°
IRM @ TJ @ VRWM	mA	20mA	20mA	230mA	200mA	230mA	45mA	45mA	45mA
VFM @ IFM	Volts & Amps	0.91@40 0.70@20	1.09@60 0.82@30	0.86@120 0.66@60	0.88@120 0.68@60	0.77@120 0.59@60	1.06@120 0.84@60	0.94@160 0.76@80	0.88@160 0.71@80
TJ	°C	175°	175°	150°	150°	175°	175°	175°	175°
CASE STYLE		TO-3	TO-3	DO-5	DO-5	DO-5	DO-5	DO-5	DO-5
NOTES		(1)(4)(11)(14)	(1)	(11)	(11)	—	(1)	(1)	(1)

VOLTAGE RATINGS								
20 VOLTS	40CDQ020	60CDQ020	—	—	50HQ020	—	—	—
30 VOLTS	40CDQ030	60CDQ030	—	52HQ030	50HQ030	—	75HQ030	85HQ030
35 VOLTS	SD-241 40CDQ035	60CDQ035	SD-51 51HQ045	52HQ035	50HQ035	—	75HQ035	85HQ035
40 VOLTS	SD-241	60CDQ040	—	52HQ040	50HQ040	—	75HQ040	85HQ040
45 VOLTS	40CDQ045	60CDQ045	—	52HQ45	50HQ045	—	75HQ045	85HQ045
50 VOLTS	—	—	—	—	—	—	—	—
60 VOLTS	—	—	—	—	—	60HQ060	—	—
80 VOLTS	—	—	—	—	—	60HQ080	—	—
90 VOLTS	—	—	—	—	—	60HQ090	—	—
100 VOLTS	—	—	—	—	—	60HQ100	—	—

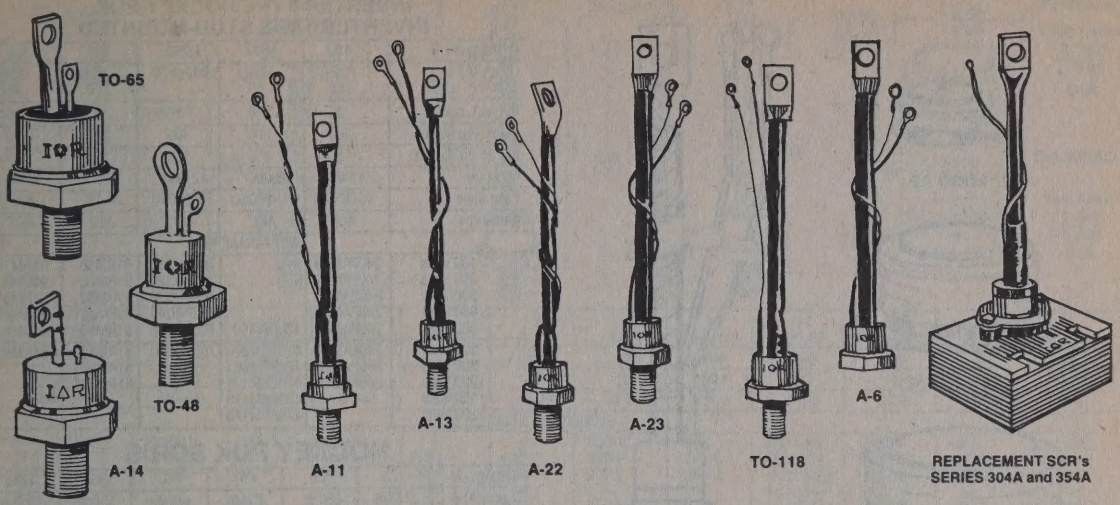
Forward Current @ Maximum Case Temperature (2)

Reverse Current @ 125°C TJ at rated Working Peak Reverse Voltage.

Maximum Peak Forward Voltage @ Forward Current TJ = 25°C

NOTES
(1) "830" Process Max. TJ = 175°C. (2) 180° rectangular conduction. (3) Voltages listed are rated VRWM except for 11DQ, 31DQ and JEDEC series where they are rated VRRM. (4) Dual Center Tap-Common Cathode. IF(AV) is 10. (5) Max. TJ is package limited to 150° C. (6) Max. TJ conforms to JEDEC specification and does not reflect true 150°C capability. (7) Ambient temp (TA) for pcb-mounted 60V & 50V devices. TA higher for lower voltage parts. (8) IRM & VFM for 50V & 60V devices. IRM & VFM lower for 30V & 40V devices. (9) TC is lead temperature measured 3/8 inch (0.95 min) from body. (10) IRM at rate VRRM. (11) Rated VRRM for SD41. SD51, SD241 and 51HQ045 is 45V. (12) Ambient temp (TA) for device with 0.8 inch square copper fin on each lead. (13) IRM for 30V thru 45V devices. 8mA for 60 thru 100V devices. (14) Rated 100A SD241 is 60A.

International Rectifier Thyristors (SCR's)



SCRs–Phase Control–Stud Mounted

$I_{T(RMS)}$(A)	25	35	35	35	40	110	110	110	110	110	110	125	170	235
$I_{T(AV)}$(A)@ Max. T_C = (°C)	16@ 65	22@ 40	22@ 60	22@ 85	25@ 85	70@ 62	70@ 62	70@ 62	70@ 65	70@ 80	70@ 85	80@ 85	110@ 80	150@ 70
Max. I_{GT}@25°C (mA)	40	40	40	40	40	70	70	110	70	150	70	150	150	150
dv/dt (V/µs). min.	.....	100	100	100	100	200	.....	20	.....	200	.....	200	200	200
I_{TSM} (A)	150	300	300	355	370	1,200	1,000	1,000	1,000	1,600	1,000	1,800	1,900	4,000
Case Style	TO-48	TO-48	TO-48	TO-48	TO-48	A-13	A-13	A-11	A-14	A-11	A-13	A-11	A-11	A-23
PART NUMBERS														
25 Volts	2N681	.....	.....	.....	.....	.....	2N1909	.....	.....	.....	2N2023	.....	.....	.....
50 Volts	2N682	.....	.....	.....	.....	71RC5A	2N1910†	.....	2N1792†	.....	2N2024†	.....	.....	.....
100 Volts	2N683	.....	16RIA10	22RIA10	25RIA10	71RC10A	2N1911†	.....	2N1793†	.....	2N2025†	.....	.....	151RC10
150 Volts	.....	.....	.....	.....	.....	.....	2N1912	.....	2N1794	.....	2N2026†	.....	.....	.....
200 Volts	2N685	.....	16RIA20	22RIA20	25RIA20	71RC20A	2N1913†	.....	2N1795†	.....	2N2027†	.....	.....	151RC20
250 Volts	.....	.....	.....	.....	.....	.....	2N1914	.....	2N1796	.....	2N2028	.....	.....	.....
300 Volts	2N687	.....	.....	.....	.....	71RC30A	2N1915†	.....	2N1797†	71RA30	2N2029†	.....	.....	151RC30
400 Volts	2N688	.....	16RIA40	22RIA40	25RIA40	71RC40A	2N1916†	.....	2N1798†	.....	2N2030†	.....	.....	151RC40
500 Volts	2N689	.....	.....	.....	.....	.....	.....	.....	2N1799†	71RA50	.....	.....	.....	.....
600 Volts	2N690	2N5204	16RIA60	22RIA60	25RIA60	71RC60A	2N1805†	2N3091†	2N1800†	71RA60	.....	81RLA60	111RLA60	151RC60
700 Volts	2N691	.....	.....	.....	.....	.....	2N1806†	2N3092	2N1801	.....	.....	.....	.....	.....
800 Volts	2N692	2N5205	16RA80	22RIA80	25RIA80	71RC80A	2N1807	2N3093†	2N1802	71RIA80	.....	81RLA80	111RLA80	151RC80
900 Volts	.....	.....	.....	.....	.....	.....	.....	2N3094	2N1803	.....	.....	.....	.....	.....
1000 Volts	.....	2N5206	16RIA100	22RIA100	25RIA100	71RC100A	.....	2N3095†	2N1804	71RA100	.....	81RLA100	81RLA100	.....
1100 Volts	.....	.....	16RIA110	22RIA110	25RIA110	71RC110A	.....	2N3096	.....	.....	.....	.....	.....	.....
1200 Volts	.....	2N5207	16RIA120	22RIA120	25RIA120	71RC120A	.....	2N3097†	.....	71RA120	.....	81RLA120	111RLA120	.....
1300 Volts	.....	.....	.....	.....	.....	.....	.....	2N3098	.....	.....	.....	.....	.....	.....
1400 Volts	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	81RLA140	.....	.....
1500 Volts	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1600 Volts	.....	.....	.....	.....	.....	.....	(JAN)†	(JAN)†	(JAN)†	.....	(JAN)†	.....	.....	.....

SCR's–Phase Control–Stud Mounted

$I_{T(RMS)}$(A)	235	275	275	470	550	550
$I_{T(AV)}$(A)@ Max. T_C = (°C)	150@ 85	175@ 86	175@ 90	300@ 75	350@ 75	350@ 75
Max. I_{GT}@25°C (mA)	150	150	150	150	150	150
dv/dt (V/µs), min.	200	200	200	200	200	200
I_{TSM} (A)	4,250	5,000	5,000	10,000	8,500	10,000
Case Style	A-22	A-23	A-22	TO-118	TO-118	TO-118
PART NUMBERS						
100 Volts	.....	175RC10	.....	300RA10	350RC10	350RA10
200 Volts	.....	175RC20	.....	300RA20	350RC20	350RA20
300 Volts	151RA30	175RC30	.....	300RA30	350RC30	350RA30
400 Volts	.....	175RC40	.....	300RA40	350RC40	350RA40
600 Volts	151RA60	175RC60	175RA60	300RA60	350RC60	350RA60
800 Volts	151RA80	175RC80	175RA80	300RA80	.....	350RA80
1000 Volts	151RA100	.....	175RA100	300RA100	.....	350RA100
1100 Volts	.....	.....	.....	.....	.....	.....
1200 Volts	151RA120	.....	175RA120	300RA120	.....	350RA120
1300 Volts	.....	.....	.....	300RA130	.....	.....
1400 Volts	151RA140	.....	175RA140	300RA140	.....	350RA140
1500 Volts	151RA150	.....	175RA150	300RA150	.....	350RA150
1600 Volts	151RA160	.....	175RA160	300RA160	.....	350RA160
1700 Volts	.....	.....	.....	300RA170	.....	350RA170
1800 Volts	.....	.....	.....	300RA180	.....	350RA180
1900 Volts	.....	.....	.....	.....	.....	.....
2000 Volts	.....	.....	.....	.....	.....	.....

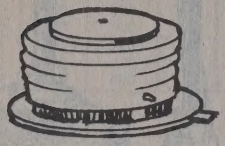
SCR on an integral heatsink, is used for replacement of devices found in dc motor drive equipment manufactured during the 1960's.

$I_{T(RMS)}$(A)	400	470	550
$I_{T(AV)}$(A)@ Max. T_C = (°C)	250@ 75	300@ 75	350@ 75
Max. I_{GT}@ 25°C (mA)	150	150	150
dv/dt (V/µs), min.	200	200	200
I_{TSM} (A)	7,000	10,000	10,000
PART 1			
100 Volts	254RA10	304RA10	354RA10
200 Volts	254RA20	304RA20	354RA20
304 Volts	254RA30	304RA30	354RA30
400 Volts	254RA40	304RA40	354RA40
600 Volts	254RA60	304RA60	354RA60
800 Volts	254RA80	304RA80	354RA80
1000 Volts	254RA100	304RA100	354RA100
1200 Volts	254RA120	304RA120	354RA120
1304 Volts	.....	304RA130	.....
1400 Volts	254RA140	304RA140	354RA140
1500 Volts	254RA150	304RA150	354RA150
1600 Volts	254RA160	304RA160	354RA160
1700 Volts	254RA170	304RA170	354RA170
1800 Volts	254RA180	304RA180	354RA180
1900 Volts	254RA190	.....	.....
2000 Volts	254RA200	.....	.....

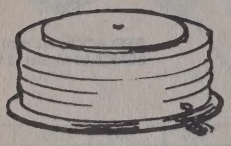
International Rectifier Thyristors (SCR's)

3

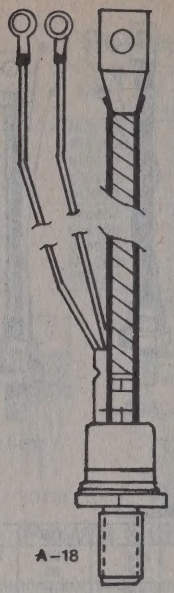
TO-200D AB



TO-200AC



A-24



A-18

INVERTER TYPE HOCKEY-PUK
INVERTER TYPE STUD-MOUNTED

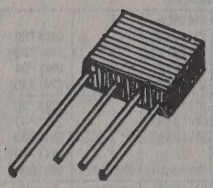
$I_{T(RMS)}$ (A)	400	600	1,260	125	150
$I_{T(AV)}$ (A) @ Max. T_C = (°C)	255@ 65	420@ 65	800@70	80@ 70	95@ 65
t_q (µs,), max.	25	40	10	20	10
dv/dt (Viµs). min.	200	200	400	200	200
I_{GT} @ 25°C (mA)	150	150	150	150	150
I_{TSM} (A)	4,000	8,000	12,000	1,600	1,600
Case Style	TO-200AB	TO-200AC	TO-200AC	A-13	A-13
Gate Type	ACE	ACE	ACE	ACE	ACE
PART NUMBERS					
100 Volts	240PAM10	.....	700PBQ10	81RM10	91RM10
200 Volts	240PAM20	.....	700PBQ20	81RM20	91RM20
300 Volts	240PAM30	.....	700PBQ30	81RM30	91RM30
400 Volts	240PAM40	.....	700PBQ40	81RM40	91RM40
500 Volts	240PAM50	420PBM50	700PBQ50	81RM50	91RM50
600 Volts	240PAM60	420PBM60	700PBQ60	81RM60	91RM60
800 Volts	240PAM70	420PBM80	.....	81RM80	.....
1000 Volts	240PAM100	420PBM100	.....	81RM100	.....
1100 Volts	.....	420PBM110	.....	.....	.....
1200 Volts	.....	420PBM120	.....	.....	.....

HOCKEY PUK SCR'S

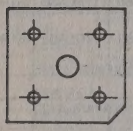
$I_{T(RMS)}$ (A)	275	400	470	740	865	1965
$I_{T(AV)}$(A)@ Max T_C = (°C)	175@ 85	250@ 70	300@ 77	470@ 67	550@ 65	1250@ 76
I_{GT}@ 25°C (mA)	200	150	150	150	150	
dv/dt (V/µS). min.	200	200	200	200	200	200
I_{TSM} (A)	3,000	4,250	5,500	8,500	10,000	27,000
Case Style	TO-200AB	TO-200AB	TO-200AB	TO-200AC	TO-200AC	A-24
PART NUMBERS						
100 Volts	.....	.....	.....	.....	550PB30	
200 Volts	.....	.....	.....	.....	550PB50	1000PK50
300 Volts	.....	.....	.....	470PB30	550PB60	1000PK60
400 Volts	.....	.....	.....	.....	550PB80	1000PK80
500 Volts	.....	.....	.....	470PB50	500PB100	1000PK100
600 Volts	175PA60	250PA60	300PA60	470PB60	550PB120	1000PK120
800 Volts	175PA80	250PA80	300PA80	470PB80	550PB140	1000PK140
1000 Volts	175PA100	250PA100	300PA100	470PB100	550PB150	1000PK150
1100 Volts	.....	.....	.....	.....	550PB160	1000PK160
1200 Volts	175PA120	250PA120	300PA120	470PB120	550PN180	1000PK180
1400 Volts	175PA140	250PA140	300PA140	470PB140	.....	.....
1500 Volts	175PA150	250PA150	300PA150	470PB150	.....	.....
1600 Volts	175PA160	250PA160	300PA160	470PB160	.....	.....
1700 Volts	.....	.....	.....	470PB170	.....	.....
1800 Volts	.....	.....	.....	470PB180	.....	.....
1900 Volts	.....	.....	.....	470PB190	.....	.....
2000 Volts	.....	.....	.....	470PB200	.....	.....

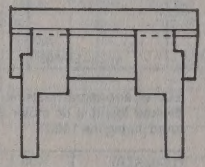
SINGLE PHASE DIODE MOLDED BRIDGES

D-45/D-46

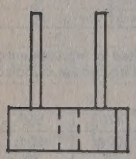


D-44



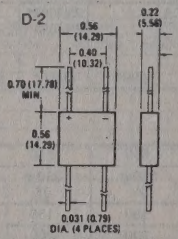


D-43

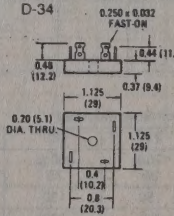


D-45/D-46

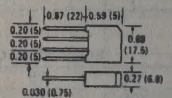
D-2



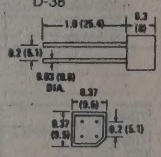
D-34



D-37



D-38



SINGLE PHASE DIOXE MOLDED BRIDGES - 1.0 TO 35 AMPS (I_O)

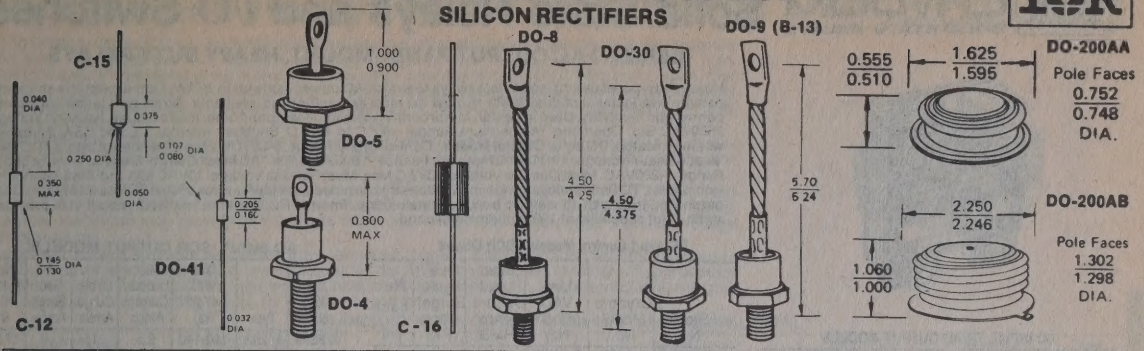
I_O(A) Output Current	1.0	1.2	1.8	1.9	2.0	3.0	6.0	10	25	35
@T_C(°C)	25	45	50	45	50	50	50	65	65	55
I_{FSM} (A) (Surge)	30	52	52	52	60	50	125	130	350	420
Notes	(1)	(1)	(1)	(1) (3)	(1)	(1)	(1)	(2)	(2)	(2)
Case Style	D-43	D-38	D-2	D-37	D-44	D-45	D-46	D-34	D-34	D-34
PART NUMBERS										
V_{RRM} 50 Volts	.....	.....	18DB05A	.....	2KBP005	KBPC1005	KBPC6005	100JB05L	250JB05L	35MB5A
100 Volts	1DMB10	1KAB10E	18DB1A	2KBB10				100JB1L	250JB1L	35MB10A
200 Volts	1DMB20	1KAB20E	18DB2A	2KBB20	2KBP02	KPC102	KBPC602	100JB2L	250JB2L	35MB20A
400 Volts	1DMB40	1KAB40E	18DB4A	2KBB40	2KBP04	KPC104	KBPC604	100JB4L	250JB4L	35MB40A
600 Volts	.....	1KAB60E	18DB6A	2KBB60	2KBP06	KPC106	KBPC606	100JB6L	250JB6L	35MB60A
800 Volts	.....	1KAB80E	18DB8A	2KBB80	2KBP08	KPC108	KBPC608	100JB8L	250JB8L	35MB80A
1000 Volts	.....	1KAB100E	18DB10A	2KBB100	2KBP10	KPC110	KBPC610	100JB10L	250JB10L	35MB100A
1200 Volts	.....	.....	.....	.....	.....	.....	.....	100JB12L	250JB12L	35MB120A

NOTES: (1) Ambient temperature (T_A). (2) Must be used with suitable heatsink. (3) For lead configuration-XX + add 'R' to part number.

International Rectifier

IOR

SILICON RECTIFIERS



IF(AV) (A) @ Max. TC (°C)	1 @ 75	1.5 @ 40	2 @ 100	3 @ 125	4 @ 120	6 @ 95	12 @ 150	12 @ 150	15 @ 150	16 @ 150	35 @ 140
IFSM (A)	30	50	50	150	200	400	200	240	250	300	500
Notes	(1)(2)	(1)(2)	(2)	(2)	(2)	(2)	(4)†	(4)	(4)	(4)	(4)
Case Style	D0-41	D0-41	D0-41	C-12	C-16	C-15	D0-4	D0-4	D0-5	D0-4	D0-5
PART NUMBERS											
VRRM 50 Volts	1N4001	10D05	20D05	—	—	60S05	12F5	1N1199A	1N3208	16F5	1N1183
100 Volts	1N4002	10D1	20D1	30S1	40D1	60S1	12F10	1N1200A	1N3209	16F10	1N1184
200 Volts	1N4003	10D2	20D2	30S2	40D2	60S2	12F20	1N1202A†	1N3210	16F20	1N1186
300 Volts	—	—	—	30S3	—	—	—	1N1203	1N3211	—	1N1187
400 Volts	1N4004	10D4	20D4	30S4	40D4	60S4	12F40	1N1204A†	1N3212	16F40	1N1188
500 Volts	—	—	—	30S5	—	60S5	—	1N1205A	1N3213	—	1N1189
600 Volts	1N4005	10D6	20D6	30S6	40D6	60S6	12F60	1N1206A†	1N3214	16F60	1N1190
700 Volts	—	—	—	—	—	—	—	1N3670A	—	—	1N3765
800 Volts	1N4006	10D8	20D8	30S8	40D8	60S8	12F80	1N3671A	—	16F80	1N3766
1000 Volts	1N4007	10D10	20D10	30S10	—	60S10	12F100	1N3673A	—	16F100	1N3768

IF(AV) (A) @ Max. TC (°C)	40 @ 140	40 @ 150	60 @ 115	60 @ 115	60 @ 140	85 @ 115	70 @ 140	100 @ 130	100 @ 130	150 @ 150
IFSM (A)	800	800	700	700	900	1,500	1,000	1,600	2,300	3,000
Notes	(4)	(4)	(4)	(4)	(4)	(4)		(4)	(4)	(4)
Case Style	D0-5	D0-5	D0-5	D0-5	D0-5	D0-5	D0-5	D0-8	D0-8	D0-30
PART NUMBERS										
VRRM 50 Volts	40HF5	1N1183A	1N2128	—	1N2128A	70H5A	70HF5	—	—	1N3111
100 Volts	40HF10	1N1184A	1N2129	60HF10	1N2129A	70H10A	70HF10	1N3288	1N3288A	1N3085
150 Volts	—	1N1185A	1N2130	—	1N2130A	—	—	—	—	—
200 Volts	40HF20	1N1186A	1N2131	60HF20	1N2131A	70H20A	70HF20	1N3289	1N3289A	1N3086
300 Volts	40HF30	1N1187A	1N2133	60HF30	1N2133A	70H30A	—	1N3290	1N3290A	1N3087
400 Volts	40HF40	1N1188A	1N2135	60HF40	1N2137A	70H40A	70HF40	1N3291	1N3291A	1N3088
500 Volts	40HF50	1N1189A	1N2137	60HF50	1N2137A	70H50A	—	1N3292	1N3292B	1N3089
600 Volts	40HF60	1N1190A	1N2138	60HF60	1N2138A	70H60A	70HF60	1N3293	1N3293A	1N3090
800 Volts	40HF80	—	—	60HF80	—	70H80A	70HF80	1N3294	1N3294A	1N3091
1000 Volts	40HF100	—	—	60HF100	—	70H100A	70HF100	1N3295	1N3295A	1N3092
1200 Volts	40HF120	—	—	—	—	70H120A	70HF120	1N3296	1N3296A	1N5162

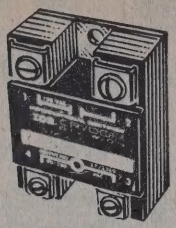
IF(AV) (A) @ Max. TC (°C)	150 @ 150	150 @ 150	250 @ 130	250 @ 135	275 @ 120	300 @ 120	400 @ 97	650 @ 80
IFSM (A)	3,000	3,000	4,500	4,500	5,000	5,750	3.500	8.000
Notes	(4)(6)	(4)(6)	(4)	(4)	(4)	(4)(6)	(11)	(11)
Case Style	D0-8	D0-30	B-13	B-13	B-13	B-13	D0-200AA	DO-200AB
PART NUMBERS								
VRRM 50 Volts	150K5A	150L5A	—	1N2054	1N4044	300U5A	—	—
100 Volts	150K10A	150L10A	1N3735	1N2055	1N4045	300U10A	—	—
150 Volts	—	—	—	—	1N4046	—	—	—
200 Volts	150K20A	150L20A	1N3736	1N2057	1N4047	300U20A	401PDA20LXX	—
250 Volts	—	—	—	—	1N4048	—	—	—
300 Volts	150K30A	150L30A	1N3737	1N2059	1N4049	300U30A	—	—
400 Volts	150K40A	150L40A	1N3738	1N2061	1N4050	300U40A	401PDA40LXX	—
500 Volts	—	—	1N3739	—	1N4051	—	—	651PDB50LXX
600 Volts	150K60A	150L60A	1N3740	1N2064	1N4052	300U60A	401PDA60LXX	651PDB60LXX
700 Volts	—	—	—	—	1N4053	—	—	—
800 Volts	150K80A	150L80A	1N3741	1N2066	1N4054	300U80A	401PDA80LXX	651PDB80LXX
900 Volts	—	—	—	1N2067	1N4055	—	—	—
1000 Volts	150K100A	150L100A	1N3742	1N2068	1N4056	300U100A	401PDA100LXX	651PDB100LXX
1200 Volts	150K120A	150L120A	1N3743	—	—	300U120A	401PDA120LXX	651PDB120LXX
1400 Volts	—	—	—	—	—	—	401PDA140LXX	651PDB140LXX

FAST RECOVERY RECTIFIERS Stud Mounted (3) 6 to 250 Amps

IF(AV) (A) @ Max. TC (°C)	6 @ 100	12 @ 100	12 @ 100	16 @ 100	20 @ 100	30 @ 100	40 @ 75	70 @ 75
Max. trr (μS)	0.15/0.3	0.15/0.3	0.1/1.0	0.1/1.0	0.20/0.35	0.20/0.35	0.1/0.2-2.0	0.1/0.2-2.0
Max. IRM(REC) (A)	2/4	2/5	2/5	—	—	—	—	—
IFSM (A)	75	150	150	180	250	300	420	730
Notes	(4)(10)	(4)(10)	(4)(10)	(10)	(4)(10)	(4)(10)	(4)(10)(11)	(4)(10(11)
Case Style	D0-4	D0-4	DO-4	DO-4	DO-5	DO-5	DO-5	DO-5
PART NUMBERS								
VRRM 50 Volts	1N3879	1N3889	12FL5S02	16FL5S02	IRD3899	IRD3909	40HFL5SXX	70HFL5SXX
100 Volts	1N3880	1N3890	12FL10S02	16FL10S02	IRD3900	IRD3910	40HFL10SXX	70HFL10SXX
200 Volts	1N3881	1N3891	12FL20S02	16FL20S02	IRD3901	IRD3911	40HFL20SXX	70HFL20SXX
300 Volts	1N3882	1N3892	—	—	IRD3902	IRD3912	40HFL30SXX	70HFL30SXX
400 Volts	1N3883	1N3893	12FL40S02	16FL40S02	IRD3903	IRD3913	40HFL40SXX	70HFL40SXX
600 Volts	—	—	12FL60S02	16FL60S02	—	—	40HFL60SXX	70HFL60SXX

IOR CRYDOM SOLID-STATE RELAYS — Solid State Relays and I/O Switches

SERIES 1 AC OUTPUT PANEL MOUNT, HEAVY DUTY RELAYS



Heavy duty, panel mount, solid state relays to switch AC power loads up to 10 kW. Output circuit is an inverse parallel arrangement of dual SCR's to meet the most demanding requirements. Screw type terminals provide connection flexibility. Used in heater, motor control, solenoids, lamp and other load controls. Isolation Voltage: 2500VAC Std. Operating Temperature Range: −30° C to +80° C. Snubber: Internal. UL and CSA: All except where indicated. **DC Input Control Models:** Control Signal Range: 3-32VDC. Must Operate Voltage: 3VDC Max. Must Release Voltage: 1VDC Min. Input Impedance: 1.5 Kohms Min.; **AC Input Control Models:** Control Signal Range: 9-280VAC. Must Operate Voltage: 90VAC Max. Must Release Voltage: 10VAC Min. input impedance: 40 Kohms Min. TD Series relays are for applications that do not require the features of dual SCR output types. Glass passivated triac with all metallic bonded construction. Internal RC "snubber" network is built in to provide a static dv/dt capability of 100 Volts/microsecond.

DC INPUT, TRIAC OUTPUT MODELS

Stk. No.	Type	Line VAC (47-63 Hz)	Max Load Amps	1-Cycle Surge Amps	Net Each
62F778	TD1205*	24-140	5	50	17.00
62F779	TD1210	24-140	10	100	17.50
62F780	TD1225	24-140	25	200	18.60
62F781	TD2405*	48-280	5	50	17.50
62F782	TD2410	48-280	10	100	18.00
62F783	TD2425	48-280	25	200	19.20

AC INPUT, TRIAC OUTPUT MODELS

62F784	TA1205*	24-140	5	50	18.50
62F785	TA1210	24-140	10	100	19.05
62F786	TA1225	24-140	25	200	20.20
62F787	TA2405*	48-280	5	50	19.00
62F788	TA2410	48-280	10	100	19.60
62F789	TA2425	48-280	25	200	20.35

*UL Recognition and CSA Certification pending.

DC Input Control Models—SCR Output

Stock No.	Crydom Model No.	Line VAC (47-63 Hz)	Max. Load Current, Amps (RMS)	One-Cycle Surge, Amps (PK)	Net Each 1-9
27F324	D1202	24-140	2.5	22.5	15.00
27F325	D1210	24-140	10	120	23.85
27F326	D1225	24-140	25	250	24.85
27F327	D1240	24-140	40	625	26.00
27F328	D2402	48-280	2.5	22.5	15.90
27F329	D2410	48-280	10	120	24.20
27F330	D2425	48-280	25	250	25.20
27F331	D2440	48-280	40	625	25.90
81F4826	D2475	48-280	75	1000	47.50
27F332	D4808	80-530	8	72	30.50
27F333	D4812	80-530	12	140	33.10
27F334	D4825	80-530	25	250	35.15
81F4827	D4840	80-530	40	400	37.65
81F4828	D4875	80-530	75	1000	69.00

Traffic Control Relay—Model TC2623—**62F790.** The TC2623 is a solid-state relay for use in most traffic control systems. The Output Voltage Range is 95V ac to 135V ac.

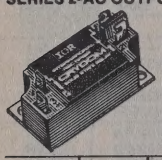
AC INPUT, SCR OUTPUT MODELS

Stock No.	Type	Line VAC (47-63 Hz)	Max. Load Current Amps	1-Cycle Surge Amps	1-Sec. Surge Amps	Net Each 1-9
27F309	A1202	100-140	2.5	15	5	17.25
27F310	A1210	100-140	10	80	24	25.40
27F311	A1225	100-140	25	175	40	26.40
27F312	A1240	100-140	40	450	80	27.55
27F313	A2402	200-280	2.5	15	5	18.00
27F314	A2410	200-280	10	80	24	25.75
27F315	A2425	200-280	25	175	40	26.80
27F316	A2440	200-280	40	450	80	27.50
27F317	A4808	340-480	8	50	17	32.50
27F318	A4812	340-480	12	60	20	35.10
27F319	A4825*	340-480	25	175	40	36.85

*CSA Certification pending.

Stk. No.	Type	1-9	10-24	25-49	50-99	100-249
62F790	TC2623	19.35	17.55	16.30	15.40	14.15

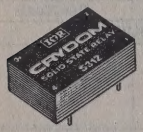
SERIES 2-AC OUTPUT PANEL-MOUNT RELAYS



Solid-state relays combine small size and high current rating. For heat sink or panel mounting. Standard 0.187" push-on terminals; positioned for max. insulation of power and signal circuits. Controlled directly by logic level DC signals and turn on/off in one-half cycle. UL recg. and CSA appr. Int. snubber.

Stk. No.	Type	Line VAC (47-63 Hz)	Max. Load Current @ 40°C Amps rms	1-Cycle Surge Amps Peak	1-Sec. Surge Amps Peak	Net Each 1-9
27F336	S218	20-140	8	120	42	15.60
27F338	S228	40-280	8	120	42	16.25

SERIES 3—AC OUTPUT PC BOARD MOUNT RELAYS



CASE STYLE 37
SIZE: 0.80"W x 1.45"L x 0.87"H

CASE STYLE 3
SIZE: 0.80"W x 1.2"L x 0.45"H

CASE STYLE 30A
SIZE: 0.80"W x 1.45"L x 0.70"H

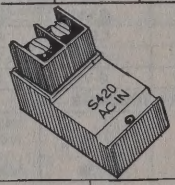
Series 3 combines small size, high current rating and min. off-state leakage in a package designed for solder connection into PC boards. Smaller units are 0.4 cubic inches in volume and require only 1.0 square inch of PCB mounting space. An overall height of 0.45", on case style 3 models, allows PCB spacing on ½" centers. Square rigid pins are suitable for wire wrap or socket type connectors. Control Signal Range is 3.5-8VDC. Must Operate Voltage is at 3.5VDC Max. Must Release Voltage if 1.0VDC Min. Must Operate Current is 12mA Max. Isolation Voltage at 1500 VAC. Operating Temperature Ranges from −30° C to +80° C. All relays are UL and CSA Approved.

Stk. No.	Type	Line VAC (47-63 Hz)	Int. Snub.	Case Style	Max. Load Amps	1-Cycle Surge Amps Peak	1-Sec. Surge Amps Peak	Net Each 1-9
65F470	S310	20-140	No	3	0.3	2	2.5	8.50
65F471	S320	40-180	No	3	0.3	2	2.5	9.00
27F341	S312	20-140	No	3	2	55	14	12.70
27F339	S3012A	20-140	Yes	30A	2	55	14	12.95
27F342	S322	40-280	Yes	3	2	55	14	13.25
27F340	S3022A	40-280	Yes	30A	2	55	14	13.55
65F472	S3714	20-140	Yes	37	4	80	18	16.10
65F473	S3724	40-280	Yes	37	4	80	18	16.85
62F791	S3010A	20-140	Yes	30A	0.3	2	2.5	9.30
62F792	S3020A	40-280	Yes	30A	0.3	2	2.5	9.45

SERIES B-30 DC OUTPUT PC BOARD MOUNT RELAYS

High voltage (0.5 Amp. 2000VDC Load) DC output, photo isolation, I/O reverse voltage protection and direct control by digital logic. Applications replace discrete component solid state switches for solenoids, valves and motors. Isol. voltage: 1500VAC. Control sig. range: 3-8V/Inp. @ 5VDC: 10mA DC Max.

Stock No.	Type	Line VDC	Max Load (Amps)	Max. On-State Volt. at 0.5 Amps	50 Msec Surge (Amps)	Trans. Supp.	Net
62F856	B3020R5A	10-200	0.5	1.5	3	Yes	16.10



INPUT MODELS

Logic Load For All Input Modules
Supply Voltage: 4.5-18VDC
Supply Current: 7 mA Max. at 15VDC
Breakdown Voltage: 30VDC Min. (Open Collector)
On-State Voltage: 0.4VDC Max. at 20 mA

Stock No.	Module Type	Crydom Model Number	Input Control Voltage Range: Must Release	Input Control Voltage Range: Must Operate	Net Each 1-9
27F3434	dc	S410	0-1 V dc	10-32 V dc	12.30
65F474	dc	S411	0-2 V dc	10-55 V dc	12.60
65F475	dc	S412	0-5 V dc	40-120V dc	12.80
27F344	ac	S420	0-30V ac	90-135V ac	12.45
65F476	ac	S421	0-80V ac	180-270V ac	12.75

OUTPUT MODELS

Logic Control For All Output Modules
Control Range: 4-8VDC.
Control Current: 16mA Max. at 5.5VDC.
Most Operate Voltage: 4VDC Max.
Most Release Voltage: 0.8VDC Min.

Stock No.	Module Type	Crydom Model Number	Maximum Load Voltage	Maximum Load Current	Net Each 1-9
27F345	dc	S430	55V dc	4A dc	21.55
65F477	dc	S432	55V dc	2A dc	17.85
65F478	ac	S440	140V ac	4A RMS	21.85
65F479	ac	S441	280V ac	4A RMS	22.60
65F480	ac	S442	140V ac	2A RMS	16.75
65F481	ac	S443	280V ac	2A RMS	17.40

Solid State Relays and I/O Switches

IOR CRYDOM SOLID-STATE RELAYS

The Crydom Series 6 Input/Output Modules is a family of microprocessor interface switches designed to meet the demands of a rapidly expanding industrial control market. These reliable, high performance I/O modules provide an electrically clean, photo-isolated (4000 VRMS min.), noise-free interface between programmable controllers, microprocessors and computerized machine controls and external elements such as limit switches, thermostats, pressure switches, motor/motor starters, valves and heaters.

Input Modules. The input modules accept power level field control signals and convert them to photo-isolated logic level signals through noise suppression circuitry suitable for input to a microprocessor or logic system.

Output Modules. Crydom Output Modules accept logic level control signals to switch AC or DC loads up to 3.5 Amps at 45° C ambient temperature. The AC modules have integral snubbers for low power factors loads and also provide zero-voltage switching. DC models incorporate transient voltage suppression.

Buffered Output Modules. Buffered Output Modules contain additional internal amplification to reduce drive requirements to a level suitable for the MOS devices used in many microprocessor systems. To further reduce the need for additional interface components, they are available with both inverting and non-inverting inputs, for 5 volt or 15 volt logic.

3

STANDARD INPUT/OUTPUT MODULES (AND EQUIVALENTS)

5 Volt Models Stk. No.	Type	15 Volt Models Stk. No.	Type	Function	Input Current vs. Voltage	Maximum Load Voltage	Maximum Load Current	Net Each
62F793	6101	81F4829	6131	dc/IN	7 mA @ 32V dc	30V dc	25 mA @ 80° C	9.50
62F794	6201	81F4830	6231	ac/IN	6 mA @ 120V ac	30V dc	25 mA @ 80° C	9.50
62F808	6202	81F4831	6232	ac/IN	6 mA @ 240V ac	300V dc	3.5A dc @ 80° C	9.95
62F809	6301			dc/OUT	15 mA @ 5V dc	60V dc	3.5A dc @ 45° C	12.80
62F810	6401			ac/OUT	15 mA @ 5V dc	140V ac	3.5A RMS @ 45° C	11.80
62F811	6402			ac/OUT	15 mA @ 5V dc	280V ac	3.5A RMS @ 45° C	12.80

BUFFERED OUTPUT MODULES

5V Models Stk. No.	Type	15V Models Stk. No.	Type	Function	Input Current vs. Voltage 5 Volt Models	Input Current vs. Voltage 15 Volt Models	Maximum Load Voltage	Maximum Load Current	Net Each
62F812	6311	81F4832	6341	dc/OUT	75 μa @ 0.8V dc*	175 μa @ 2.0V dc*	60V dc	3.5A dc @ 45° C	13.50
62F813	6321	81F4833	6351	dc/OUT	75 μa @ 2.4V dc**	75 μa @ 8.0V dc**	60V dc	3.5A dc @ 45° C	13.60
62F814	6411	81F4834	6441	ac/OUT	75 μa @ 0.8V dc*	175 μa @ 2.0V dc*	140V ac	3.5A RMS @ 45° C	12.50
62F815	6412	81F4835	6442	ac/OUT	75 μa @ 0.8V dc*	175 μa @ 2.0V dc*	280V ac	3.5A RMS @ 45° C	13.60
62F816	6421	81F4836	6451	ac/OUT	75 μa @ 2.4V dc**	75 μa @ 8.0V dc**	140V ac	3.5A RMS @ 45° C	12.50
62F817	6422		6452	ac/OUT	75 μa @ 2.4V dc**	75 μa @ 8.0V dc**	280V ac	3.5A RMS @ 45° C	13.60

*Sink current (non-inverting) **Source current inverting)

AC & DC OUTPUT SOLID STATE RELAYS 3 Amps, 120 and 240 Vac.

The Crydom Series MP is a quality line of SSRs rated 3 amps at 45° C, and feature a compact vertical mount package that occupies only 0.68 square inches of pcb real estate. These SSRs are pin-compatible with the Crydom Series 6 Input/Output Modules and can be plugged into the same sockets. AC models include snubbers for high dv/dt applications and inductive loads, together with zero-voltage switching to reduce high inrush currents and electrical noise. The inherent zero-current turn-off characteristic of triacs and the total absence of arcing contacts, substantially reduces electromagnetic interference and back EMF transients. The built-in photo-coupler provides a high 4000 VRMS of isolation to comply with world-wide electrical specifications. In addition to standard TTL control-type inputs, this series will operate with control signals up to 18V dc. The dc output model includes a built-in zener diode for transient protection.

Standard Size: 0.70"W x 0.40"D x 1.00"H. Overall Ht. 1.25"

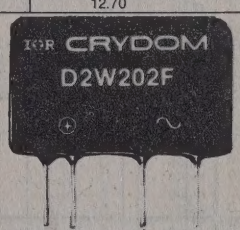
General Specifications: Must Operate Voltage: 3.5V dc. Must Release Voltage: 1.0V dc. Input Impedance: 1000 Ohms. Isolation Voltage: 4000V ac. Temperature Range: −40 to +80° C.

Stock No.	Crydom Model No.	Control Voltage Range	Output Ratings	Surge 1 Cycle	Net Each	
62F853	MP240D3	3.5-18V dc	3A @ 240V ac	80A pk	12.70	
62F839	MP120D3	3.5-18V dc	3A @ 120V ac	80A pk	11.70	*Sec.
62F833	MP-DCD3	3.5-18V dc	3A @ 60V dc	*5A dc	12.70	

The D2W202F achieves high performance at a low cost by utilizing the benefits of automatic assembly. A skin tight epoxy coating provides excellent environmental protection while maintaining very high heat transfer. The unit is pin compatible with the indutry standard (Series 6) AC input/output module in-line pattern. It can be soldered directly into printed circuit boards or socket mounted.

A single model operates with line voltages from 60 to 280 VAC. Control signal voltage is 3 to 28 VDC. Must operate voltage is 3.0 VDC max. Must release voltage is 1.0 VDC min. Input impedance is 1.4 K ohms min. Isolation voltage is 2500 VAC. Internal snubber is provided.

Off state DV/DT is 200 volts per micro-second minimum. Operating temperature range from −20 degrees to +80 degrees cen. Dimensions are 1.70" x 1.10" x .47".



SPECIFICATION OVER THE RANGE OF −20° C to +80° *UNLESS OTHERWISE STATED

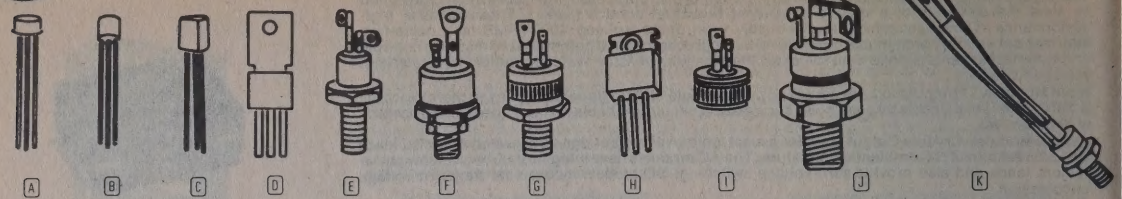
Description	Min.	Max.	Unit
Input			
Input on Voltage (Pickup)	3.0	28.0	VDC
Input off Voltage (Dropout)	0.0	1.0	VDC
Input Current @ 5V		3.2	mA
Input Resistance (In series w/coupler LED)	1425	1575	Ohms
Output			
Load Current (IT)	0.06	2(1)	A(RMS)
Load Voltage D2W102F(VD)	60	140	V(RMS)
Load Voltage D2W202F	60	280	V(RMS)
Frequency Range of Operation	47	63	Hz
Surge Current (One Cycle) Non-Repetitive (6)		20	A(RMS)
Transient Over Voltage: (VDSM) D2W102F	400		V(PK)
D2W202F	600		V(PK)

Description	Min.	Max.	Unit
On-State Voltage @ Maximum Curr. (VTM)		1.4	V(PK)
Off-State Leakage: D2W102F (ID)		4	mA(RMS)
D2W202F		8	mA(RMS)
Off-State dv/dt	200(2)		V/μ Sec
I²T for Fusing (1.0 L TL 10M Sec.)		3.6	A² Sec.
Power Dissipation (PD)		2.2	Watts
Turn on Time (Next Zero Voltage)		½+1M Sec.	Cycle
Turn Off Time (Next Zero Voltage)		½+1M Sec.	Cycle
Power Factor (Load) (Pf Min.)0.5	—	—	
Peak Repetitive on State Voltage (Vts)		30	Vpk
Zero Voltage Turn on (VZC)		100	Vpk
Rth (Junction to Ambient)		32(3)	°C/W
Commutating DV/DT VDRM = 400V TA = 30°C DI/DT = 4A/μ Sec.	10		V/μ Sec.
General			
Dielectric Strength Input/Output (VISO)	2500(4)		VRMS
Insulation Resistance @ 500 VDC			
Capacitance Input Output (C150)		10	OHMS Pf
Temperature Range:			
Operating	−20	+80	°C
Storage	−25	+85	°C

NOTES:
(1) See Derating Curve Figure 2. (2) Narm Test (50Ω Series Impedance). (3) Single Unit — Still Air. (4) Also 3000 VAC for 5 Sec. (5) For mechanical & marking specifications see Figure 1. (6) For non repetitive surge ratings see Figure 3.

Stock No.	Type	Line Vac (47-63HZ)	Max. Load Current AMPS RMS	1 Cycle Surge AMPS Peak	1 Sec Surge AMPS RMS	1-9	10-24	25-99	100-249	250-Up
81F4904	D2W202F	60-280	2.0	28	7	7.94	7.25	6.75	6.30	6.00

General Electric SCR's For Phase Control



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"Phase Control" is a term used to describe silicon controlled rectifiers having slow turn-off time. Primary application for a device with relatively slow turn-off time is AC phase control—hence the name "phase control"

This type of device is also used for zero voltage switching and selected pulse application.

15 VOLTS TO 500 VOLTS

rms Amps	Fig.	15	25	30	50	GE Type For Repetitive Peak Forward and Blocking Voltage of (Volts) 100	150	200	250	300	400	500	600
0.5	B	.....	.....	2N877	2N878**	2N879	2N880	2N881	.....	.....	.....	.....	.....
0.8	C	C103Q	.....	C103Y	C103YY**	C103	.....	C103B	.....	.....	.....	.....	.....
0.8	C	C203Q	.....	C203Y	C203YY**	C203	.....	C203B	.....	C203C	C203D	.....	.....
0.8	C	.....	.....	2N5060	2N5061	2N5062	2N5063	2N5064	.....	.....	.....	.....	.....
1.2	C	.....	.....	C205Y	.....	C205A	.....	C205B	.....	C205C	C205D	.....	.....
1.6	A	.....	2N2344	.....	2N2345	2N2346	2N2347	2N2348	.....	.....	.....	.....	.....
1.6	A	.....	2N2322	.....	2N2323	2N2324	2N2325	2N2326	2N2327	2N2328	2N2329	.....	.....
1.6	A	.....	.....	.....	2N1595	2N1596	.....	2N1597	.....	2N1598	2N1599	.....	.....
4.0	D	C106Q	.....	C106Y	C106F	C106A	.....	C106B	.....	C106C	C106D	C106E	C106M
4.0	D	C107Q	.....	C107Y	C107F	C107A	.....	C107B	.....	C107C	C107D	C107E	C107M
5.0	D	C108Q	.....	C108Y	C108F	C108A	.....	C108B	.....	C108C	C108D	C108E	C108M
7.4	E	.....	2N1770A	.....	2N1771A*	2N1772A*	2N1773A*	2N1774A*	2N1775A*	2N1776A*	2N1777A*	.....	.....
7.4	E	.....	2N1770	.....	2N1771	2N1772	2N1773	2N1774	2N1775	2N1776	2N1777	2N1778	2N2619
7.4	F	.....	.....	.....	C220F	C220A	.....	C220B	.....	C220C	C220D	C220E	C220M
7.4	H	.....	.....	.....	C222F	C222A	.....	C222B	.....	C222C	C222D	C222E	C222M
8.0	E	.....	C15U	.....	C15F	C15A	C15G	C15B	.....	C15C	C15D	C15E	C15M
8.0	D	.....	.....	.....	C118F	C118A	.....	C118B	.....	C118C	C118D	C118E	C118M
8.0	I	.....	.....	.....	C122F	C122A	.....	C122B	.....	C122C	C122D	C122E	C122M
12.0	H	.....	.....	.....	C126F	C126A	.....	C126B	.....	C126C	C126D	C126E	C126M
12.0	N	.....	.....	.....	2N6394	2N6395	.....	2N6396	.....	.....	2N6397	.....	2N6398
16.0	E	.....	2N1842	.....	2N1843	2N1844	2N1845	2N1846	2N1848	2N1849	2N2849	2N1850	.....
16.0	¶	.....	.....	.....	.....	.....	.....	.....	.....	C127C	.....	C127E	.....
16.0	I	.....	.....	.....	2N6400	2N6401	.....	2N6402	.....	.....	2N6403	.....	2N6404
20.0	H	.....	.....	.....	2N5164	.....	.....	2N5165	.....	.....	2N5166	.....	2N5167
20.0	G	.....	.....	.....	2N5168	.....	.....	2N5169	.....	.....	2N5170	.....	2N5171
25.0	G	.....	.....	.....	C230F	C230A	.....	C230B	.....	C230C	C230D	C230E	C230M
25.0	G	.....	.....	.....	C231F	C231A	.....	C231B	.....	C231C	C231D	C231E	C231M
25.0	H	.....	.....	.....	C232F	C232A	.....	C232B	.....	C232C	C232D	C232E	C232M
25.0	H	.....	.....	.....	C233F	C233A	.....	C233B	.....	C233C	C233D	C233E	C233M
25.0	E	.....	C37U	.....	C37F	C237A	.....	C237B	.....	C237C	C237D	C237E	C237M
25.0	E	.....	2N681	.....	2N682*	2N683*	.....	2N685*	2N686*	2N687	2N688*	2N689*	2N690
35.0	E	.....	C35U	.....	C35F	C35A	C35G	C35B	C35H	C35C	C35D	C35E	C35M
35.0	E	.....	C38U	.....	C38F	C38A	C38G	C38B	C38H	C38C	C38D	C38E	.....
35.0	E	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C137E	C137M
35.0	G	.....	.....	.....	C228F	C228A	.....	C228B	.....	C228C	C228D	C228E	C228M
35.0	H	.....	.....	.....	C229F	C229A	.....	C229B	.....	C229C	C229D	C229E	C229M
35.0	H	.....	.....	.....	.....	2N3870	.....	2N3871	.....	.....	2N3872	.....	2N3873
35.0	G	.....	.....	.....	.....	2N3896	.....	2N3897	.....	.....	2N3898	.....	2N3899
63.0	F	.....	.....	.....	.....	C147A	.....	C147B	.....	C147C	C147D	C147E	C147M
80.0	J	.....	.....	.....	.....	.....	.....	C45B	C45H	C45C	C45D	C45E	C45M
80.0	K	.....	.....	.....	.....	.....	.....	C46B	C46H	C46C	C46D	C46E	C49M
110.0	K	.....	2N1909	.....	2N1910	2N1911	2N1912	2N1913	2N1914	2N1915	2N1916	C50E	C50M
110.0	J	.....	.....	.....	2N1792	2N1793	2N1794	2N1795	2N1796	2N1797	2N1798	C52E	C52M
110.0	K	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C150E	C150M
110.0	J	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C152E	C152M
110.0	K	.....	2N2023	.....	2N2024	2N2025	2N2026	2N2027	2N2028	2N2029	2N2030	C60E	.....
110.0	J	.....	C62U	.....	C62F	C62A	C62G	C62B	C62H	C62C	C62D	C62E	.....

* Denotes JAN and JANTX devices. ** 60 volts. Fig. D, E, F, or G.

600 VOLTS TO 1300 VOLTS

rms Current Amps	Fig.	700	GE Type For Repetitive Peak Forward and Blocking Voltage of (Volts) 800	900	1000	1100	1200	1300
25.0	E	C37S	.....	.....	.....	.....	.....	.....
25.0	E	2N491	2N632	.....	.....	.....	.....	.....
35.0	E	C35S	.....	.....	.....	.....	.....	.....
35.0	E	C137S	C137N	C137T	C137P	.....	C137PB	.....
35.0	E	.....	2N5205	.....	2N5206	.....	2N5207	.....
80.0	J	C45S	C45N	C45T	C45P	C45PA	C45PB	.....
80.0	K	C46S	C46N	C46T	C46P	C46PA	C46PB	.....
63.0	F	C147S	C147N	C147T	C147P	C147PA	C147PB	.....
110.0	K	C50S	C50N	C50T	C50P	C50PA	C50PB	.....
110.0	J	C52S	C52N	C52T	C52P	C52PA	C52PB	.....
110.0	K	C150S	C150N	C150T	C150P	C150PA	C150PB	C150PC
110.0	J	C152S	C152N	C152T	C152P	C152PA	C152PB	C152PC

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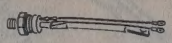
General Electric SCR's For Phase Control

HIGH CURRENT SCR's FOR PHASE CONTROL

A

B



C

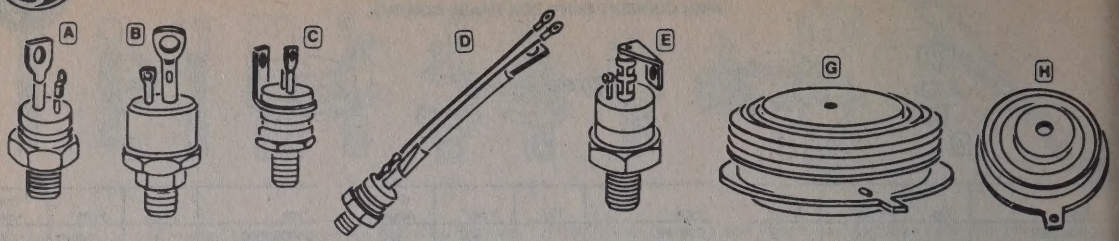
D

E

Type	Fig.	Volts*	rms Amps
C50AX500	C	100	110
C50BX500	C	200	110
C50CX500	C	300	110
C50DX500	C	400	110
C50EX500	C	500	110
C50MX500	C	600	110
C52AX500	A	100	110
C52BX500	A	200	110
C52CX500	A	300	110
C52DX500	A	400	110
C52EX500	A	500	110
C52MX500	A	600	110
C350A	E	100	190
C350B	E	200	190
C350C	E	300	190
C350D	E	400	190
C350E	E	500	190
C350M	E	600	190
C350S	E	700	190
C350N	E	800	190
C350T	E	900	190
C350P	E	1000	190
C350PA	E	1100	190
C350PB	E	1200	190
C350PC	E	1300	190
C180A	C	100	235
C180B	C	200	235
C180C	C	300	235
C180D	C	400	235
C180E	C	500	235
C180M	C	600	235
C180S	C	700	235
C180N	C	800	235
C180P	C	1000	235
C180PA	C	1100	235
C180PB	C	1200	235
C180PC	C	1300	235
C180AX500	C	100	300
C180BX500	C	200	300
C180CX500	C	300	300
C180DC500	C	400	300
C180EX500	C	500	300
C180MX500	C	600	300
C380A	E	100	380
C380B	E	200	380
C380C	E	300	380
C380D	E	400	380
C380E	E	500	380
C380M	E	600	380
C380S	E	700	380
C380N	E	800	380
C380T	E	900	380
C380P	E	1000	380
C380PA	E	1100	380
C380PB	E	1200	380
C380PC	E	1300	380
C380EX555	E	500	450
C380MX555	E	600	450
C380SX555	E	700	450
C380NX555	E	800	450
C380TX555	E	900	450
C380PX555	E	1000	450
C380PAX555	E	1100	450
C380PBX555	E	1200	450
C380AX500	E	100	500
C380BX500	E	200	500
C380CX500	E	300	500
C380DX500	E	400	500
C380EX500	E	500	500
C380MX500	E	600	500
C390E	D	500	850
C390M	D	600	850
C390S	D	700	850
C390N	D	800	850
C390T	D	900	850
C390P	D	1000	850
C390PA	D	1100	850
C390PB	D	1200	850
C390PC	D	1300	850
C391PC	D	1300	850
C391PD	D	1400	850
C391PE	D	1500	850
C391PM	D	1600	850
C391PS	D	1700	850
C391PN	D	1800	850
C501PC	D	1300	850
C501PD	D	1400	850
C501PE	D	1500	850
C501PM	D	1600	850
C501PS	D	1700	850
C502PT	D	1900	850
C502L	D	2000	850
C502LA	D	2100	850
C390EX555	D	500	850
C390MX555	D	600	850
C390SX555	D	700	850
C390NX555	D	800	850
C390TX555	D	900	850
C390PX555	D	1000	850
C390PAX555	D	1100	850
C390PBX555	D	1200	850
C431E	E	500	850
C431M	E	600	850
C431S	E	700	850
C431N	E	800	850
C431T	E	900	850
C431P	E	1000	850
C431PA	E	1100	850
C431PB	E	1200	850
C431PC	E	1300	850
C431PD	E	1400	850
C431PE	E	1500	850
C431PM	E	1600	850
C431PS	E	1700	850
C431PN	E	1800	850
C390AX500	D	100	925
C390BX500	D	200	925
C390CX500	D	300	925
C390DX500	D	400	925
C390EX500	D	500	925
C390MX500	D	600	925
C602PS	D	1700	940
C602PN	D	1800	940
C602PT	D	1900	940
C602L	D	2000	940
C602LA	D	2100	940
C602LB	D	2200	940
C602LC	D	2300	940
C602LD	D	2400	940
C602LE	D	2500	940
C602LM	D	2600	940
C390AX550	D	100	980
C390BX550	D	200	980
C390CX550	D	300	980
C390DX550	D	400	980
C430E	E	500	1000
C430M	E	600	1000
C430S	E	700	1000
C430N	E	800	1000
C430T	E	900	1000
C430P	E	1000	1000
C430PA	E	1100	1000
C430PB	E	1200	1000
C430EX555	E	500	1000
C430MX555	E	600	1000
C430SX555	E	700	1000
C430NX555	E	800	1000
C430TX555	E	900	1000
C430PX555	E	1000	1000
C430PAX555	E	1100	1000
C430PBX555	E	1200	1000
6441PB	D	1200	1100
6441PC	D	1300	1100
6441PD	D	1400	1100
6441PE	D	1500	1100
6441PM	D	1600	1100
6441PS	D	1700	1100
6441PN	D	1800	1100
C430AX500	E	100	1200
C430BX500	E	200	1200
C430CX500	E	300	1200
C430DX500	E	400	1200
C430EX500	E	500	1200
C430MX500	E	600	1200
C430AX550	E	100	1250
C430BX550	E	200	1250
C430CX550	E	300	1250
C430DX550	E	400	1250
C440E	D	500	1400
C440M	D	600	1400
C440S	D	700	1400
C440N	D	800	1400
C440T	D	900	1400
C440P	D	1000	1400
C440PA	D	1100	1400
C440PB	D	1200	1400
C440PC	D	1300	1400
C451E2	D	500	1750
C451M2	D	600	1750
C451S2	D	700	1750
C451N2	D	800	1750
C451T2	D	900	1750
C451P2	D	1000	1750
C451PA2	D	1100	1750
C451PB2	D	1200	1750
C451PC2	D	1300	1750
C451PD2	D	1400	1750
C451PE2	D	1500	1750
C451PM2	D	1600	1750
C451PS2	D	1700	1750
C451PN2	D	1800	1750
C702L	D	2000	1950
C702LA	D	2100	1950
C702LB	D	2200	1950
C702LC	D	2300	1950
C702LD	D	2400	1950
C450E2	D	500	2000
C450M2	D	600	2000
C450S2	D	700	2000
C450N2	D	800	2000
C450T2	D	900	2000
C450P2	D	1000	2000
C450PA2	D	1100	2000
C450PB2	D	1200	2000
C450PC2	D	1300	2000
C451E1	D	500	2000
C451M1	D	600	2000
C451S1	D	700	2000
C451N1	D	800	2000
C451T1	D	900	2000
C451P1	D	1000	2000
C451PA1	D	1100	2000
C451PB1	D	1200	2000
C451PC1	D	1300	2000
C451PD1	D	1400	2000
C451PE1	D	1500	2000
C451PM1	D	1600	2000
C451PS1	D	1700	2000
C451PN1	D	1800	2000
C450E1	D	500	2400
C450M1	D	600	2400
C450S1	D	700	2400
C450N1	D	800	2400
C450T1	D	900	2400
C450P1	D	1000	2400
C450PA1	D	1100	2400
C450PB1	D	1200	2400
C450PC1	D	1300	2400
C782L	...	2000	3000
C782LA	...	2100	3000
C782LB	...	2200	3000
C782LC	...	2300	3000
C782LD	...	2400	3000
C782LE	—	2500	3000
C782LM	—	2600	3000
C783CA	—	3100	3000
C783CB	—	3200	3000
C783CC	—	3300	3000
C783CD	—	3400	3000
C783CE	—	3500	3000
C783CM	—	3600	3000
C783CS	—	3700	3000
C783CN	—	3800	3000

*Repetitive peak forward and reverse voltage.

General Electric SCR's For Inverter Control



3

SCR's in this use category are characterized for turn-off time (commutation speed) capability and other speed characteristics. When designing for speed, the parameter trade offs must be carefully weighed. Thus the large matrix of speed, current and voltage capability for inverter SCR's. As the name implies, major applications for these devices are DC/AC inverters. Additionally, they are used in cycloconverters and other pulse applications requiring high speed capability.

Type	Case	Volts*	rms Amps
C234F	C	50	25
C234A	C	100	25
C234B	C	200	25
C234C	C	300	25
C234D	C	400	25
C234E	C	500	25
C234M	C	600	25
C138**	A	500	35
C138M**	A	600	35
C138S**	A	700	35
C138N**	A	800	35
C139**	A	500	35
C139M**	A	600	35
C139S**	A	700	35
C139N**	A	800	35
C141C†	A	300	35
C141D†	A	400	35
C144E**	A	500	35
C144**	A	600	35
C144S**	A	700	35
C144N**	A	800	35
C148M30	B	600	63
C148S30	B	700	63
C148N30	B	800	63
C148T30	B	900	63
C148P30	B	1000	63
C148PA30	B	1100	63
C148PB30	B	1200	63
C148M40	B	600	63
C148S40	B	700	63
C148N40	B	800	63
C148T40	B	900	63
C148P40	B	1000	63
C148PA40	B	1100	63
C148PB40	B	1200	63
C149A10	B	100	63
C149B10	B	200	63
C149C10	B	300	63
C149D10	B	400	63
C149E10	B	500	63
C149M10	B	600	63
C149A20	B	100	63
C149B20	B	200	63
C149C20	B	300	63
C149D20	B	400	63
C149E20	B	500	63
C149M20	B	600	63
C164A2	D	100	110
C164B2	D	200	110
C164C2	D	300	110
C164D2	D	400	110
C164E2	D	500	110
C164M2	D	600	110
C165A2	D	100	110
C165B2	D	200	110
C165C2	D	300	110
C165D2	D	400	110
C165E2	D	500	110
C165M2	D	600	110
C165S2	D	700	110
C165N2	D	800	110
C154A	E	100	110
C154B	E	200	110
C154C	E	300	110
C154D	E	400	110
C154E	E	500	110
C156A	D	100	110
C156B	D	200	110
C156C	D	300	110
C156D	D	400	110
C156E	D	500	110
C154M	E	600	110

Type	Case	Volts*	rms Amps
C155A	E	100	110
C155B	E	200	110
C155C	E	300	110
C155D	E	400	110
C155E	E	500	110
C155M	E	600	110
C157A	D	100	110
C157B	D	200	110
C157C	D	300	110
C157D	D	400	110
C157E	D	500	110
C157M	D	600	110
C158E	E	500	110
C158M	E	600	110
C158S	E	700	110
C158N	E	800	110
C158T	E	900	110
C158P	E	1000	110
C158PA	E	1100	110
C158PB	E	1200	110
C159E	D	500	110
C159M	D	600	110
C159S	D	700	110
C159N	D	800	110
C159T	D	900	110
C159P	D	1000	110
C159PA	D	1100	110
C159PB	D	1200	110
C164A	E	100	110
C164B	E	200	110
C164C	E	300	110
C164D	E	400	110
C164E	E	500	110
C164M	E	600	110
C165A	D	100	110
C165B	D	200	110
C165C	D	300	110
C165D	D	400	110
C165E	D	500	110
C165M	D	600	110
C165S	D	700	110
C165N	D	800	110
C358E	H	500	225
C358M	H	600	225
C358S	H	700	225
C358N	H	800	225
C358T	H	900	225
C358P	H	1000	225
C358PA	H	1100	225
C358PB	H	1200	225
C354A	H	100	275
C354B	H	200	275
C354C	H	300	275
C354D	H	400	275
C354E	H	500	275
C354M	H	600	275
C355A	H	100	275
C355B	H	200	275
C355C	H	300	275
C355D	H	400	275
C355E	H	500	275
C355M	H	600	275
C364A	H	100	275
C364B	H	200	275
C364C	H	300	275
C364D	H	400	275
C364E	H	500	275
C364M	H	600	275
C365A	H	100	275
C365B	H	200	275
C365C	H	300	275

Type	Case	Volts*	rms Amps
C365D	H	400	275
C365E	H	500	275
C365M	H	600	275
C365S	H	700	275
C365N	H	800	275
C185A	D	100	300
C185B	D	200	300
C185C	D	300	300
C185D	D	400	300
C185E	D	500	300
C185M	D	600	300
C385A	H	100	400
C385B	H	200	400
C385C	H	300	400
C385D	H	400	400
C385E	H	500	400
C385M	H	600	400
C385S	H	700	400
C385N	H	800	400
C184A	F	100	300
C184B	D	200	300
C184C	D	300	300
C184D	D	400	300
C184E	D	500	300
C184M	D	600	300
C185S	D	700	300
C185N	D	800	300
C384A	H	100	400
C384B	H	200	400
C384C	H	300	400
C384D	H	400	400
C384E	H	500	400
C384M	H	600	400
C387E	G	500	500
C387M	G	600	500
C387S	G	700	500
C387N	G	800	500
C387T	G	900	500
C387P	G	1000	500
C387PA	G	1100	500
C387PB	G	1200	500
C388E	G	500	500
C388M	G	600	500
C388S	G	700	500
C388N	G	800	500
C388T	G	900	500
C388P	G	1000	500
C388PA	G	1100	500
C388PB	G	1200	500
C376E	G	500	600
C376M	G	600	600
C376S	G	700	600
C376N	G	800	600
C376T	G	900	600
C376P	G	1000	600
C376PA	G	1100	600
C376PB	G	1200	600
C376PC	G	1300	600
C376PD	G	1400	600
C434A	H	100	625
C434B	H	200	625
C434C	H	300	625
C434D	H	400	625
C434E	H	500	625
C434M	H	600	625
C434S	H	700	625
C378E	G	500	650
C378M	G	600	650
C378S	G	700	650

Type	Case	Volts*	rms Amps
C378N	G	800	650
C378T	G	900	650
C378P	G	1000	650
C378PA	G	1100	650
C378PB	G	1200	650
C378PC	G	1300	650
C378PD	G	1400	650
C436E	H	500	650
C436M	H	600	650
C436S	H	700	650
C436N	H	800	650
C436T	H	900	650
C436P	H	1000	650
C436PA	H	1100	650
C436PB	H	1200	650
C437E	H	500	650
C437M	H	600	650
C437S	H	700	650
C437T	H	900	650
C437P	H	1000	650
C437PA	H	1100	650
C437PB	H	1200	650
C438E	H	500	650
C438M	H	600	650
C438S	H	700	650
C438N	H	800	650
C438T	H	900	650
C438P	H	1000	650
C438PA	H	1100	650
C438PB	H	1200	650
C377E	G	500	700
C377M	G	600	700
C377S	G	700	700
C377N	G	800	700
C377T	G	900	700
C377P	G	1000	700
C377PA	G	1100	700
C377PB	G	1200	700
C377PC	G	1300	700
C377PD	G	1400	700
C435A	H	100	700
C435B	H	200	700
C435C	H	300	700
C435D	H	400	700
C435E	H	500	700
C435M	H	600	700
C435S	H	700	700
C397E	G	500	650
C397M	G	600	650
C397S	G	700	650
C397N	G	800	650
C397T	G	900	650
C397P	G	1000	650
C397PA	G	1100	650
C397PB	G	1200	650
C398E	G	500	650
C398M	G	600	650
C392A	G	100	500
C392B	G	200	500
C392C	G	300	500
C392D	G	400	500
C392E	G	500	500
C392M	G	600	500
C393A	G	100	500
C393B	G	200	500
C393C	G	300	500
C393D	G	400	500
C393E	G	500	500
C393M	G	600	500

*Repetitive peak forward and reverse voltage.
**Specify suffix 10M or 20M to indicate cutoff time (μ seconds).
†Also available as 2N3649 to 2N3658.

General Electric SCR's for Inverter Control

Type	Case	Volts*	rms Amps
C398S	G	700	700
C398N	G	800	700
C398T	G	900	700
C398P	G	1000	700
C398PA	G	1100	700
C398PB	G	1200	700
C394A	G	100	700
C394B	G	200	700
C394C	G	300	700
C394D	G	400	700
C394E	G	500	700
C394M	G	600	700
C395A	G	100	700
C395B	G	200	700
C395C	G	300	700
C395D	G	400	700
C395E	G	500	700
C395M	G	600	700
C612PE	G	1500	700
C612PM	G	1600	700
C612PS	G	1700	700
C612PN	G	1800	700
C613PE	G	1500	800

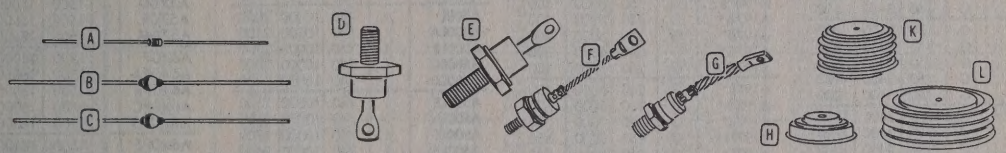
Type	Case	Volts*	rms. Amps
C613PM	G	1600	800
C613PS	G	1700	800
C613PN	G	1800	800
C613PT	G	1900	800
C613L	G	2000	800
C447S	G	700	1000
C447N	G	800	1000
C447T	G	900	1000
C447P	G	1000	1000
C447PA	G	1100	1000
C447PB	G	1200	1000
C448S	G	700	1000
C448N	G	800	1000
C448T	G	900	1000
C448P	G	1000	1000
C448PA	G	1100	1000
C448PB	G	1200	1000
C648E	G	500	1150
C648M	G	600	1150
C648S	G	700	1150
C648N	G	800	1150
C648T	G	900	1150
C648P	G	1000	1150

Type	Case	Volts*	rms Amps
C648PA	G	1100	1150
C648PB	G	1200	1150
C444A	G	100	1200
C444B	G	200	1200
C444C	G	300	1200
C444D	G	400	1200
C444E	G	500	1200
C444M	G	600	1200
C445A	G	100	1200
C445B	G	200	1200
C445C	G	300	1200
C445D	G	400	1200
C445E	G	500	1200
C445M	G	600	1200
C712PE	G	1500	1500
C712PM	G	1600	1500
C712PS	G	1700	1500
C712PN	G	1800	1500
C712PT	G	1900	1500
C712L	G	2000	1500
C712PE	G	1500	1500
C712PM	G	1600	1500
C712PS	G	1700	1500

Type	Case	Volts*	rms Amps
C712PN	G	1800	1500
C712PT	G	1900	1500
C712L	G	2000	1500
C458E	G	500	1750
C458M	G	600	1750
C458S	G	700	1750
C458N	G	800	1750
C458T	G	900	1750
C458P	G	1000	1750
C458PA	G	1100	1750
C458PB	G	1200	1750
C458PC	G	1300	1750
C458PD	G	1400	1750
C457E	G	500	2000
C457M	G	600	2000
C457S	G	700	2000
C457N	G	800	2000
C457T	G	900	2000
C457P	G	1000	2000
C457PA	G	1100	2000
C457PB	G	1200	2000
C457PC	G	1300	2000
C457PD	G	1400	2000

(*)Repetitive peak forward and reverse voltage

General Electric Diodes and Rectifiers



Type	Fig.	I_F Amps	I_{Fm} Amps	Volts
DT230F	A	.25	5	50
DT230G	A	.25	5	150
DT230A	A	.25	5	100
DT230B	A	.25	5	200
DT230H	A	.25	5	250
DT230H1	A	.25	5	250
A14F	B	1	50	50
A14A	B	1	50	100
1N5059	B	1	50	200
A14C	B	1	50	300
1N5060	B	1	50	400
A14E	B	1	50	500
1N5061	B	1	50	600
1N5062	B	1	50	800
A14P	B	1	50	1000
1N4245	B	1	25	200
1N4246	B	1	25	400
1N4247	B	1	25	600
1N4248	B	1	25	800
1N4249	B	1	25	1000
A114F	B	1	40	50
A114A	B	1	40	100
A114B	B	1	40	200
A114C	B	1	40	300
A114D	B	1	40	400
A114E	B	1	40	500
A114M	B	1	40	600
A15F	C	3	125	50
A15A	C	3	125	100
1N5624	C	3	125	200
1N5625	C	3	125	400
1N5626	C	3	125	600
1N5627	C	3	125	800
A115F*	C	3	110	50
A115A*	C	3	110	100
A115B*	C	3	110	200
A115C*	C	3	110	300
A115D*	C	3	110	400
A115E*	C	3	110	500
A115M*	C	3	110	600
1N1612	D	5	150	50

(*) Fast recovery types.

Type	Fig.	I_F Amps	I_{Fm} Amps	Volts
1N1613	D	5	150	100
1N1614	D	5	150	200
1N1615	D	5	150	400
1N1616	D	5	150	600
1N1341A	D	6	150	50
1N1342A	D	6	150	100
1N1343A	D	6	150	150
1N1344A	D	6	150	200
1N1345A	D	6	150	300
1N1346A	D	6	150	400
1N1347A	D	6	150	500
1N1348A	D	6	150	600
1N3988	D	6	150	800
1N3990	D	6	150	1000
1N3879*	D	6	75	50
1N3880*	D	6	75	100
1N3881*	D	6	75	200
1N3882*	D	6	75	300
1N3883*	D	6	75	400
1N248	E	10	350	50
1N249	E	10	350	100
1N250	E	10	350	200
1N1199A	D	12	240	50
1N1200A	D	12	240	100
1N1201A	D	12	240	150
1N1202A	D	12	240	200
1N1203A	D	12	240	300
1N1204A	D	12	240	400
1N1205A	D	12	240	500
1N1206A	D	12	240	600
1N3670A	D	12	240	700
1N3671A	D	12	240	800
1N3672A	D	12	240	900
1N3673A	D	12	240	1000
1N5331	D	12	240	1200
1N3889	D	12	150	50
1N3890	D	12	150	100
1N3891	D	12	150	200
1N3892	D	12	150	300

Type	Fig.	I_F Amps	I_{Fm} Amps	Volts
1N3893	D	12	150	400
1N4510	D	12	240	1000
1N4511	D	12	240	1200
A28F*	D	12	240	50
A28A*	D	12	240	100
A28B*	D	12	240	200
A28C*	D	12	240	300
A28D*	D	12	240	400
1N248A	E	20	350	50
1N249A	E	20	350	100
1N250A	E	20	350	200
1N248B	E	20	350	50
1N249B	E	20	350	100
1N250B	E	20	350	200
1N248C	E	20	350	50
1N249C	E	20	350	100
1N250C	E	20	350	200
1N1195A	E	20	350	300
1N1196A	E	20	350	400
1N1197A	E	20	350	500
1N1198A	E	20	350	600
1N3899*	E	20	225	50
1N3900*	E	20	225	100
1N3901*	E	20	225	200
1N3902*	E	20	225	300
1N3903*	E	20	225	400
A139E*	E	25	400	500
A139M*	E	25	400	600
A139N*	E	25	400	800
A139P*	E	25	400	1000
1N2154	E	25	400	50
1N2155	E	25	400	100
1N2156	E	25	400	200
1N2157	E	25	400	300
1N2158	E	25	400	400
1N2159	E	25	400	500
1N2160	E	25	400	600
1N3909*	E	30	300	50
1N3910*	E	30	300	100
1N3911*	E	30	300	200

Type	Fig.	I_F Amps	I_{Fm} Amps	Volts
1N3912*	E	30	300	300
1N3913*	E	30	300	400
1N1183	E	35	500	50
1N1184	E	35	500	100
1N1185	E	35	500	150
1N1186	E	35	500	200
1N1187	E	35	500	300
1N1188	E	35	500	400
1N1189	E	35	500	500
1N1190	E	35	500	600
1N3765	E	35	500	700
1N3766	E	35	500	800
1N3767	E	35	500	900
1N3768	E	35	500	1000
1N5332	E	35	500	1200
1N4529	E	35	500	1000
1N4530	E	35	500	1200
1N3289	F	100	1600	200
1N3290	F	100	1600	300
1N3291	F	100	1600	400
1N3292	F	100	1600	500
1N3293	F	100	1600	600
A70S	F	100	1600	700
1N3294	F	100	1600	800
A70T	F	100	1600	900
1N3295	F	100	1600	1000
A70PA	F	100	1600	1100
1N3296	F	100	1600	1200
1N3288A	F	100	2500	100
1N3289A	F	100	2500	200
1N3290A	F	100	2500	300
1N3291A	F	100	2500	400
1N3292B	F	100	2500	500
1N3293A	F	100	2500	600
1N3294A	F	100	2500	800
1N3295A	F	100	2500	1000
1N3296A	F	100	2500	1200
A177A*	F	100	2500	100
A177B*	F	100	2500	200
A177C*	F	100	2500	300

PRICES SUBJECT TO CHANGE. CONTINUED ON NEXT PAGE

General Electric Diodes and Rectifiers

(CONTINUED)

3

Type	Fig	IF Amps	IFM Amps	Volts
A177D*	F	100	2500	400
A177E*	F	100	2500	500
A177M*	F	100	2500	600
A177S*	F	100	2500	700
A177N*	F	100	2500	800
A177T*	F	100	2500	900
A177P*	F	100	2500	1000
A177PA*	F	100	2500	1100
A177PB*	F	100	2500	1200
A177PC*	F	100	2500	1300
A177PD*	F	100	2500	1400
A177PE*	F	100	2500	1500
A170A	F	100	2500	100
A170B	F	100	2500	200
A170C	F	100	2500	300
A170D	F	100	2500	400
A170E	F	100	2500	500
A170M	F	100	2500	600
A170S	F	100	2500	700
A170N	F	100	2500	800
A170T	F	100	2500	900
A170P	F	100	2500	1000
A170PA	F	100	2500	1100
A170PB	F	100	2500	1200
A170PC	F	100	2500	1300
A170PD	F	100	2500	1400
A170PE	F	100	2500	1500
A180A	G	150	3400	100
A180B	G	150	3400	200
A180C	G	150	3400	300
A180D	G	150	3400	400
A180E	G	150	3400	500
A180M	G	150	3400	600
A180S	G	150	3400	700
A180N	G	150	3400	800
A180T	G	150	3400	900
A180P	G	150	3400	1000
A180PA	G	150	3400	1100
A180PB	G	150	3400	1200
A180PC	G	150	3400	1300
A180PD	G	150	3400	1400
A180PE	G	150	3400	1500
A187A*	G	150	2800	100
A187B*	G	150	2800	200
A187C*	G	150	2800	300
A187D*	G	150	2800	400
A187E*	G	150	2800	500
A187M*	G	150	2800	600
A187S*	G	150	2800	700
A187N*	G	150	2800	800
A187T*	G	150	2800	900
A187P*	G	150	2800	1000
A187PA*	G	150	2800	1100
A187PB*	G	150	2800	1200
A187PC*	G	150	2800	1300
A187PD*	G	150	2800	1400
A187PE*	G	150	2800	1500
1N3266	G	160	2000	350
1N3267	G	160	2000	400
1N3268	G	160	2000	500
1N3269	G	160	2000	600
1N3270	G	160	2000	700
1N3271	G	160	2000	800
1N3272	G	160	2000	900
1N3273	G	160	2000	1000
A190A	G	250	6500	100
1N3735	G	250	4500	100
A190B	G	250	6500	200
1N3736	G	250	4500	200
A190C	G	250	6500	300
1N3737	G	250	4500	300
A190D	G	250	6500	400
1N3738	G	250	4500	400
A190E	G	250	6500	500
1N3739	G	250	4500	500
A190M	G	250	6500	600
1N3740	G	250	4500	600
A190S	G	250	6500	700
A190N	G	250	6500	800
1N3741	G	250	4500	800
A190T	G	250	6500	900
A190P	G	250	6500	1000
1N3742	G	250	4500	1000
A190PA	G	250	6500	1100
A190PB	G	250	6500	1200
1N3743	G	250	4500	1200
A190PC	G	250	6500	1300
A190PD	G	250	6500	1400
A190PE	G	250	6500	1500
A197A*	G	250	5000	100
A197B*	G	250	5000	200
A197C*	G	250	5000	300
A197D*	G	250	5000	400
A197E*	G	250	5000	500
A197M*	G	250	5000	600
A197S*	G	250	5000	700
A197N*	G	250	5000	800
A197T*	G	250	5000	900
A197P*	G	250	5000	1000
A197PA*	G	250	5000	1100
A197PB*	G	250	5000	1200
A197PC*	G	250	5000	1300
A197PD*	G	250	5000	1400
A197PE*	G	250	5000	1500
1N4044	G	275	5000	50
1N4045	G	275	5000	100
1N4046	G	275	5000	150
1N4047	G	275	5000	200
1N4048	G	275	5000	250
1N4049	G	275	5000	300
1N4050	G	275	5000	400
1N4051	G	275	5000	500
1N4052	G	275	5000	600
1N4053	G	275	5000	700
1N4054	G	275	5000	800
1N4055	G	275	5000	900
1N4056	G	275	5000	1000
A390M	H	400	7000	600
A390S	H	400	7000	700
A390N	H	400	7000	800
A390T	H	400	7000	900
A390P	H	400	7000	1000
A390PA	H	400	7000	1100
A390PB	H	400	7000	1200
A390PC	H	400	7000	1300
A390PD	H	400	7000	1400
A390PE	H	400	7000	1500
A397A*	H	400	5000	100
A397B*	H	400	5000	200
A397C*	H	400	5000	300
A397D*	H	400	5000	400
A397E*	H	400	5000	500
A397M*	H	400	5000	600
A397S*	H	400	5000	700
A397N*	H	400	5000	800
A397T*	H	400	5000	900
A397P*	H	400	5000	1000
A397PA*	H	400	5000	1100
A397PB*	H	400	5000	1200
A397PC*	H	400	5000	1300
A397PD*	H	400	5000	1400
A397PE*	H	400	5000	1500
A500PM	I	740	10000	1600
A500PE	I	740	10000	1500
A500PS	I	740	10000	1700
A500PN	I	740	10000	1800
A500PT	I	740	10000	1900
A500L	I	740	10000	2000
A500LA	I	740	10000	2100
A500LB	I	740	10000	2200
A500LC	I	740	10000	2300
A500LD	I	740	10000	2400
A500LE	I	740	10000	2500
A500LM	I	740	10000	2600
A500LS	I	740	10000	2700
A500LN	I	740	10000	2800
A500LT	I	740	10000	2900
A500LP	I	740	10000	3000
A596N*	I	750	10000	800
A596T*	I	750	10000	900
A596P*	I	750	10000	1000
A596PA*	I	750	10000	1100
A596PB*	I	750	10000	1200
A596PC*	I	750	10000	1300
A596PD*	I	750	10000	1400
A437E*	I	750	10000	500
A437M*	I	750	10000	600
A437S*	I	750	10000	700
A437N*	I	750	10000	800
A437T*	I	750	10000	900
A437P*	I	750	10000	1000
A437PA*	I	750	10000	1100
A437PB*	I	750	10000	1200
A437PC*	I	750	10000	1300
A437PD*	I	750	10000	1400
A437PE*	I	750	10000	1500
A430E	I	1000	10000	500
A430M	I	1000	10000	600
A430S	I	1000	10000	700
A430N	I	1000	10000	800
A430T	I	1000	10000	900
A430P	I	1000	10000	1000
A430PA	I	1000	10000	1100
A430PB	I	1000	10000	1200
A430PC	I	1000	10000	1300
A430PD	I	1000	10000	1400
A430PE	I	1000	10000	1500
A540L	I	1000	12000	2000
A540LA	I	1000	12000	2100
A540LB	I	1000	12000	2200
A540LC	I	1000	12000	2300
A540LD	I	1000	12000	2400
A696PB	I	1000	14000	1200
A696PC	I	1000	14000	1300
A696PD	I	1000	14000	1400
A696PE	I	1000	14000	1500
A696PM	I	1000	14000	1600
A696PS	I	1000	14000	1700
A696PN	I	1000	14000	1800
A696PT	I	1000	14000	1900
A696L	I	1000	14000	2000
A570A	I	1500	18000	100
A570B	I	1500	18000	200
A570C	I	1500	18000	300
A570D	I	1500	18000	400
A570E	I	1500	18000	500
A570M	I	1500	18000	600
A640P	I	1500	16000	1000
A640PA	I	1500	16000	1100
A640PB	I	1500	16000	1200
A640PC	I	1500	16000	1300
A640PD	I	1500	16000	1400
A640PE	I	1500	16000	1500
A640PM	I	1500	16000	1600
A640PS	I	1500	16000	1700
A640PN	I	1500	16000	1800
A640PT	I	1500	16000	1900
A640L	I	1500	16000	2000
A641L	I	1500	17000	2000
A641LA	I	1500	17000	2100
A641LB	I	1500	17000	2200
A641LC	I	1500	17000	2300
A641LD	I	1500	17000	2400
A641LE	I	1500	17000	2500
A641LM	I	1500	17000	2600
A740PD	J	2400	32000	1400
A740PE	J	2400	32000	1500
A740PM	J	2400	32000	1600
A740PS	J	2400	32000	1700
A740PN	J	2400	32000	1800

(*) Fast recovery types.

GERMANIUM TUNNEL DIODES

Ideal for high speed switching, 1000 times faster than computer diodes; microwave oscillators and mixers; communications — tuners, converters, detectors and amplifiers: level sensing — sampling (scopes), Schmidt triggers and counters; computer circuits — sense amplifiers, flip-flops, AND-NOR gates.

GENERAL PURPOSE

Series inductance, 0.5 nH. Typical peak voltage. 65 mV.

GE Type	Peak Point I_p mA	Peak Point I_p + %	Maximum Valley Point mA	Maximum Cap. pF	Maximum Series Resis. Ohms	*	Typ. f_{mo} GHz
1N3712	1.0	10	0.18	10	4.0	8	2.3
1N3713*	1.0	2.5	0.14	5	4.0	8.5 — 1	3.2
1N3714	2.2	10	0.48	25	3.0	18	2.2
1N3715*	2.2	2.5	0.31	10	3.0	19 — 3	3.0
1N3716	4.7	10	1.04	50	2.0	40	1.8
1N3717*	4.7	2.5	0.60	25	2.0	41 — 5	3.4
1N3718	10.0	10	2.20	90	1.5	80	1.6
1N3719*	10.0	2.5	1.40	50	1.5	85 — 10	2.8
1N3720	22.0	10	4.80	150	1.0	180	1.6
1N3721*	22.0	2.5	3.10	100	1.0	190 — 30	2.6
TD-9	0.5	10	0.10	5	6.0	4.0	1.3

*Typ. negative conduciance-G mhos x 10^{-2}. *JAN type available.

ULTRA-HIGH SPEED SWITCHING DIODES DO-18

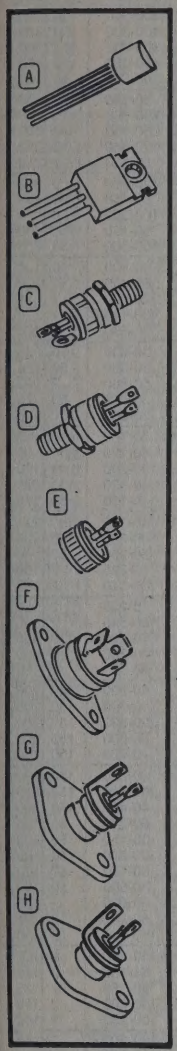
Subminiature epoxy package with series inductance of 1.5 nH.

GE Type	Peak Point mA (± 10%)	Maximum Voltage, mV Valley Point mA	Maximum Voltage, mV Cap. pF	Typical Voltage, mV Peak Point Typ.	Typical Voltage, mV Fwd I_F — I_p	Typical Series Resis. Ohms	Typical Rise Time psec
TD-261	2.2	0.31	3.0	70	500-700	5.0	430
TD-261A	2.2	0.31	1.0	80	500-700	7.0	160
TD-262	4.7	0.60	6.0	80	500-700	3.5	320
TD-262A	4.7	0.60	1.0	90	500-700	4.0	74
TD-263	10.0	1.40	9.0	75	500-700	1.7	350
TD-263A	10.0	1.40	5.0	80	520-700	2.0	190
TD-263B	10.0	1.40	2.0	90	550-700	2.5	68
TD-264	22.0	3.80	18.0	90	600 typ.	1.8	185
TD-264A	22.0	3.80	4.0	100	550-700	2.0	64
TD-265	50.0	8.50	25.0	110	625 typ.	1.4	100
TD-265A	50.0	8.50	1.5	130	640 typ.	1.5	35
TD-266	100	17.50	1.1	150	650 typ.	1.1	57
TD-266A	100	17.50	6.0	180	660 typ.	1.2	22

General Electric Triacs/Triggers/Switches

PLASTIC AND METAL CAN TRIACS

Triac is an AC silicon switch which uses the gate triggered from an OFF-state to an ON-state for either polarity of applied voltage. Triac is also an AC phase controller that performs in a single device the function of two SCR's back to back in controlling heat, light, and motor speed. Plastic contacts feature low cost and reliability. POWER GLAS passivated junctions in rugged and industrial proven packaging are suitable in various types of formed leads (TO-5, TO-66, etc.). Metal can triacs feature POWER GLAS passivated junctions, glass to metal seal, high performance and reliability, transient voltage immunity and comprehensive specifications. Triacs are used in common circuitry in various electrical and mechanical equipment.



TO-92 PACKAGE

Type	rms On-state Current Amps	V_{DRM} Off-State Volts	$I_{gt}DC$ Trigger Current mA	V_{gt} DC Trigger Volts	Itsm‡ Amps
SC92F	0.8	50	10	2.0	6.0
SC92A	0.8	100	10	2.0	6.0
SC92B	0.8	200	10	2.0	6.0
SC92D	0.8	400	10	2.0	6.0

SILICONE BILATERAL SWITCHES (SBS) 6-10 VOLT BIDIRECTIONAL PLANAR TRIGGER DIODE

VF at 200 mA = 1.7 volts

2N4991	TO-98	175	+125	6-10	500	1.0
2N4992	TO-98	200	+150	7.5-9	120	0.1
2N4993	TO-18	200	+150	6-10	500	1.0

SILICON UNILATERAL SWITCHES (SUS) 6-10 VOLT PLANAR TRIGGER DIODE

VACR = 30 volts maximum. VF at 200 mA = 1.5 volts.

GE Type	JEDEC Outline	Max. IF(CONT) mA	TJ −55°C to °C	VS V	Max. IS µA	IB at 5 V µA
2N4983	TO-18	175	+125	6-10	500	1.0
2N4984	TO-18	200	+150	7.5-9	150	0.1
2N4985	TO-18	200	+150	7.5-8.2	300	0.01
2N4986	TO-18	175	+125	7-9	200	0.1
2N4987	TO-98	175	+125	6-10	500	1.0
2N4988	TO-98	200	+150	7.5-9	150	0.1
2N4989	TO-98	200	+150	7.5-8.2	300	0.01
2N4990	TO-98	175	+125	7-9	200	0.1

rms On-State Current Amps	V_{DRM} Off-State Volts	Igt DC Trigger Current mA	Vgt DC Trigger Volts§	I_{TSM}‡ Amps	Stud Case Fig. D	Isolated Stud Case Fig. C	TO-3 Flange Fig. H	Isolated TO-3 Flange Fig. G	Press Fit Case Fig. E
6	200	50	2.5	80	SC240B	SC240B2, 3	SC240B4	SC240B5	SC241B
6	400	50	2.5	80	SC240D	SC240D2, 3	SC240D4	SC240D5	SC241D
6	500	50	2.5	80	SC240E	SC240E2, 3	SC240E4	SC240E5	SC241E
6	600	50	2.5	80	SC240M	SC240M2, 3	SC240M4	SC240M5	SC241M
10	200	50	2.5	100	SC245B	SC245B2, 3	SC245B4	SC245B5	SC246B
10	400	50	2.5	100	SC245D	SC245D2, 3	SC245D4	SC245D5	SC246D
10	500	50	2.5	100	SC245E	SC245E2, 3	SC245E4	SC245E5	SC246E
10	600	50	2.5	100	SC245M	SC245M2, 3	SC245M4	SC245M5	SC246M
15	200	50	2.5	100	SC250B	SC250B2, 3	SC250B4	SC250B5	SC251B
15	400	50	2.5	100	SC250D	SC250D2, 3	SC250D4	SC250D5	SC251D
15	500	50	2.5	100	SC250E	SC250E2, 3	SC250E4	SC250E5	SC251E
15	600	50	2.5	100	SC250M	SC250M2, 3	SC250M4	SC250M5	SC251M
25	200	50	2.5	250	SC260B	SC260B2, 3	SC260B4	SC260B5	SC261B
25	400	50	2.5	250	SC260D	SC260D2, 3	SC260D4	SC260D5	SC261D
25	500	50	2.5	250	SC260E	SC260E2, 3	SC260E4	SC260E5	SC261E
25	600	50	2.5	250	SC260M	SC260M2, 3	SC260M4	SC260M5	SC261M
40	200	80	2.5	300	SC265B	SC265B2, 3	SC265B4	SC265B5	SC266B
40	400	80	2.5	300	SC265D	SC265D2, 3	SC265D4	SC265D5	SC266D
40	500	80	2.5	300	SC265E	SC265E2, 3	SC265E4	SC265E5	SC266E
40	600	80	2.5	300	SC265M	SC265M2, 3	SC265M4	SC265M5	SC266M

TRIACS IN PLASTIC POWER PAC CASE (FIG. B)

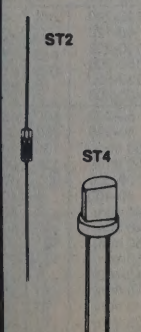
Type*	rms On-State Current Amps	V_{DRM} Off-State Volts	Igt DC Trigger Current† mA	Vgt DC Trigger Volts§	I_{TSM}‡ Amps
SC141B	6	200	50	2.5	80
SC141D	6	400	50	2.5	80
SC141E	6	500	50	2.5	80
SC141M	6	600	50	2.5	80
SC143B	8	200	50	2.5	120
SC143D	8	400	50	2.5	120
SC143E	8	500	50	2.5	120
SC143M	8	600	50	2.5	120
SC146B	10	200	50	2.5	120
SC146D	10	400	50	2.5	120
SC146E	10	500	50	2.5	120
SC146M	10	600	50	2.5	120
SC148B	12	200	50	2.5	120
SC148D	12	400	50	2.5	120

*For STZ, $V_{S2} = V_{S1} = 10\%$.

Type*	rms On State Current Amps	V_{DRM} Off-State Volts	Igt DC Trigger Current† mA	Vgt DC Trigger Volts§	I_{TSM} Amps
SC148E	12	500	50	2.5	120
SC148M	12	600	50	2.5	120
SC149B	12	200	50	2.5	120
SC149D	12	400	50	2.5	120
SC149E	12	500	50	2.5	120
SC149M	12	600	50	2.5	120
SC150B	15	200	50	2.5	120
SC150D	15	400	50	2.5	120
SC150E	15	500	50	2.5	120
SC150M	15	600	50	2.5	120
SC151B	15	200	50	2.5	120
SC151D	15	400	50	2.5	120
SC151E	15	500	50	2.5	120
SC151M	15	600	50	2.5	120

†At 12 volts. 25° C. ‡Surge current at 60 Hz. one cycle non-repetitive. §MT2 +G+, MT2−G−, MT2+G−

TRIAC TRIGGERS



ST2 (diac) is a silicon bi-directional diode which may be used for triggering triacs or SCR's. It has a thick layer structure with negative resistance switching characteristics in both directions. ST4 is an assymmetrical AC trigger integrated circuit for use in triac phase control applications. This device reduces the snap-on effects that are present in conventional triggers by eliminating control circuit hysteresis. This performance is possible with a single RC time constant, where as a symmetrical circuit of comparable performance would require at least three additional passive circuit components.

Type	V_{S2} Switching Volts Min.	V_{S2} Switching Volts Max.	V_{S1} Switching Volts Min.	V_{S1} Switching Volts Max.	Max. Switching Current µA	Min. Pulse Output Volts
ST2	28*	36*	28*	36*	200	3.0
ST4	7	9	14	18	80	3.5

*For STZ, $V_{S2} = V_{S1} = 10\%$.

TRIACS IN ISOLATED POWER PAC CASE (FIG. B.)

GE Type*	rms On-State Current Amps	V_{DRM} Off-State Volts	Igt DC Trigger Current† mA	Vgt DC Trigger Volts§	I_{TSM} Amps
SC140B	6.5	200	50	2.5	80
SC140D	6.5	400	50	2.5	80
SC140E	6.5	500	50	2.5	80
SC140M	6.5	600	50	2.5	80
SC142B	8	200	50	2.5	110
SC142D	8	400	50	2.5	110
SC142E	8	500	50	2.5	110
SC142M	8	600	50	2.5	110
SC147B	10	200	50	2.5	110
SC147D	10	400	50	2.5	110
SC147E	10	500	50	2.5	110
SC147M	10	600	50	2.5	110

TRIACS IN ISOLATED TO-3 FLANGE (FIG. F)

SC160B	25	200	50	2.5	250
SC160D	25	400	50	2.5	250
SC160E	25	500	50	2.5	250
SC160M	25	600	50	2.5	250

†At 12 volts. 25° C. ‡Surge current at 60 Hz. one cycle non-repetitive. §MT2 +G+, MT2−G−, MT2+G−.

General Electric Small Signal Transistors

SILICON SIGNAL DARLINGTON TRANSISTORS

Type	Polarity	BVCEO @ 10 mA Volts	HFE @ IC Min.-Max.	HFE @ IC fT mA	MHz
TO-98 PACKAGE					
2N5305	NPN	25	2K-20K	2	60
2N5306	NPN	25	7K-70K	2	60
2N5306A	NPN	25	7K-70K	2	60
2N5307	NPN	40	2K-20K	2	60
2N5308	NPN	40	7K-70K	2	60
2N5308A	NPN	40	7K-70K	2	60
D16P1	NPN	12	2K-70K	2	....
TO-92 PACKAGE					
GES5305	NPN	25	2K-20K	2	80
GES5306	NPN	25	7K-70K	2	80
GES5306A	NPN	25	7K-70K	2	80
GES5307	NPN	40	2K-20K	2	80
GES5308	NPN	40	7K-70K	2	80
GES5308A	NPN	40	7K-70K	2	80
D38L1	NPN	40	2K-20K	2	80
D38L2	NPN	40	7K-70K	2	80
D38L3	NPN	40	50K min.	2	80
D38L4	NPN	25	2K-20K	2	80
D38L5	NPN	25	7K-70K	2	80
D38L6	NPN	25	50K min.	2	80
D39C1	PNP	40	2K-20K	2	80
D39C2	PNP	40	7K-70K	2	80
D39C3	PNP	40	50K min.	2	80
D39C4	PNP	25	2K 20K	2	80
D39C5	PNP	25	7K-70K	2	80
D39C6	PNP	25	50K min.	2	80
MPSA12	NPN	20	20K min.	10	50
MPSA13	NPN	30	5K min.	10	80
MPSA14	NPN	30	10K min.	10	80
MPSA63	PNP	30	5K min.	10	100
MPSA64	PNP	30	10K min.	10	100
MPSA65	PNP	30	50K min.	10	100
MPSA66	PNP	30	75K min.	10	100
GES6426	NPN	40	30K-300K	100	80
GES6427	NPN	40	20K-200K	100	80
MPSA62	PNP	20	20K min.	10	80
MPSD04	NPN	25	2K min.	100	80

SILICON GENERAL PURPOSE SIGNAL AMPLIFIERS

Type	Polarity	BVCEO @ 10 mA Volts	HFE @ IC Min.-Max.	HFE @ IC fT mA	MHz
TO—98 PACKAGE					
2N2711	NPN	18	30-90	2	120
2N2712	NPN	18	75-225	2	120
2N2713	NPN	18	30-90	2	120
2N2714	NPN	18	75-225	2	120
2N2923	NPN	25	90-180	2	120
2N2924	NPN	25	150-300	2	120
2N2925	NPN	25	235-470	2	120
2N2926	NPN	18	35-470	2	120
2N3390	NPN	25	400-800	2	120
2N3391†	NPN	25	250-500	2	120
2N3391A†	NPN	25	250-500	2	120
2N3392	NPN	25	150-300	2	120
2N3393	NPN	25	90-180	2	120
2N3394	NPN	25	55-110	2	120
2N3395	NPN	25	150-500	2	120
2N3396	NPN	25	90-500	2	120
2N3397	NPN	25	55-500	2	120
2N3398	NPN	25	55-800	2	120
2N3402	NPN	25	75-225	2	150
2N3403	NPN	25	180-540	2	150
2N3404	NPN	50	75-225	2	150
2N3405	NPN	50	180-540	2	150
2N3414	NPN	25	75-225	2	150
2N3415	NPN	25	180-540	2	150
2N3416	NPN	50	75-225	2	150
2N3417	NPN	50	180-540	2	150
2N3662	NPN	12	20 min.	8	1000
2N3663	NPN	12	20 min.	8	1000
2N3721	NPN	18	60-660	2	120
2N3844†	NPN	30	35-70	2	150
2N3844A	NPN	30	35-70	2	150
2N3845†	NPN	25	60-120	2	150
2N3845A†	NPN	25	60-120	2	150
2N3854	NPN	36	35-70	2	200
2N3854A	NPN	36	35-70	2	200
2N3855	NPN	36	60-120	2	200
2N3855A	NPN	36	60-120	2	200
2N3856	NPN	36	100-200	2	200
2N3856A	NPN	36	100-200	2	200
2N3858	NPN	40	60-120	2	150
2N3858A	NPN	60	60-120	2	150
2N3859	NPN	40	100-200	2	150
2N3859A	NPN	60	100-200	2	150
2N3860	NPN	40	150-300	2	150
2N3877	NPN	70	20 min.	2	120
2N3877A	NPN	85	20 min.	2	120
2N3900†	NPN	18	250-500	2	120
2N3900A†	NPN	18	250-500	2	120
2N3901†	NPN	25	350-700	2	120

TO-98 PACKAGE (CONTINUED)

Type	Polarity	BVCEO @ 10 mA Volts	HFE @ IC Min.-Max.	HFE @ IC fT mA	MHz
2N4256	NPN	40	100-500	2	120
2N4424	NPN	40	180-540	2	150
2N4425	NPN	40	180-540	2	150
2N5172	NPN	25	100-500	10	100
2N5174	NPN	75	40-600	10	120
2N5232†	NPN	50	250-500	2	150
2N5232A†	NPN	50	250-500	2	150
2N5249†	NPN	50	400-800	2	150
2N5249A†	NPN	50	400-80	2	150
2N5309†	NPN	50	60-120	10	150
2N5310†	NPN	50	100-300	10	150
2N5311†	NPN	50	250-500	10	150
2N5354	PNP	25	40-120	50	200
2N5355	PNP	25	100-300	50	200
2N5356	PNP	25	250-500	50	200
2N5365	PNP	40	40-120	50	350
2N5366	PNP	40	100-300	50	350
2N5418	NPN	25	40-120	50	250
2N5419	NPN	25	100-300	50	250
2N5420	NPN	25	250-500	50	250
2N6076	PNP	25	100-500	10	300
D29E1	PNP	25	60-200	2	150
D29E2	PNP	25	150-500	2	165
D29E4	PNP	40	60-120	2	120
D29E5	PNP	40	100-200	2	135
D29E6	PNP	40	150-300	2	150
D29E9	PNP	60	60-120	2	120
D29E10	PNP	60	100-200	2	135
D33D21	NPN	25	60-200	2	150
D33D22	NPN	25	150-500	2	165
D33D24	NPN	40	60-120	2	120
D33D25	NPN	40	100-200	2	135
D33D26	NPN	40	150-300	2	150
D33D29	NPN	60	60-120	2	120
D33D30	NPN	60	100-200	2	135
TO-92 PACKAGE					
GES6000	NPN	25	100-300	10	150
GES6001†#	PNP	25	100-300	10	250
GES6002#	NPN	25	200-500	10	170
GES6003#	PNP	25	200-500	10	250
GES6004#	NPN	40	100-300	10	150
GES6005†#	PNP	40	100-300	10	250
GES6006#	NPN	40	200-500	10	170
GES6007#	PNP	40	200-500	10	250
GES6010†#	NPN	40	100-300	10	125
GES6011†#	PNP	40	100-300	10	100
6012GE†#	NPN	40	200-500	10	150
GES6013†#	PNP	40	200-500	10	125
GES6014†#	NPN	60	100-300	10	125
GES6015†#	PNP	60	100-300	10	100
GES6218	NPN	300	20 min.	20	65
GES6219	NPN	350	20 min.	20	65
GES6220	NPN	200	20 min.	20	65
GES6221#	NPN	150	20 min.	20	65
GES6222#	NPN	60	75-200	2	100
GES6224	NPN	60	150-300	2	100
MPSA05	NPN	60	50 min.	100	100
MPSA06	NPN	80	50 min.	100	100
MPSA20	NPN	40	40-400	5	140
MPSA55	PNP	60	50 min.	100	100
MPSA56	PNP	80	50 min.	100	100
MPS3638#	PNP	25	30 min.	50	125
MPS3638A#	PNP	25	100 min.	50	175
MPS3702	PNP	25	60-300	50	150
MPS3703	PNP	30	30-150	50	150
MPS3704	NPN	30	100-300	50	100
MPS3705	NPN	30	50-150	50	100
MPS3706	NPN	20	30-600	50	100
MPS3709	NPN	30	45-160	1.0	100
MPS3710	NPN	30	90-330	1.0	100
MPS3711	NPN	30	180-660	1.0	100
MPS5172	NPN	25	100-750	10	100
MPS6076	PNP	25	100-750	10	100
MPS6172	PNP	25	100-750	10	100
MPS6512	NPN	30	50-100	2	250
MPS6513	NPN	30	90-180	2	250
MPS6514	NPN	30	150-300	2	390
MPS6515	NPN	30	250-500	2	390
MPS6516	PNP	40	50-100	2	225
MPS6517	PNP	40	90-180	2	225
MPS6518	PNP	40	150-300	2	350
MPS6519	PNP	25	250-500	2	340
MPS6530	NPN	40	25 min.	500	250
MPS6531	NPN	40	50 min.	500	250
MPS6532	NPN	30	30 min.	100	250
MPS6533	PNP	40	25 min.	500	350
MPS6534	PNP	40	50 min.	500	350
MPS6535	PNP	30	30 min.	100	350
MPS6565	NPN	45	40-160	10	225
MPS6568	NPN	45	100-400	10	25

TO-92 PACKAGE (CONTINUED)

Type	Polarity	BVCEO @ 10 mA Volts	HFE @ IC Min.-Max.	HFE @ IC fT mA	MHz
MPS6571	NPN	20	250-1000	10	50
MPS6573	NPN	35	200-500	10	100
MPS6575	NPN	45	200-500	10	100
PN2222	NPN	30	100-300	150	250
PN2222A	NPN	40	100-300	150	300
PN2907	PNP	40	100-300	150	200
2N3903#	NPN	40	50-150	10	300
2N3904#	NPN	40	100-300	10	350
2N3905#	PNP	40	50-150	10	250
2N3906#	PNP	40	100-300	10	300
2N4123	NPN	30	50-150	2	300
2N4124	NPN	25	120-360	2	350
2N4125	PNP	30	50-150	2	250
2N4126	PNP	25	120-360	2	300
2N4400#	NPN	40	50-150	150	225
2N4401#	NPN	40	100-300	150	275
2N4402#	PNP	40	50-150	150	300
2N4403#	PNP	40	100-300	150	350
2N4409	NPN	50	60-400	10	100
2N4410	NPN	80	60-400	10	100
2N5088	NPN	30	300-900	0.1	75
2N5089	NPN	25	400-1200	0.1	75
2N5219	NPN	15	35-500	2	200
2N5220	NPN	15	30-600	50	125
2N5221	PNP	15	30-600	50	125
2N5223	NPN	20	50-800	2	200
2N5225	NPN	25	30-600	50	75
2N5226	PNP	25	30-600	50	100
2N5227	PNP	30	50-700	2	125
GES929†	NPN	50	60-120	0.01	100
GES930†	NPN	50	100-300	0.01	100
GES2221	NPN	30	40-120	150	275
GES2221A	NPN	40	40-120	150	275
GES2906#	PNP	40	40-120	150	225
GES2907#	PNP	40	100-300	150	225
GES3053	NPN	40	50-250	150	100
GES3414	NPN	25	75-225	2	150
GES3415	NPN	25	180-540	2	150
GES3416	NPN	50	75-225	2	150
GES3417	NPN	50	180-540	2	150
GES4121	PNP	40	70-200	10	400
GES4122	PNP	40	150-300	....	450
GES4248	PNP	40	50-	1	100
GES5368#	NPN	30	60-200	150	200
GES5369#	NPN	30	100-300	150	200
GES5370#	NPN	30	200-600	150	200
GES5371#	NPN	30	60-600	150	200
GES5372#	PNP	30	40-200	150	200
GES5373#	PNP	30	100-300	150	200
GES5374#	PNP	30	200-400	150	200
GES5375#	PNP	30	40-400	150	200
GES5447	PNP	25	60-300	50	100
GES5448	PNP	30	30-150	50	100
GES5449	NPN	30	100-300	50	100
GES5450	NPN	30	50-150	50	100
GES5451	NPN	20	30-600	50	100
GES5810	NPN	25	60-200	2	125
GES5811	PNP	25	60-200	2	125
GES5812	NPN	25	150-500	2	150
GES5813	PNP	25	150-500	2	150
GES5814	NPN	40	60-160	2	125
GES5815	PNP	40	60-160	2	125
GES5816	NPN	40	100-200	2	150
GES5817	PNP	40	100-200	2	150
GES5818	NPN	40	150-300	2	150
GES5819	PNP	40	150-300	2	150
GES5820	NPN	60	60-160	2	125
GES5821	PNP	60	60-160	2	125
GES5822	NPN	60	100-200	2	150
GES5823	PNP	60	100-200	2	150
GES5824	NPN	40	60-120	2	100
GES5825	NPN	40	100-200	2	100
GES5826	NPN	40	150-300	2	100
GES5827	NPN	40	250-500	2	100
GES5828	NPN	40	400-800	2	100
GES6560	NPN	25	50-200	500	60
GES6561	NPN	20	50-200	350	60
MPSA05	NPN	60	50 min.	100	100
MPSA06	NPN	80	50 min.	100	100
MPSA09	NPN	50	100-600	0.1	30
MPSA20	NPN	40	40-400	5	140
MPSA42	NPN	300	40 min.	10	50
MPSA43	NPN	200	40 min.	10	50
MPSA55	PNP	60	50 min.	100	100
MPSA56	PNP	80	50 min.	100	100
MPSA70	PNP	40	40-400	5	125
MPSA92	PNP	300	40 min.	10	25
MPSA93	PNP	200	40 min.	10	25
MPSD01	NPN	200	25 min.	10	40
MPSD02	NPN	140	25 min.	10	50
MPSD03	NPN	100	25 min.	10	50
MPSD05	NPN	25	80 min.	100	100

*Microamperes. †Low-noise amplifier. ▪Switching type.

General Electric Small Signal Transistors

SILICON GENERAL PURPOSE SIGNAL AMPLIFIERS

GE Type	Polarity	^{BV}CEO @ 10 mA Volts	hFE @ Ic Min.-Max.	hFE @ Ic mA	fT MHz
TO-92 PACKAGE					
MPSD06	NPN	25	50 min.	10	175
MPSD51	PNP	200	25 min.	10	25
MPSD52	PNP	140	25 min.	10	25
MPSD53	PNP	100	25 min.	10	25
MPSD56	PNP	25	50 min.	10	250
MPSL01	NPN	120	50-300	10	50
MPS2222	NPN	30	100-300	150	250
MPS2222A	NPN	40	100-300	150	300
MPS2907	PNP	40	100-300	150	200
MPS3638#	PNP	25	30 min.	50	125
MPS3638A#	PNP	25	100 min.	50	175
MPS3693	NPN	45	40-160	10	200
MPS3694	NPN	45	100-400	10	200
MPS3702	PNP	25	60-300	50	150
MPS3703	PNP	30	30-150	50	150
MPS3704	NPN	30	100-300	50	100
MPS3705	NPN	30	50-150	50	100
MPS3709	NPN	30	45-160	1	100
MPS3710	NPN	30	90-330	1	100
MPS3711	NPN	30	180-660	1	100
MPS5172	NPN	25	100-750	10	100
MPS6076	PNP	25	100-750	10	100
MPS6172	PNP	25	100-750	10	100
MPS6512	NPN	30	50-100	2	250
MPS6513	NPN	30	90-180	2	250
MPS6514	NPN	30	150-300	2	390
MPS6515	NPN	30	250-500	2	390
MPS3706	NPN	20	30-600	50	100
MPS6516	PNP	40	50-100	2	225
MPS6517	PNP	40	90-180	2	225
MPS6518	PNP	40	150-300	2	350
MPS6519	PNP	25	250-500	2	350
MPS6530	NPN	40	25 min.	500	250
MPS6531	NPN	40	50 min.	500	250
MPS6532	NPN	30	30 min.	100	250
MPS6533	PNP	40	25 min.	500	350
MPS6534	PNP	40	50 min.	500	350
MPS6535	PNP	30	30 min.	100	350
MPS6565	NPN	45	40-160	10	225
MPS6566	NPN	45	100-400	10	225
MPS6571	NPN	20	250-1000	0.1	50
MPS6573	NPN	35	200-500	10	100
MPS6575	NPN	45	200-500	10	100
D38H1	NPN	60	50 min.	100	80
D38H2	NPN	60	90 min.	100	80
D38H3	NPN	60	150 min.	100	80
D38H4	NPN	80	55 min.	100	80
D38H5	NPN	80	90 min.	100	80
D38H6	NPN	80	150 min.	100	80
D38H7	NPN	100	55 min.	100	80
D38H8	NPN	100	90 min.	100	80
D38H9	NPN	100	150 min.	100	80
D38S1†	NPN	30	400-800	0.1	200
D38S2†	NPN	30	600-1200	0.1	200
D38S3†	NPN	30	1000-2000	0.1	200
D38S4†	NPN	30	1500-3000	0.1	200
D38S5†	NPN	45	400-800	0.1	200
D38S6†	NPN	45	600-1200	0.1	200
D38S7†	NPN	45	1000-2000	0.1	200
D38S8†	NPN	60	250-500	0.1	200
D38S9†	NPN	60	400-800	0.1	200
D38S10†	NPN	60	600-1200	0.1	200
D38W7†	NPN	80	150-300	0.1	75
D38W8†	NPN	80	250-300	0.1	75
D38W9†	NPN	80	400-800	0.1	75
D38W10†	NPN	80	600-1200	0.1	75
D39J1	PNP	60	50 min.	0.1	60
D39J2	PNP	60	80 min.	0.1	60
D39J3	PNP	60	150 min.	0.1	60
D39J4	PNP	80	50 min.	0.1	60
D39J5	PNP	80	80 min.	0.1	60
D39J6	PNP	80	150 min.	0.1	60
D39J7	PNP	100	50 min.	0.1	60
D39J8	PNP	100	80 min.	0.1	60
D39J9	PNP	100	150 min.	0.1	60

†Low-noise amplifier. #Switching type.

SILICON SIGNAL TRANSISTORS COMPLEMENTARY PAIRS

GE Type NPN	GE Type PNP	GE Type NPN	GE Type PNP
TO-98 PACKAGE			
2N5354	2N5418	D33D24J1	D29E4
2N5355	2N5419	D33D25J1	D29E5
2N5172	2N6076	D33D26J1	D29E6
D33D21J1	D29E1	D33D29J1	D29E9
D33D22J1	D29E2	D33D30J1	D29E10
TO-92 PACKAGE			
2N3903	2N3905	MPSA05	MPSA55
2N3904	2N3906	MPSA06	MPSA56
2N4123	2N4125	MPS3702	MPS3704
2N4124	2N4126	MPS3703	MPS3705
2N4400	2N4402	MPS5172	MPS6076
2N4401	2N4403	MPS6512	MPS6516
GES2221	GES2906	MPS6513	MPS6517
GES2222	GES2907	MPS6514	MPS6518
GES5368	GES5372	MPS6515	MPS6519
GES5369	GES2973	MPS6530	MPS6533
GES5370	GES5374	MPS6531	MPS6534
GES5371	GES5375	MPS6532	MPS6535
GES5810	GES5811	D38H1	D39J1
GES5812	GES5813	D38H2	D39J2
GES5814	GES5815	D38H3	D39J3
GES5816	GES5817	D38H4	D39J4
GES5818	GES5819	D38H5	D39J5
GES5820	GES5821	D38H6	D39J6
GES5822	GES5823	D38H7	D39J7
GES6000	GES6001	D38H8	D39J8
GES6002	GES6003	D38H9	D39J9
GES6004	GES6005	D38L1	D39C1
GES6006	GES6007	D38L2	D39C2
GES6010	GES6011	D38L3	D39C3
GES6012	GES6013	D38L4	D39C4
GES6014	GES6015	D38L5	D39C5
GES6016	GES6017	D38L6	D39C6

General Electric Transistors/Unijunctions

SILICON UNIJUNCTION TRANSISTORS

All TO-5 bar structure unless noted otherwise.

GE Type	^{R}BBO ^{V}BB = 3^{V} ^{I}E = 0 Kohms	Intrin. Stand-off Ratio†	IV Min. mA	IP Max. Emmiter µA	IEO Max. µA	IEO Max. ^{V}B2E‡
2N489				12	2	60
2N489A*	4.7-6.8	.51-.62	8	12	2	60
2N489B				6	0.2	30
2N490				12	2	60
2N490A*	6.2-9.1	.51-.62	8	12	2	60
2N490B				6	0.2	30
2N490C				2	0.02	30
2N491				12	2	60
2N491A*	4.7-6.8	.56-.68	8	12	2	60
2N491B				6	0.2	30
2N492				12	2	60
2N492A*	6.2-9.1	.56-.68	8	12	2	60
2N492B				6	0.2	30
2N492C				2	0.02	30
2N493				12	2	60
2N493A*	4.7-6.8	.62-.75	8	12	2	60
2N493B				6	0.2	30
2N494				12	2	60
2N494A*	6.2-9.1	.62-.75	8	12	2	60
2N494B				6	0.2	30
2N494C				2	0.02	30
2N1671				25	12	30
2N1671A	4.7-9.1	.47-.62	8	25	12	30
2N1671B				6	0.2	30
2N1671C				2	0.02	30
2N2160	4.0-12.0	.47-.80	8	25	12	30
2N2646**	4.7-9.1	.56-.75	4	5	12	30
2N2647**	4.7-9.1	.68-.82	8	2	0.2	30

PROGRAMMABLE UNIJUNCTION—PUT (TO-98)

Gate-cathode forward voltage and gate-anode reverse voltage = 40 V.
Anode-cathode voltage = ±40 V.

GE Type	IGAO VS = 40 V nA	Max. Values at Vs = 10 V IP µA	VT V	IV µA	IF(CONT) mA	PT W
2N6028	10	0.15	2-.6	25	150	300

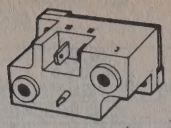
COMPLEMENTARY UNIJUNCTION (TO-18)

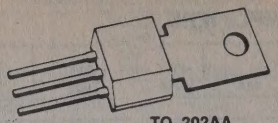
GE Type	RBO kohms	Intrinsic Standoff Ratio	IV Min. mA	IP Max. µA	IEO max. nA	VO Min. Volts	Freq. Stab.* %
D5K1	5.5-8.2	.58-.62	1	5	10	3.5	1.0
D5K2	5-15	.58-.62	1	15	10	3.5	2.0

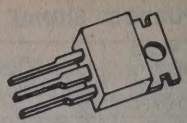
*Frequency stability from 25°C, −55°C to +150°C.

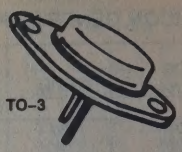
General Electric Power Transistors

D66


D67


TO-202AA


TO-220AB


TO-3

3

PLASTIC NPN AND PNP POWER DARLINGTON TRANSISTORS

Typical applications include: solenoid, relay and logic driver; lamp and touch switch driver; or switching regulator. Units feature high gain and fast switching.

TO-202AA

GE Type NPN	GE Type PNP	h_{fe} @ I_C Min.	Amps	V_{CEO} Min. Volts	I_C Cont. Amps	P_t Watts
D40C1	.....	10K	0.2	30	0.6	6.25
D40C2	.....	40K	0.2	30	0.5	6.25
D40C3	.....	90K	0.2	30	0.5	6.25
D40C4	.....	10K	0.2	40	0.5	6.25
D40C5	.....	40K	0.2	40	0.5	6.25
D40C7	.....	10K	0.2	50	0.5	6.25
D40C8	.....	40K	0.2	50	0.5	6.25
D40K1	D41K1	10K	0.2	30	2.0	10.0
D40K2	D41K2	10K	0.2	50	2.0	10.0
D40K3	D41K3	10K	0.2	30	2.0	10.0
D40K4	D41K4	10K	0.2	50	2.0	10.0
D42D1	D43D1	5K	1.0	40	4.0	12.5
D42D2	D43D2	5K	1.0	40	4.0	12.5
D42D3	D43D3	5K	1.0	60	4.0	12.5
D42D4	D43D4	5K	1.0	60	4.0	12.5
D42D5	D43D5	5K	1.0	80	4.0	12.5
D42D6	D43D6	5K	1.0	80	4.0	12.5
TO-220AB						
D44D1	D45D1	5K	1.0	40	6.0	30.0
D44D2	D45D2	5K	1.0	40	6.0	30.0
D44D3	D45D3	5K	1.0	60	6.0	30.0
D44D4	D45D4	5K	1.0	60	6.0	30.0
D44D5	D45D5	5K	1.0	80	6.0	30.0
D44D6	D45D6	5K	1.0	80	6.0	30.0
D44E1	D45E1	1K	5.0	40	10.0	50.0
D44E2	D45E2	1K	5.0	60	10.0	50.0
D44E3	D45E3	1K	5.0	80	10.0	50.0

PLASTIC NPN HIGH VOLTAGE/HIGH SPEED SWITCHING POWER TRANSISTORS

These devices are designed for use in high voltage switching circuits; off-line switching regulators; high voltage/high frequency inverters; solenoid and relay drivers; and TV video-chroma output stages.

TO-202AA

GE Type	h_{fe} Min.–Max.	@ I_C mAmps	V_{CEO} Min. Volts	I_C Cont. Amps	f_t MHz	P_t Watts
D40V1	30–90	20	250	0.1	80	9.0
D40V2	60–180	20	250	0.1	80	9.0
D40V3	30–90	20	300	0.1	80	9.0
D40V4	60–180	20	300	0.1	80	9.0
D40V5	30–90	20	350	0.1	80	9.0
D40V6	60–180	20	350	0.1	80	9.0
D40P1	40 min.	80	120	0.5	50	6.2
D40P3	40 min.	80	180	0.5	50	6.2
D40P5	40 min.	80	225	0.5	50	6.2
D42T1	30–90	500	250	2.0	45	15.0
D42T2	75–175	500	250	2.0	45	15.0
D42T3	30–90	500	300	2.0	45	15.0
D42T4	75–175	500	300	2.0	45	15.0
D42T5	30 min.	500	250	2.0	45	15.0
D42T6	30 min.	500	300	2.0	45	15.0
D42T7	150–300	500	250	2.0	45	15.0
D42T8	150–300	500	300	2.0	45	15.0
TO-220AB						
D44Q1	20 min.	2000	125	4.0	50	31.2
D44Q3	20 min.	2000	175	4.0	50	31.2
D44Q5	20 min.	2000	225	4.0	50	31.2
D44T1	30–90	500	250	2.0	45	31.2
D44T2	75–175	500	250	2.0	45	31.2
D44T3	30–90	500	300	2.0	45	31.2
D44T4	75–175	500	300	2.0	45	31.2
D44T5	30 min.	500	250	2.0	45	31.2
D44T6	30 min.	500	300	2.0	45	31.2
D44T7	150–300	500	250	2.0	45	31.2
D44T8	150–300	500	300	2.0	45	31.2
D44TD3	5	....	300	2	..	50
D44TD4	5	....	350	2	..	50
D44TD5	5	....	400	2	..	50
D44TE3	10	....	300	4	..	75
D44TE4	10	....	350	4	..	75
D44TE5	10	....	400	4	..	75
D44VH1	20 min.	....	30	15	..	83
D44VH4	20 min.	....	45	15	..	83
D44VH7	20 min.	....	60	15	..	83
D44VH10	20 min.	....	80	15	..	83
D44VM1	40 min.	....	30	8	..	50
D44VM4	40 min.	....	45	8	..	50
D44VM7	40 min.	....	60	8	..	50
D44VM10	40 min.	....	60	8	..	50

PLASTIC NPN AND PNP SWITCHING POWER TRANSISTORS

These devices are designed for use in switching circuits, such as: switching regulators, low and high frequency converters/inverters, solenoid and relay drivers. Features include low saturation voltage and high switching speeds.

GE Type NPN	GE Type PNP	h_{FE} @ Min.–Max.	I_C Amps	V_{CEO} Min. Volts	I_C Cont. Amps	f_T MHz	P_t Watts
TO-202AA							
D40D1	D41D1	50–150	0.1	30	1	200	6.25
D40D2	D41D2	120–360	0.1	30	1	200	6.25
D40D3	.....	.....	...	30	1	200	6.25
D40D4	D41D4	50–150	0.1	45	1	200	6.25
D40D5	D41D5	120–360	0.1	45	1	200	6.25
D40D7	D41D7	50–150	0.1	60	1	200	6.25
D40D8	D41D8	120–360	0.1	60	1	200	6.25
D40D10	D41D10	50–150	0.1	75	1	200	6.25
D40D11	D41D11	120–360	0.1	75	1	200	6.25
D40D13	D41D13	50–150	0.1	75	1	200	6.25
D40D14	D41D14	120–360	0.1	75	1	200	6.25
D40E1	D41E1	50 min.	0.1	30	2	230	8.0
D40E5	D41E5	50 min.	0.1	50	2	230	8.0
D40E7	D41E7	50 min.	0.1	80	2	230	8.0
D42C1	D43C1	25 min.	0.2	30	3	50	12.5
D42C2	D43C2	40–120	0.2	30	3	50	12.5
D42C3	D43C3	20 min.	2.0	30	3	50	12.5
D42C4	D43C4	25 min.	0.2	45	3	50	12.5
D42C5	D43C5	40–120	0.2	45	3	50	12.5
D42C6	D43C6	20 min.	2.0	45	3	50	12.5
D42C7	D43C7	25 min.	0.2	60	3	50	12.5
D42C8	D43C8	40–120	0.2	60	3	50	12.5
D42C9	D43C9	20 min.	2.0	60	3	50	12.5
D42C10	D43C10	25 min.	0.2	80	3	50	12.5
D42C11	D43C11	40–120	0.2	80	3	50	12.5
D42C12	D43C12	20 min.	2.0	80	3	50	12.5
TO-220AB							
D44C1	D45C1	25 min.	0.2	30	4	50	30
D44C2	D45C2	40–120	0.2	30	4	50	30
D44C3	D45C3	20 min.	2.0	30	4	50	30
D44C4	D45C4	25 min.	0.2	45	4	50	30
D44C5	D45C5	40–120	0.2	45	4	50	30
D44C6	D45C6	20 min.	2.0	45	4	50	30
D44C7	D45C7	25 min.	0.2	60	4	50	30
D44C8	C45C8	40–120	0.2	60	4	50	30
D44C9	D45C9	20 min.	2.0	60	4	50	30
D44C10	D45C10	25 min.	0.2	80	4	50	30
D44C11	D45C11	40–120	0.2	80	4	50	30
D44C12	D45C12	25 min.	2.0	80	4	50	30
D44H1	D45H1	20 min.	4.0	30	10	50	50
D44H2	D45H2	40 min.	4.0	30	10	50	50
D44H4	D45H4	20 min.	4.0	45	10	50	50
D44H5	D45H5	40 min.	4.0	45	10	50	50
D44H7	D45H7	20 min.	4.0	60	10	50	50
D44H8	D45H8	40 min.	4.0	60	10	50	50
D44H10	D45H10	20 min.	4.0	80	10	50	50
D44H11	D45H11	40 min.	4.0	80	10	50	50

HIGH POWER/HIGH VOLTAGE ISOLATED COLLECTOR POWER DARLINGTONS

These devices are designed for use in AC motor controls, UPS systems, and switching type power supplies. Units feature high hFE at rated current and are UL recognized for isolation (2500 V rms), strike, and creep for 460 V systems.

D66

GE Type	$V_{CEO(SUS)}$ Min. Volts	I_C Cont. Amps	h_{FE} Min.	I_C/V_{CE} @ A/V	I_C/I_B Max. Amps	$V_{CE(SAT)}$ @ Volts	P_D Watts
D66DS5	400	20	40	20/5	20/2	2.5	62.5
D66DS6	450	20	40	20/5	20/2	2.5	62.5
D66DS7	500	20	40	20/5	20/2	2.5	62.5
D66ES5*	400	20	40	20/5	20/2	2.5	62.5
D66ES6*	450	20	40	20/5	20/2	2.5	62.5
D66ES7*	500	20	40	20/5	20/2	2.5	62.5
D66DV5	400	50	50	50/5	50/4	2.0	125
D66DV6	450	50	50	50/5	50/4	2.0	125
D66DV7	500	50	50	50/5	50/4	2.0	125
D66EV5*	400	50	50	50/5	50/4	2.0	125
D66EV6*	450	50	50	50/5	50/4	2.0	125
D66EV7*	500	50	50	50/5	50/4	2.0	125
D67							
D67DE5	400	100	50	100/5	100/5	2.0	312.5
D67DE6	450	100	50	100/5	100/5	2.0	312.5
D67DE7	500	100	50	100/5	100/5	2.0	312.5

*Includes speed-up diode between emitter and base.

GENERAL ELECTRIC POWER TRANSISTORS

HIGH POWER/HIGH VOLTAGE SWITCHING POWER TRANSISTORS AND DARLINGTONS (TO-3 PACKAGE)

These devices are designed for use in AC motor controls. UPS systems, and switching type power supplies. Units feature high h_{FE} at rated current and are UL recognized for isolation (2500 V rms), strike, and creep for 460 V systems.

NPN FAST SWITCHING TRANSISTORS

GE Type	$V_{CEO(SUS)}$ Min. Volts	I_C Cont. Amps	h_{FE} Min.	@ I_C/V_{CE} A/V	I_C/I_B Max. Amps	@ $V_{CE(SAT)}$ Volts	P_D Watts
D64VE3	300	5	10	2/2	5/1	1.0	109
D64VE4	350	5	10	2/2	5/1	1.0	109
D64VE5	400	5	10	2/2	5/1	1.0	109
D64VP3	300	7.5	10	3/2	7.5/1.25	1.0	125
D64VP4	350	7.5	10	5/2	7.5/1.25	1.0	125
D64VP5	400	7.5	10	5/2	7.5/1.25	1.0	125
D64VS3	300	15	10	10/2	15/2.5	1.0	195
D64VS4	350	15	10	10/2	15/2.5	1.0	195
D64VS5	400	15	10	10/2	15/2.5	1.0	195
2N6676	300	15	10	10/2	15/3	1.5	175
2N6677	340	15	10	10/2	15/3	1.5	175
2N6678	400	15	10	10/2	15/3	1.5	175

NPN POWER DARLINGTONS

GE5060	350	20	40	15/5	20/2	2.0	125
GE5061	400	20	40	15/5	20/2	2.0	125
GE5062	450	20	40	15/5	20/2	2.0	125
GE6060	350	20	30	15/5	20/2	2.0	125
GE6061	400	20	30	15/5	20/2	2.0	125
GE6062	450	20	30	15/5	20/2	2.0	125
GE6251	400	10	60	5/5	10/2	2.0	125
GE6252	450	10	60	5/5	10/2	2.0	125
GE6253	500	10	60	5/5	10/2	2.0	125
D64DS5	400	20	40	20/5	20/2	2.5	125
D64DS6	450	20	40	20/5	20/2	2.5	125
D64D57	500	20	40	20/5	20/2	2.5	125

NPN FAST SWITCHING TRANSISTORS

GE Type	$V_{CEO(SUS)}$ Min. Volts	I_C Cont. Amps	h_{FE} Min.	@ I_C/V_{CE} A/V	I_C/I_B Max. Amps	@ $V_{CE(SAT)}$ Volts	P_D Watts
D64ES5	400	20	40	20.5	20.2	2.5	125
D64ES6	450	20	40	20/5	20/2	2.5	125
D64ES7	500	20	40	20/5	20/2	2.5	125
D64DV5	400	50	50	50/5	50/4	2.0	180
D64DV6	450	50	50	50/5	50/4	2.0	180
D64DV7	500	50	50	50/5	50/4	2.0	180
D64EV5	400	50	50	50/5	50/4	2.0	180
D64EV6	450	50	50	50/5	50/4	2.0	180
D64EV7	500	50	50	50/5	50/4	2.0	180
GE10000	350	20	40	10/5	20/1	3.0	175
GE10001	400	20	40	10/5	20/1	3.0	175
GE10002	350	10	30	5/5	10/1	2.9	150
Ge10003	400	10	30	5/5	10/1	2.9	150
GE10004	350	20	40	10/5	20/1	3.0	175
GE10005	400	20	40	10/5	20/1	3.0	175
GE10006	350	10	30	5/5	10/1	2.9	150
GE10007	400	10	30	5/5	10/1	2.9	150
GE10008	450	20	30	10/5	20/2	3.5	175
GE10009	500	20	30	10/5	20/2	3.5	175
GE10015	400	50	25	20/5	50/10	5.0	250
GE10016	500	50	25	20/5	50/10	5.0	250
GE10020	200	60	75	15/5	60/4	4.0	250
GE10021	250	60	75	15/5	60/4	4.0	250
GE10022	350	40	50	10/5	40/5	5.0	250
GE10023	400	40	50	10/5	40/5	5.0	250

HI-LINE™ PACKAGE FEATURES:

- 2500 volt (RMS) electrically isolated package—UL recognized (File No. E60692)
- Meets UL creep and strike distances for up to 600 volt (RMS) line applications
- Low thermal resistance
- High thermal cycling capability
- Extended blocking life capability
- Nickel plated power terminals
- 110 FASTON gate terminals
- Modular building block design flexibility

General Electric Power Modules & Hiline

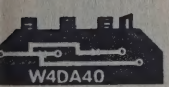
APPLICATIONS:

- DC motor controls
- AC motor controls
- Power supplies
- Lighting controls
- Heating controls

DIODE

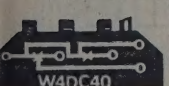
DIODE-DIODE

GE Stock Numbers			V_{RRM} V_{RRM} [V]	V_{RSM} [V]	I_T (RMS) [A]	I_T (AV) T_{BP} = +85JC) [A]	50 HZ I_{TSM} [A]	60 HZ	8.3 MS I^2t [A^2s]	1.5 MS	V_{TM} (MAX) @200 AMPS PEAK [V]	T_J (OPERATING) (°C)	PER DEVICE R_{θ} J-BP [°C/W]	PER MODULE	PER DEVICE R_{θ} BP-H [°C/W]	PER MODULE
W4DA40C	W4DB40C	W4DC40C	300	400	70	45	830	900	3360	2550	2.0		.50	.25	.2	.1
W4DA40D	W4DB40D	W4DC40D	400	500												
W4DA40M	W4DB40M	W4DC40M	600	720								−40				
W4DA40N	W4DB40N	W4DC40N	800	950								to				
W4DA40P	W4DB40P	W4DC40P	1000	1200								+125				
W4DA40PB	W4DB40PB	W4DC40PB	1200	1350												
W4DA40PD	W4DB40PD	W4DC40PD	1400	1550												
W4DA55C	W4DB55C	W4DC55C	300	400	90	55	925	1000	4150	2850	1.8		.39	.195	.2	.1
W4DA55D	W4DB55D	W4DC55D	400	500												
W4DA55M	W4DB55M	W4DC55M	600	720								−40				
W4DA55N	W4DB55N	W4DC55N	800	950								to				
W4DA55P	W4DB55P	W4DC55P	1000	1200								+125				
W4DA55PB	W4DB55PB	W4DC55PB	1200	1350												
W4DA55PD	W4DB55PD	W4DC55PD	1400	1550												
		W4D45C	300	400	125		740	800	2656	2100	1.6		.6	.3	.2	.1
		W4D45D	400	500		45										
		W4D45M	600	720		@ T_{BP}						−40				
		W4D45N	800	950		= +112°C						to				
		W4D45P	1000	1200								+150				
		W4D45PB	1200	1400												
		W4D45PD	1400	1600												
		W4D45PM	1600	1800												
		W4D80C	300	400	125		1370	1500	9340	8000	1.7		.4	.2	.2	.1
		W4D80D	400	500		80										
		W4D80M	600	720		@ T_{BP}					@ 500					
		W4D80N	800	950		= +105°C					A PK	−40				
		W4D80P	1000	1200								to				
		W4D80PB	1200	1400								+150				
		W4D80PD	1400	1600												
		W4D80PM	1600	1800												
		W4H45C	300	400	125		740	800	2656	2100	1.6		.6	.3	.2	.1
		W4H45D	400	500		45										
		W4H45M	600	720		@ T_{BP}										
		W4H45N	800	950		= +112°C						−40				
		W4H45P	1000	1200								to				
		W4H45PB	1200	1400								+150				
		W4H45PD	1400	1600												
		W4H45PM	1600	1800												
		W4H80C	300	400	125		1370	1500	9340	8000	1.7		.4	.2	.2	.1
		W4H80D	400	500		80					@ 500					
		W4H80M	600	720		@ T_{BP}						A PK				
		W4H80N	800	950		= +105°C						−40				
		W4H80P	1000	1200								to				
		W4H80PB	1200	1400								+150				
		W4H80PD	1400	1600												
		W4H80PM	1600	1800												



SCR DIODE

DIODE-SCR



SCR-SCR

General Electric Optoelectronics

OPTO COUPLERS

PHOTO TRANSISTOR OUTPUT

GE TYPE	ISOLATION VOLTAGE (V_{pk}) MIN.	CURRENT TRANSFER RATIO MIN.	I_D (nA) MAX.	BV_{CEO} (VOLTS) MIN.	TYPICAL (μSEC.) t_r	TYPICAL (μSEC.) t_f
CNY17 I	4000	40- 80	50	70	2	2
CNY17 II	4000	63-125	50	70	2	2
CNY17 III	4000	100-200	50	70	2	2
CNY17 IV	4000	160-320	50	70	2	2
CNY32	4000 V_{RMS}	20%	100	30	3	3
CNY47	2800	20- 60	100	30	2	2
H11A1	2500	50%	50	30	2	2
H11A2	1500	20%	50	30	2	2
H11A3	2500	20%	50	30	2	2
H11A4	1500	10%	50	30	2	2
H11A5	1500	30%	100	30	2	2
H11A520	5656	20%	50	30	2	2
H11A550	5656	50%	50	30	2	2
H11A5100	5656	100%	50	30	2	2
H24A1	4242 V_{RMS}	20%	100	30	3	3
H24A2	4242 V_{RMS}	10%	100	30	3	3
4N25	2500	20%	50	30	3	3
4N25A	1775 V_{RMS}	20%	50	30	3	3
4N26	1500	20%	50	30	3	3
4N27	1500	10%	50	30	3	3
4N28	500	10%	50	30	3	3
4N35	2500 V_{RMS}	100%	50	30	5	5
4N36	1750 V_{RMS}	100%	50	30	5	5
4N37	1050 V_{RMS}	100%	50	30	5	5
H74A1	1500		100	15		

PHOTO DARLINGTON OUTPUT

H11B1	2500	500%	100	25	125	100
H11B2	1500	200%	100	25	125	100
H11B3	1500	100%	100	25	125	100
H11B255	1500	100%	100	55	125	100
H24B1	4242 V_{RMS}	1000%	100	30	125	100
H24B2	4242 V_{RMS}	400%	100	30	125	100
4N29	2500	100%	100	30	5	40
4N29A	1775 V_{RMS}	100%	100	30	5	40
4N30	1500	100%	100	30	5	40
4N31	1500	50%	100	30	5	40
4N32	2500	500%	100	30	5	100
4N32A	1775 V_{RMS}	500%	100	30	5	100
4N33	1500	500%	100	30	5	100

HIGH VOLTAGE PHOTO TRANSISTOR OUTPUT

H11D1	2500	20%	100	300	5	5
H11D2	1500	20%	100	300	5	5
H11D3	1500	20%	100	200	5	5
H11D4	1500	10%	100	200	5	5
4N38	1500	10%	50	80	5	5
4N38A	1775 V_{RMS}	10%	50	80	5	5

HIGH VOLTAGE PHOTO DARLINGTON OUTPUT

H11G1	2500	1000%	100	100	5	100
H11G2	2500	1000%	100	80	5	100
H11G3	1500	200%	100	55	5	100

PROGRAMMABLE THRESHOLD COUPLER

H11A10	1500	10%	50	30	2	2

AC INPUT COUPLER

H11AA1	1500	20%	100	30	2	2
H11AA2	1500	10%	200	30	2	2

PHOTO SCR OUTPUT

GE TYPE	ISOLATION VOLTAGE MIN.	I_F TRIGGER (MAX.)	I_D 100°C (MAX.)μA	BLOCKING VOLTAGE (MIN.)	TYPICAL TON (μSEC.)	V_F (MAX.)
H11C1	2500	20mA	50	200	1	1.5
H11C2	2100	20mA	50	200	1	1.5
H11C3	1500	30mA	50	200	1	1.5
H11C4	2500	20mA	100	400	1	1.5
H11C5	2100	20mA	100	400	1	1.5
H11C6	1500	30mA	100	400	1	1.5
4N39	1500	14mA	50	200	1	1.5
4N40	1500	14mA	150	400	1	1.5
H74C1	1500			200		
H74C2	1500			400		

TRIAC DRIVER OUTPUT

GE TYPE	ISOLATION VOLTAGE (RMS) MIN.	I_F TRIGGER MAX.	BLOCKING VOLTAGE MIN.	LEAKAGE CURRENT MAX.	ON-STATE VOLTAGE (46 = 100 mA) MAX.	TYPICAL dv/dt V/μ sec STATIC
H11J1	4000V	10 mA	250V	100 nA	3.0V	2.0
H11J2	4000V	15 mA	250V	100 nA	3.0V	2.0
H11J3	2500V	10 mA	250V	100 nA	3.0V	2.0
H11J4	2500V	15 mA	250V	100 nA	3.0V	2.0
H11J5	1500V	25 mA	250V	100 nA	3.0V	2.0

BILATERAL ANALOG FET OUTPUT

GE TYPE	ISOLATION VOLTAGE (pk) MIN.	ON-STATE RESISTANCE MAX. OHMS	OFF-STATE RESISTANCE MIN. OHMS	BREAKDOWN VOLTAGE	TURN-ON TIME μSEC)	TURN-OFF TIME (μSEC)
H11F1	2500	200	300M	30	15	15
H11F2	2500	330	300M	30	15	15
H11F3	1500	470	300M	15	15	15

SCHMITT TRIGGER OUTPUT

GE TYPE	ISOLATION VOLTAGE (RMS) MIN.	TURN ON CURRENT I_{FON}, MAX.	HYSTERESIS I_{OFF}/I_{ON} RATIO MIN.	HYSTERESIS I_{OFF}/I_{ON} RATIO MAX.	OUTPUT VOLTAGE VOL (I_O = 16mA) MAX.	MAXIMUM DATA RATE, NRZ	OPERATING VOLTAGE MIN.	OPERATING VOLTAGE MAX
H11L1	2500V	1.6 mA	0.3	0.9	0.4V	1.0 MHz	3V	16V
H11L2	2500V	10 mA	0.3	0.9	0.4V	1.0 MHz	3V	16V

PHOTON COUPLED INTERRUPTER MODULE

PHOTO TRANSISTOR OUTPUT

GE TYPE	OUTPUT CURRENT		I_D (nA)	BV_{CEO} (V)	TYPICAL TON (μSEC.)	TYPICAL t_f (μSEC.)
H21A1	I_F = 20mA	1.0mA	100	30	8	50
H21A2	I_F = 20mA	2.0mA	100	30	8	50
H21A3	I_F = 20mA	4.0mA	100	30	8	50
H21A4	I_F = 20mA	1.0mA	100	55	8	50
H21A5	I_F = 20mA	2.0mA	100	55	8	50
H21A6	I_F = 20mA	4.0mA	100	55	8	50
H22A1	I_F = 20mA	1.0mA	100	30	8	50
H22A2	I_F = 20mA	2.0mA	100	30	8	50
H22A3	I_F = 20mA	4.0mA	100	30	8	50
H22A4	I_F = 20mA	1.0mA	100	55	8	50
H22A5	I_F = 20mA	2.0mA	100	55	8	50
H22A6	I_F = 20mA	4.0mA	100	55	8	50

PHOTO DARLINGTON OUTPUT

H21B1	I_F = 10mA	7.5mA	100	30	45	250
H21B2	I_F = 10mA	14mA	100	30	45	250
H21B3	I_F = 10mA	25mA	100	30	45	250
H21B4	I_F = 10mA	7.5mA	100	55	45	250
H21B5	I_F = 10mA	14mA	100	55	45	250
H21B6	I_F = 10mA	25mA	100	55	45	250
H22B1	I_F = 10mA	7.5mA	100	30	45	250
H22B2	I_F = 10mA	14mA	100	30	45	250
H22B3	I_F = 10mA	25mA	100	30	45	250
H22B4	I_F = 10mA	7.5mA	100	55	45	250
H22B5	I_F = 10mA	14mA	100	55	45	250
H22B6	I_F = 10mA	25mA	100	55	45	250

MATCHED EMITTER DETECTOR PAIRS

PHOTO TRANSISTOR OUTPUT

H23A1	I_F = 30mA	1.5mA	100	30	8	50

PHOTO DARLINGTON OUTPUT

H23B1	I_F = 10mA	7.5mA	100	30	45	250

INFRARED EMITTERS

GE TYPE	MIN. P_O@ I_F= 100mA	MAX. V_F@ I_F= 100mA	PEAK EMISSION WAVELENGTH TYP.n.METERS	RISE TIME TYP.μ. SEC.	FALL TIME TYP.μ. SEC.	MAX. P_D mW	MAX. I_F CONT. mA
IN6264	6.0mW	1.7V	940	1.0	1.0	1300	100
IN6265	6.0mW	1.7V	940	1.0	1.0	1300	100
IN6266	25mW sr	1.7V	940	1.0	1.0	1300	100
F5D1	12mW	1.7V	880	1.5	1.5	1300	100
F5D2	9mW	1.7V	880	1.5	1.5	1300	100
F5D3	10.5mW	1.7V	880	1.5	1.5	1300	100
F5E1	12mW	1.7V	880	1.5	1.5	1300	100
F5E2	9mW	1.7V	880	1.5	1.5	1300	100
F5E3	10.5mW	1.7V	880	1.5	1.5	1300	100
LED55C	5.4mW	1.7V	940	1.0	1.0	1300	100
LED56	1.5mW	1.7V	940	1.0	1.0	1300	100

DETECTORS

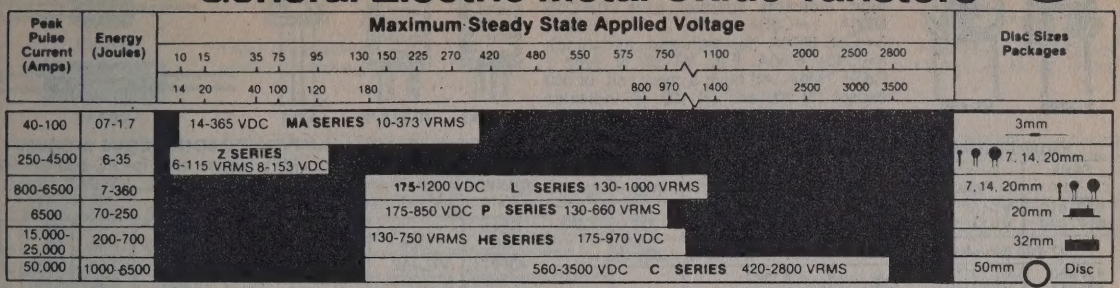
PHOTO TRANSISTORS

GE TYPE	SENSITIVITY (ma/mw/cm²) MIN.	SENSITIVITY (ma/mw/cm²) MAX.	BV_{CEO} (V)	BV_{CBO} (V)	I_D (nA) MAX.	SWITCHING TYP. t_r (μSEC.)	SWITCHING TYP. t_f (μSEC.)
L14G1	.6	—	45	45	100	5	5
L14G2	.3	—	45	45	100	5	5
L14G3	1.2	—	45	45	100	5	5
L14H1	.05	—	60	60	100	5	5
L14H2	.2	—	30	30	100	5	5
L14H3	.2	—	60	60	100	5	5
L14H4	.05	—	30	30	100	5	5

PHOTO DARLINGTONS

2N5777	.25	—	25	25	100	75	50
2N5778	.25	—	40	40	100	75	50
2N5779	1.0	—	25	25	100	75	50
2N5780	1.0	—	40	40	100	75	50
L14F1	15.0	—	25	25	100	75	50
L14F2	5.0	—	25	25	100	75	50

General Electric Metal Oxide Varistors



Varistors are voltage dependent, symmetrical resistors which perform in a manner similar to back-to-back zener diodes in circuit protection but offer advantages in performance and economics. When exposed to high energy voltage transient, varistor impedance changes from a high standby value to a low conducting value thus clamping the voltage to a safe level. Dangerous energy of incoming high voltage pulse is absorbed by the varistor, thus protecting voltage sensitive circuit components. Eliminates follow-on currents, extends contact life and protects circuit insulation. Applications include component and system voltage transient protection in inductive and transformer switching circuits, regenerative loads, switching magnetic amplifiers; contact arc suppression-reduction of lightning effects. If nonsinusoidal wave input is present, peak voltage input values should be used to select model.

P/HE SERIES

Power dissipation: up to 15 watts at 70°C mounting tab temperature.
Current: Can handle up to 2000 Amps.

Model Number	RMS Voltage	DC Voltage	Energy (10/1000µs)	Max. Clamp. Voltage
	$V_{m(ac)}$	$V_{m(dc)}$	WTM	V_C
	Volts	Volts	Joules	Volts
V130PA20A	130	175	70	360
V130PA20C				325
V130HE150			200	365
V150PA20A	150	200	80	420
V150PA20C				360
V150HE150			220	425
V250PA40A	250	330	130	675
V250PA40C				620
V250HE250			330	690
V275PA40A	275	369	140	740
V275PA40C				680
V275HE250			360	760
V320PA40A	320	420	160	850
V320PA40C				800
V320HE300			390	860
V420PA40A	420	560	160	1160
V420PA40C				1050
V420HE400			400	1200
V480PA80A	480	640	180	1280
V480PA80C				1160
V480HE450			450	1320
V510PA80A	510	675	190	1410
V510PA80C				1280
V510HE500			500	1450
V575PA80A	575	730	220	1560
V575PA80C				1410
V575HE550			550	1600
V660PA100A	660	850	250	1820
V660PA100C				1650
V660HE600			600	1850
V750HE700	750	970	700	2100

C SERIES

V421CA401	420	560	400	1180
V421CA102			1000	1140
V481CA451	480	640	450	1300
V481CA112			1100	1250
V511CA501	510	675	500	1420
V511CA122			1200	1370
V571CA551	575	730	550	1580
V571CA142			1400	1530
V661CA601	660	850	600	1820
V661CA152			1500	1750
V751CA701	750	970	700	2070
V751CA172			1700	2000
V881CA401	880	1150	850	2570
V881CA212			2100	2500
V112CA103	1100	1400	1000	3200
V112CA252			2500	3100
V142CA332	1400	1750	3300	3900
V172CA402	1700	2150	4000	4500
V202CA502	2000	2500	5000	5500
V242CA572	2400	3000	5700	6600
V282CA652	2800	3500	6500	7800

*With 50-60Hz ac test, the maximum voltage for 1mA peak currnt is 5% higher.

MA SERIES

Power Dissipation: 0.2 watts. Current: can handle up to 20 Amps.

V18MA1B	10	14	0.07	44
V28MA1B	14	18	0.10	51
V27MA1B	17	22	0.11	59
V33MA1A	18	23	0.13	73
V33MA1B	20	26	0.15	67
V39MA2A	22	28	0.16	86
V39MA2B	25	31	0.18	79
V47MA2A	27	34	0.19	99
V47MA2B	30	38	0.21	90
V56MA2A	32	40	0.23	117
V56MA2B	35	45	0.25	108
V68MA3A	38	48	0.26	138
V68MA3B	40	56	0.30	127
V82MA3A	45	60	0.33	163
V82MA3B	50	66	0.37	150
V100MA4A	57	72	0.40	200
V100MA4B	60	81	0.45	185
V120MA1A	72	97	0.40	220
V120MA2B	75	101	0.50	205
V150MA1A	88	121	0.50	255
V150MA1B	92	127	0.60	240
V180MA1A	105	144	0.60	310
V180MA3B	110	152	0.70	290
V220MA2A	132	181	0.80	380
V220MA4B	138	191	0.90	360
V270MA2A	163	224	0.90	460
V270MA4B	171	235	1.0	440
V330MA2A	188	257	1.0	570
V330MA5B	200	274	1.1	540
V390MA3A	234	322	1.2	670
V390MA6B	242	334	1.3	640
V430MA3A	253	349	1.5	740
V430MA7B	373	365	1.7	700

Z SERIES

Power Dissipation: Up to .55 watts. Current: Can handle up to 300 Amps.

V12ZA1	6	8	0.6	34
V18ZA1	10	14	0.8	42
V18ZA3			3.5	39
V18ZA40			80.0*	37
V22ZA1	14	18‡	0.9	47
V22ZA3			4.0	43
V24ZA50	14	18‡	100.0*	43
V27ZA1	17	22	1.0	57
V27ZA4			5.0	53
V27ZA60		22	120.0*	50
V33ZA1	20	26	1.2	68
V33ZA5			6.0	64
V33ZA70	21	27	150.0*	58
V36ZA80	23	31	160.0*	63
V39ZA1	25	31	1.5	79
V39ZA6			7.2	76
V47ZA1	30	38	1.8	92
V47ZA7			8.8	89
V56ZA2	35	45	2.3	107
V56ZA8			10.0	103
V68ZA2	40	56	3.0	127
V68ZA10			13.0	123
V82ZA2	50	66	4.0	152
V82ZA12			15.0	147

‡Also rated to withstand 24V for 5 minutes.

Z SERIES cont.

V100ZA3	60	81	5.0	180
V100ZA15			20.0	175
V120ZA1	75	102	6.0	205
V120ZA6			22.0	210
V150ZA1	95	127	8.0	250
V150ZA8			30.0	255
V180ZA1	115	153	10.0	295
V180ZA10			35.0	300

*Energy rating for impulse duration of 30 milliseconds minimum to one half of peak current value.

L SERIES

Power Dissipation: Up to 1.3 watts at 850 ambient temperature. Current: Can handle up to 2000 Amps.

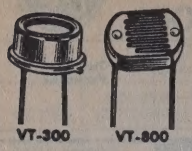
V130LA1	130	175	7	390
V130LA2			11	340
V130LA10A			38	340
V130LA20A			70	340
V130LA20B			70	325
V150LA1	150	200	8	430
V150LA2			13	395
V150LA10A			45	395
V150LA20A			80	395
V150LA20B			80	360
V250LA2	250	330	14	730
V250LA4			21	650
V250LA20A			72	650
V250LA40A			130	650
V250LA40B			130	620
V275LA2	275	369	15	775
V275LA4			23	710
V275LA20A			75	710
V275LA40A			140	710
V275LA40B			140	680
V300LA2	300	405	16	870
V300LA4			25	775
V320LA20A	320	420	90	850
V320LA40B			160	810
V420LA20A	420	560	90	1120
V420LA40B			160	1060
V480LA40A	480	640	105	1240
V480LA80B			180	1160
V510LA40A	510	675	110	1350
V510LA80B			190	1280
V575LA40A	575	730	120	1500
V575LA80B			220	1410
V1000LA80A	1000	1200	220	2700
V1000LA160A			360	2420

NOTE: Power dissipation of transients not to exceed 0.25, 0.6, 1.0 watts for sizes 7, 14 and 20mm respectively.

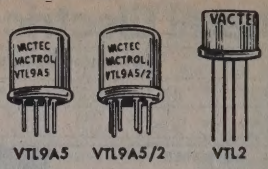
VOLTAGE SPIKE PROTECTOR

GESP752 Voltage spikes (due to lightning strikes near power lines, switching appliances ON/OFF) can destroy solid-state components. VSP absorbs this energy allowing a safe voltage level to pass. Just plug into outlet. (Not lightning arrestor.)

Photoconductive Cells



Cells ideal for circuit board mtg. 2nd digit indicates spectral peak. 0=CdS 5650A, 1=CdSe 7350A, 2=CdS 5150A, 3=CdS 5500A (for high spd., switching), 4=CdSe 6750A. E.g.: VT-312 is Type 1 CdSe 7350A. All have a max. volt. of 300 except (*) 200 and (†) 100. ($) indicates max. dark resis. (ohms) 5 sec. after 2 fc.



VTL9A5 VTL9A5/2 VTL2 VTL5C1 VTL3A2

VT-100 (Non-hermetic, Max. Pwr. 200 mW, .365" d.×.065 thk.)

Stock No.	Type	2 fc. Res. in K Ohms	Min. Dark Res. §2fc	1-49	50-99
61F1016	VT-10L	1.6	100K	1.65	1.65
61F1040	VT-14L*	.6	100K		

VT-700 (Non-hermetic, Max. Pwr. 250 mW, .365 d.×.080 thk.)

43F850	VT-701*	3.0	5 meg	1.25	1.17
43F851	VT-721H	4.8	2 meg		
43F852	VT-732	10	10 meg		
43F853	VT-741†	.9	500K		

VT-800 (non-hermetic, Max. Pwr. 175 mW, .266 d.×.080)

43F854	VT801*	3	250K	1.13	1.10
43F856	VT-833	33	15 meg		
43F857	VT-841L†	.9	500K		

VT-900 (non-hermetic, Max. Pwr. 80 mW, .182 d.×.080)

43F858	VT-902†	8	750K	1.22	1.17
43F862	VT-931†	22	1 meg		
43F864	VT-941†	2	500K		

VT-200 (50 mW Max. Pwr., TO-18 Herm. sealed, .183 d.×.150 h.)

Stock No.	Type	2 fc Res. in K Ohms	Min. Dark Res. §	1-49	50-99	100-499
61F1065	VT-201†	4.3	500K	2.55	2.48	1.85
61F1066	VT-202†	8	750K			
61F1069	VT-204	110	20 meg			
61F1071	VT-211†	2.3	500K			
61F1072	VT-211H†	3.5	1 meg			
61F1073	VT-212†	6	5 meg			
61F1077	VT-214L	64	100 meg			
61F1078	VT-214	140	200 meg			
61F1079	VT-223H	65	5 meg			
61F1082	VT-232†	100	50 meg			
61F1087	VT-241†	2	500K			
61F1090	VT-242†	15	10 meg			
61F1091	VT-242H†	30	10 meg			

VT-300 (Max. Pwr. 125 mW, TO-5 Herm. sealed, .325 d.×.177 h.)

61F1093	VT-301*	3	200K	2.55	2.48	1.85
61F1099	VT-304	144	50 meg			
61F1101	VT-311L*	2.1	500K			
61F1104	VT-314	140	200 meg			
61F1109	VT-333*	28	10 meg			
61F1110	VT-34L*	.6	100K			
61F1116	VT-343	28	10 meg			

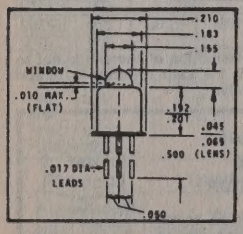
VT-500 (500 mW Max. Pwr., TO-8 Herm. sealed, .486 d.×.220 h.)

61F1123	VT-50L*	1.3	100K	2.55	2.48	1.85
61F1124	VT-501*	2.6	200K			
61F1125	VT-502L	8	1 meg			
61F1128	VT-512L	9.2	10 meg			
61F1132	VT-54L*	.25	100K			
61F1134	VT-542L	1.5	1 meg			

NOTE: CL504 and 502 have ½" all glass package.

DUAL ELEMENT CELLS (Max. Pwr. 50 mW each ½)

Stock No.	Type	2 fc. Res. in K Ohms	Min. Dark § 2 fc.	1-9	50-99	100-499
43F865	VT-301/2	7.5	1 meg	3.74	3.64	2.64
61F1119	VT-312/2	5	1 meg			
43F868	VT-333/2	60	25 meg			



PHOTOTRANSISTORS

In Table: V_{CE}(Sat) at I_C—1mA, I_B—50 μa & dk. is .25V Typ., peak sens. at 850nm. 5mW/cm² source calibrated at 2850°K.

Oper. Temp......150°C
Storage Temp......−65° to +200°C

MAXIMUM RATINGS

Power Dissipation (derate 2 mW/°C above 25°C).....250 mW
Collector Current.....200 mA
Emitter Coll. Volt.....5 V

Stock No.	Type	Typ. I_{CEO}(mA) @5mW/cm² V_{CE}-5 V	Breakdown V $V_{(BR)CEO}$ @ I_{CEO}-100 μA	Dark Curr. V_{CE}-20 V 25°C	Dark Curr. V_{CE}-20 V 100°C	1-99	100-999
43F909	VTT1012	.5	50	25 nA	25 uA	3.07	2.14
43F912	VTT1013	4.0	20	100	100	3.41	2.39
43F916	VTT1113	12.0	20	100	100	3.73	2.62

VTL9 VACTROL—LAMP-PHOTOCONDUCTIVE MODULE

Has .63 dia. x .70" h. with .040 pin base mtg. for PC boards. Min. off-resistance 10 meg except VTL9B6, 1 meg. VTL9A2 equiv. to Clairex CLM4006. VTL9A4 to Clairex CLM5012.

Stock No.	Type	Max. Lamp V.	Lamp mA	Max. On-Ohms	1-49	50-99	100-499
43F871	VTL9A2	6.0	40	60	3.60	2.87	2.40
43F873	VTL9A4	10.0	22	300	3.98	3.18	2.67
43F874	VTL9A5	10.0	22	1500	3.58	2.86	2.39
43F877	VTL9A11	12.0	25	600	3.58	2.86	2.39
			NEON TYPES				
43F878	VTL9B6	125	1.5	300	4.07	3.24	2.72
43F879	VTL9B7	125	1.5	800	4.07	3.24	2.72
43F880	VTL9B8	80	.3	2000	4.41	3.54	2.96

VTL2 VACTROLS—LED-PHOTOCONDUCTIVE MODULE

TO-5 hermetic case .325 d. x .265 h. Light emitting diode coupled to efficient photoconductive cell. Operates as low as 1 mW input power to LED. Rated LED current 40 ma. No filaments to burn out. Shock resistant. V_f is 1.65 typ.

Stock No.	Type	Max. on-Ohms @ 40 mA. LED Curr.	Min. Off-Ohms	Max. Decay to	1-49	50-99	100-499
43F881	VTL2C1	10k	10^8	1 meg-3.5 ms	7.18	5.73	4.79
43F882	VTL2C2	500	10^6	100k-500 ms			
43F883	VTL2C3	2k	10^7	100k-35 ms			
43F884	VTL2C4	100	4×10^5	100k-1.5 sec.			

VTL5 VACTROLS—LED-PC MODULE—PLASTIC

Stock No.	Type	Max. Ohms @ 40 mA LED I.	Max. Decay to 100k	1-49	50-99	100-999
43F885	VTL5C1	500	35 ms	2.46	2.06	1.73
43F886	VTL5C2	500	500 ms			
43F887	VTL5C3	2000	35 ms			
43F888	VTL5C4	200 (@ 10 mA)	1500 ms			
43F889	VTL5C6	3500	50 ms (to 1 meg)			
		1500	1000 ms			

VTL3 VACTOLS—LAMP-PC MODULE

Stock No.	Type	Lamp Max. V.	Lamp mA	Max. On-Ohms	Max. Cell V.	1-49	50-99	100-499
43F891	VTL3A14	6	40	160	100	2.50	2.00	1.67
43F892	VTL3A17	12	40	160	100	2.50	2.00	1.67
43F893	VTL3A35	10	14	3000	250	2.86	2.28	1.91
43F894	VTL3A44	6	40	55	100	2.50	2.00	1.67
43F895	VTL3A47	12	40	40	100	2.50	2.00	1.67
			NEON TYPES					
43F896	VTL3B19	125	2.0	900	100	2.00	1.93	1.62
43F897	VTL3B49	125	2.0	135	100	2.00	1.93	1.62

SILICON SOLAR CELLS

P & N cells w/high output, spec. leak, curr.; Spectral response 400-1200 nm. Typ. junction cap. .15 μF/in.² Response time, 20 sec. Temp. range: −55—+125°C. Temp. coeff. (short ckt.). 0.2%/°C. Open circuit voltage −0.2 mV/°C.

SIZE CHART

Type	Size (cm)	Active Area (cm²)	Type	Size (cm)	Active Area (cm²)
VTS3011	.22 x .51	.084	VTS3022	1.02 x 1.02	.90
VTS3012	.25 x .51	.10	VTS3024	2.03 x 1.02	1.87
VTS3013	.51 x .51	.21	VTS3026	2.03 x 1.02	1.87
VTS3014	1.02 x .51	.42	VTS3028	2.03 x 2.03	3.94
VTS3018	2.03 x .51	.84	VTS3050	2.86 0	5.48
VTS3020	1.02 x 1.02	.90			

Stock No.	Type	Typ. 100 mW/cm² Min. Output mA @ Test V.	2850° K Output 100 fc	2850° K Output Dark Curr. @ .5V (μA)	1-49	50-99	100-499
43F898	VTS3011	1.7 @ .40	.055	1	2.27	1.84	1.59
43F899	VTS3012	2.0 @ .40	.065	2	2.71	2.20	1.88
43F900	VTS3013	4.2 @ .40	.14	5	3.54	2.87	2.46
43F901	VTS3014	8.4 @ .40	.27	10	5.43	4.39	3.81
43F902	VTS3018	17.0 @ .40	.55	40	5.47	4.43	3.84
43F903	VTS3020	18.0 @ .40	.60	50	5.47	4.43	3.84
43F904	VTS3022	21.0 @ .43(2)	.58	50	8.84	7.16	6.18
43F905	TVS3024	38.0 @ .40	1.2	100	29.89	24.21	20.91
43F908	VTS3050	110.0 @ .40	3.5	250	29.89	24.21	20.91

Liquid Crystal Displays

AND

- High Contrast Ratio
- Reflective: Silver Bead
- CMOS Compatible
- Low Power Consumption
- Reflective: Aluminum Foil

FE0201

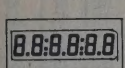
FE0203

FE0202

FE0205

FE0206

FE0208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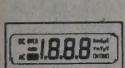
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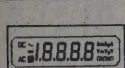
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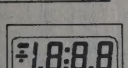
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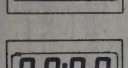
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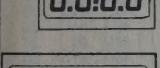
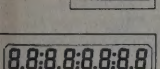

FE0601

FE0801

FE0802

FE0803

FE0804


FE1001

FE0101

Field Effect LCDs: These liquid crystal displays feature state-of-the-art manufacturing and processing techniques plus materials of the highest quality; and are offered in transmissive, reflective, and transflective modes. The high quality connector pins, resistant to fatigue and corrosion, are fabricated from phosphor bronze. Pinless versions of these LCDs are also available. The standard operation temperature range is –20°C to + 55°C but a wide temperature range of –20°C to + 80°C is also available. For special applications requiring colored readouts, the LCDs are offered in red, green and blue via the use of specially processed polarizers. All LCDs are supplied with dual-in-line connector pins with neutral polarizer/reflector/transflector combinations. Colored LCSs and wide temperature versions command a 10 percent price adder respectively. Contact Newark Electronics for more information.

Typical Operating Characteristics 5 VRMS, 32 Hz, 25° C

Parameter	Liquid Crystal Materials: Std. Temp. Typ.	Std. Temp. Max.	Wide Temp. Typ.	Wide Temp. Max.	Unit
Operating Current					
0.5" Character Height	1.5	7.0	1.5	7.0	µA/Digit
0.7" Character Height	3.0	14.0	3.0	14.0	µA/Digit
1.0" Character Height	6.0	25.0	6.0	25.0	µA/Digit
Optical Response Time					
Rise Time (Ta = 50/60°C)	15	—	10	—	ms
Decay Time (Ta = 50/60°C)	60	—	40	—	ms
Rise Time (Ta = 25°C)	30	—	30	—	ms
Decay Time (Ta = 25°C)	120	—	120	—	ms
Rise Time (Ta = 0°C)	150	—	150	—	ms
Decay Time (Ta = 0°C)	600	—	600	—	ms
Contrast Ratio	20:1	—	20:1	—	—
Viewing Angle	± 60°	—	± 60°	—	—
DC Resistance	5	—	5	—	MΩ
Expected Life	50000	—	50000	—	Hours

CONFIGURATION CHART

Mode	With Contr. Pins	No Contr. Pins
Transmissive	A	F
No Polarizers	B	G
Reflective Silver Bead	C	H
Reflective Aluminum Foil	D	I
Transflective	E	J

Absolute Maximum Ratings (Polarizers Attached)

Parameter	Liquid Crystal Material: Standard Temp.	Wide Temp.	Unit
Applied Voltage	10	10	VRMS
DC Drive Cmpnt. Allow.	25	25	mV
Operating Temp. Range	-20 to + 55	-20 to + 60[A]	°C
Storage Temp. Range	-20 to + 60	-20 to + 60	°C
Operating Freq. Range	+ 30 to + 100[B]	+ 30 to + 100[B]	Hz

A. The Liquid Crystal Material will operate at + 80°C.
B. Flicker may occur below 30Hz. Power Consumption increases above 100Hz.

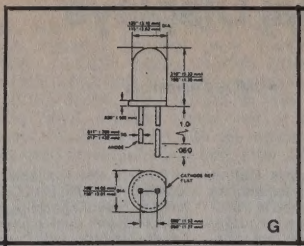
Part No.	Type	Digit Height	Number Digits	Glass Size	Application	Reflector	Each
54F200	FE0201-C	5"	3½	2.00" × 1.20"	General Purpose	Silver Bead	14.95
54F201	FE0201-D	5"	3½	2.00" × 1.20"	General Purpose	Aluminum Foil	14.95
54F202	FE0202-C	5"	4	2.00" × 1.20"	General Purpose	Silver Bead	14.95
54F203	FE0202-D	5"	4	2.00" × 1.20"	General Purpose	Aluminum Foil	14.95
54F204	FE0203-C	5"	3½	2.00" × 1.20"	General Purpose	Silver Bead	14.95
54F205	FE0203-D	5"	3½	2.00" × 1.20"	General Purpose	Aluminum Foil	14.95
54F209	FE0206-C	4"	4½	2.00" × 1.20"	General Purpose	Silver Bead	16.56
54F210	FE0206-D	4"	4½	2.00" × 1.20"	General Purpose	Aluminum Foil	16.56
54F207	FE0205-C	5"	4	2.00" × 1.20"	Hexidecimal	Silver Bead	16.56
54F208	FE0205-D	5"	4	2.00" × 1.20"	Hexidecimal	Aluminu Foil	16.56
54F213	FE0401-C	5"	6	2.75" × 1.20"	Instrument	Silver Bead	21.50
54F214	FE0401-D	5"	6	2.75" × 1.20"	Instrument	Aluminum Foil	21.50
54F220	FE0501-C	7"	3½	2.75" × 1.50"	General Purpose	Silver Bead	26.22
54F221	FE0501-D	7"	3½	2.75" × 1.50"	General Purpose	Aluminum Foil	26.22
54F222	FE0502-C	7"	4	2.75" × 1.50"	General Purpose	Silver Bead	26.22
54F223	FE0502-D	7"	4	2.75" × 1.50"	General Purpose	Aluminum Foil	26.22
54F224	FE0601-C	7"	6	3.70" × 1.50"	Instrument	Silver Bead	29.95
54F225	FE0601-D	7"	6	3.70" × 1.50"	Instrument	Aluminum Foil	29.95
54F226	FE0701-C	1.0"	3½	3.70" × 1.80"	General Purpose	Silver Bead	34.00
54F227	FE0701-D	1.0"	3½	3.70" × 1.80"	General Purpose	Aluminum Foil	34.00
54F206	FE0204-D	5"	4	2.00" × 1.20"	General Purpose*	Aluminum Foil	20.15
54F211	FE0208-C	4"	5	2.00" × 1.20"	General Purpose	Silver Bead	14.95
54F212	FE0208-D	4"	5	2.00" × 1.20"	General Purpose	Aluminum Foil	14.95
54F238	FE1001-C	5"	8	3.70" × 1.20"	Instrument	Silver Bead	21.00
54F239	FE1001-D	5"	8	3.70" × 1.20"	Instrument	Aluminum Foil	21.00
54F240	FE1202-C	7"	5	3.20" × 1.50"	General Purpose	Silver Bead	26.50
54F241	FE1202-D	7"	5	3.20" × 1.50"	General	Aluminum Foil	26.50
54F219	FE0405-I		2 × 32	2.75" × 1.20"	Bar Graph†	Aluminum Foil	23.35
54F242	FE0101-H	3"	4	1.57" × .700"	General Purpose†	Silver Bead	14.44
54F243	FE0101-I	3"	4	1.57" × .700"	General Purpose†	Aluminum Bead	14.44
54F215	FE0402-E	5"	3½	2.75" × 1.20"	Instrument	Silver Bead	23.11
54F216	FE0402-D	5"	3½	2.75" × 1.20"	Instrument	Aluminum Foil	23.11
54F217	FE0403-C	4"	4½	2.75" × 1.20"	Instrument	Silver Bead	23.35
54F218	FE0403-D	4"	4½	2.75" × 1.20"	Instrument	Aluminum Foil	23.35
54F228	FE0801-C	4"	3½	2.00" × .950"	Instrument	Silver Bead	15.56
54F229	FE0801-D	4"	3½	2.00" × .950"	Instrument	Aluminum Foil	15.56
54F230	FE0802-C	4"	4½	2.00" × .950"	Instrument	Silver Bead	15.33
54F231	FE0802-D	4"	4½	2.00" × .950"	Instrument	Aluminum Foil	15.33
54F232	FE0803-H	3"	6½	2.00" × .950"	General Purpose†	Silver Bead	14.95
54F233	FE0803-I	3"	6½	2.00" × .950"	General Purpose†	Aluminum Foil	14.95
54F234	FE0804-C	35"	4	2.00" × .950"	General Purpose	Silver Bead	15.56
54F235	FE0804-D	35"	4	2.00" × .950"	General Purpose	Aluminum Foil	15.56
54F236	FE0806-C	35"	4	2.00" × .950"	General Purpose	Silver Bead	15.56
54F237	FE0806-D	35"	4	2.00" × .950"	General Purpose	Aluminum Foil	15.56

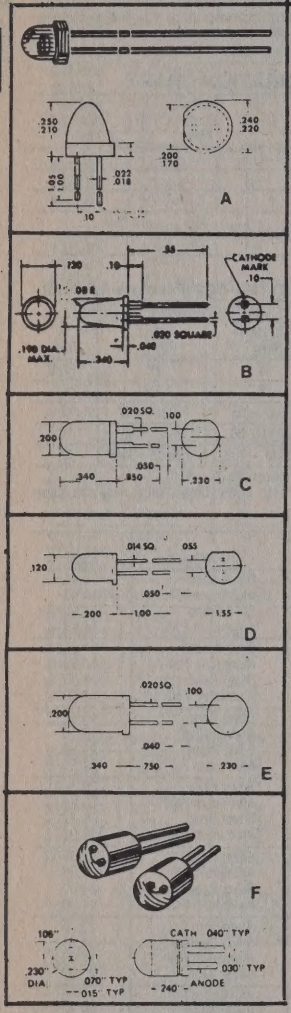
(*) Multiplexed
(†) Available in Pinless only

GENERAL INSTRUMENT

Chicago Miniature LED's

Low power consumption for IC compatibility and cool operation. Long life virtually eliminates replacement. Solid lens construction — shock proof. Very intense light source up to 12.0 mcd luminous intensity at 10 mA. Subminiature size tapered short lens T1¾. Solderability problems are eliminated because all leads are silver plated.





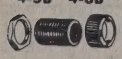
Chicago Miniature LED's
GALLIUM ARSENIDE PHOSPHIDE LIGHT EMITTING DIODES

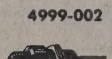
Newark #	Type	Lens Tint	Lens Diffusion	Light Color	Peak Wave Length	Luminous Intensity @ If=20mA Guar. Min.	Luminous Intensity @ If=20mA Typ	Viewing Angle	Figure	1-99	100-999	1000-up
81F5759	CMD5074C	Red	Diffused	Red	660nm	.7	2.5	70°	G	.34	.30	.26
81F5760	CMD5077C	Red	Diffused	Red	660nm	.3	1.75	110°	H	.40	.35	.30
81F5761	CMD5177C	Orange	Diffused		635nm	1.0	3.0	180°	H	.50	.44	.38
81F5762	CMD5277C	Green	Diffused	Green	565nm	.2	.6	180°	H	.50	.44	.38
81F5763	CMD5377C	Yellow	Diffused	Yellow	585nm	1.0	2.0	180°	H	.50	.44	.38
81F5764	CMD5777C	Red	Diffused	Red	635nm	1.0	3.0	180°	H	.50	.44	.38
81F5765	CMD53173	Yellow	Diffused	Yellow	585nm	.5	2.0	36°	K	1.99	1.76	1.53
10F7968	CMD57173	Orange	Diffused	Orange	635nm	.5	2.0	36°	K	1.99	1.76	1.53
81F5766	CMD5026	Dk. Red	Diffused	Red	630nm	.1	.6	90°	B	.62	.54	.47
10F7972	CMD50152(4-293B)	Red	—	Red	660nm	.6	2.0	65°	A	.57	.50	.43
10F7973	CMD50154(4-294B)	Red	Soft	Red	660nm	.4	1.5	80°	A	.57	.50	.43
10F7974	CMD52152(4-393B)	Grn	Point	Grn	565nm	.75	2.0	65°	A	.58	.51	.45
10F7975	CMD52154(4-394B)	Grn	Soft	Grn	565nm	.5	1.5	80°	A	.58	.51	.45
10F7976	CMD57152(4-493B)	Org	Point	Org	630nm	4.0	8.0	65°	A	.58	.51	.45
10F7977	CMD57154(4-494B)	Org	Soft	Org	630nm	2.0	4.0	80°	A	.58	.51	.45
10F7978	CMD53152(4-593B)	Yel	Point	Yel	585nm	3.0	5.0	65°	A	.58	.51	.45
10F7979	CMD53154(4-594B)	Yel	Soft	Yel	585nm	1.5	3.0	80°	A	.58	.51	.45
67F4500	CMD5020(4-20)	Clear	Transparent	Red	660nm	0.6	2.0	90°	B	.74	.65	.56
67F4501	CMD5021(4-21)	Clear	Diffused	Red	660nm	0.4	1.6	90°	B	.74	.65	.56
67F4502	CMD5022(4-22)	Red	Transparent	Red	660nm	0.6	2.0	90°	B	.74	.65	.56
67F4503	CMD5025(4-23)	Red	Diffused	Red	660nm	0.1	0.4	180°	B	.60	.53	.46
27F073	CMD5024(4-24)	Red	Diffused	Red	660nm	0.9	3.0	60°	B	.60	.53	.46
27F074	CMD5023(4-25)	Red	Diffused	Red	660nm	0.4	1.6	90°	B	.60	.53	.46
27F089	CMD5752(4-282B)	Red	Transparent	Red	635nm	17.0	40.0	28°	E	.55	.48	.42
27F092	CMD5754(4-283B)	Red	Diffused	Red	635nm	1.7	8.0	24°	E	.40	.35	.30
27F093	CMD5753(4-284B)	Red	Diffused	Red	635nm	1.2	4.0	65°	E	.40	.35	.30
27F094	CMD5252(4-382B)	Green	Transparent	Green	565nm	5.0	15.0	28°	E	.55	.48	.42
27F095	CMD5254(4-383B)	Green	Diffused	Green	565nm	0.6	3.0	24°	E	.55	.48	.42
27F097	CMD5253(4-384B)	Green	Diffused	Green	565nm	0.5	1.5	65°	E	.55	.48	.42
27F098	CMD5152(4-482B)	Orange	Transparent	Orange	635nm	17.0	40.0	28°	E	.55	.48	.42
27F108	CMD5154(4-483B)	Orange	Diffused	Orange	635nm	1.7	8.0	24°	E	.55	.48	.42
27F109	CMD5153(4-484B)	Orange	Diffused	Orange	635nm	1.2	4.0	65°	E	.55	.48	.42
27F110	CMD5352(4-582B)	Yellow	Transparent	Yellow	585nm	16.0	45.0	28°	E	.55	.48	.42
27F129	CMD5354(4-583B)	Yellow	Diffused	Yellow	585nm	3.0	10.0	24°	E	.55	.48	.42
27F132	CMD5353(4-584B)	Yellow	Diffused	Yellow	585nm	2.5	6.0	65°	E	.55	.48	.42
27F141	CMD5774C(4-244B)	Red	Diffused	Red	635nm	1.0	5.0	90°	D	.50	.44	.38
27F142	CMD5274C(4-344B)	Green	Diffused	Green	565nm	0.3	1.0	90°	D	.50	.44	.38
27F144	CMD5174C(4-444B)	Orange	Diffused	Orange	635nm	1.0	5.0	90°	D	.50	.44	.38
27F145	CMD5374C(4-544B)	Yellow	Diffused	Yellow	585nm	0.8	4.0	90°	D	.50	.44	.38
67F4507	CMD5054-1(4-83)	Red	Diffused	Red	660nm	1.0	2.0	24°	C	.40	.35	.30
27F146	CMD5050(4-80B)	Clear	Transparent	Red	660nm	0.4	2.0	70°	E	.46	.41	.36
27F157	CMD5051(4-81B)	Clear	Diffused	Red	660nm	0.3	1.6	80°	E	.46	.41	.36
27F173	CMD5053(4-84B)	Red	Diffused	Red	660nm	0.8	1.6	80°	E	.29	.26	.23
27F174	CMD5053(4-84B-2)	Red	Diffused	Red	660nm	1.6	2.0	80°	E	.46	.41	.36
27F175	CMD5056(4-85B)	Dark Red	Diffused	Red	660nm	0.2	0.8	110°	E	.50	.44	.38
27F176	CMD5055(4-86B)	Red	Diffused	Red	660nm	0.1	0.6	150°	E	.36	.32	.28

Stk. No.	Type No.	Color	Fwd Volt	Rvd Volt	TYP Volt	Units	Fig	10-99	100-499	500-999
10F7980	CMD9150-1(4-470-1)	Orange	30	10	45	mcd	F	2.72	2.40	2.08
10F7981	CMD9150-2(4-470-2)	Orange	60	10	80	mcd	F	3.06	2.70	2.34
10F7982	CMD9350-1(4-570-1)	Yellow	30	10	45	mcd	F	2.72	2.40	2.08
10F7983	CMD9350-2(4-570-2)	Yellow	60	10	80	mcd	F	3.06	2.40	2.34

LED PANEL MOUNTING HARDWARE

For mounting in panel thickness up to .125" (CM-4-Series) or up to .187" (4999 Series). Ideal for array designs. Easily mounted from panel front.



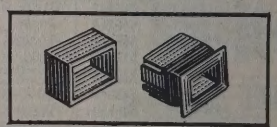


Only Sold in Multiples of 5

Stk. No.	Type	Color	Size	Shape	Each 10-90	Each 100-490	Each 500-990
27F177	CMP22(4-5B)	Black	T-1¾	Taper.	.11	.09	.08
27F185	CMP22(4-6B)	Black	T-1¾	Cylin.			
27F199	CM4-7B	Black	T-1	Cylin.			

					Only Sold in Multiples of 10 5-95	100-495	500-995
27F200	4999-002	Silver	T-1¾	Taper.	.56	.49	.40
27F201	4999-003	Black	T-1¾	Taper.			

MOUNTING ACCESSORIES (⅛" BOARD)

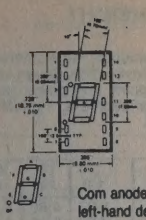


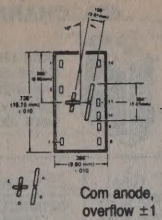
CMP65(4-8B) needs 5⁄16" x 7⁄32" mtg. hole.
CMP73(4-9B) needs .65" x .40" mtg. hole.
Black color.

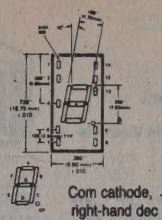
Stock No.	Type	For Lamps	10-99	100-499	500-999
10F7970	CMP65(4-8B)	264, 364, 564	.09	.08	.07
10F7971	CMP73(4-9B)	265			

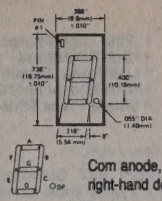
Chicago Miniature LED Displays

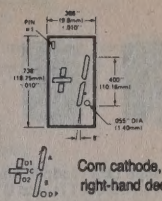
GENERAL INSTRUMENT


Com anode, left-hand dec


Com anode, overflow ±1


Com cathode, right-hand dec


Com anode, right-hand dec


Com cathode, right-hand dec

- **Sizes from .300" to .800"**
- **Seven segment displays**
- **Wide range of colors including high performance red**
- **10 and 14 pin dual-in-line packaging**

Fast switching—excellent for multiplexing—low power consumption—bold segments that are highly legible—solid state reliability—long operational life—impact resistant plastic construction—directly compatible with IC logic—high brightness, high contrast. The world's finest quality LED numeric displays. Over 50 different styles from which to choose. Every display is matched and coded for brightness and color hue. We have single, 1½ and multiple digit faces with decimals. Common anode or cathode.

4

0.300" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9030	3620A	ORG.	Com anode, l-h dec	2.85	2.25
81F9026	3640A	ORG.	Com cathode, right-hand dec	2.85	2.25
81F9021	72A	Red	Com anode, left-hand dec	1.48	1.27
81F9071	73A	Red	Com anode, overflow	1.48	1.27
81F9022	74A	Red	Com cathode, right-hand dec	1.48	1.27

0.300" SEVEN-SEGMENT LED DISPLAYS

Standard 10-pin dual-in-line packaging—H.P. compatible, common-cathode displays available in red, green, yellow, orange, and high efficiency red—categorized for luminous intensity, wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9037	58A	GRN.	Com cathode, right-hand dec	3.05	2.40
81F9040	3680A	ORG.	Com cathode, right-hand dec	2.85	2.25
81F9038	78A	Red	Com cathode, right-hand dec	1.48	1.27
81F9039	88A	YEL.	Com cathode, right-hand dec	3.05	2.40
81F9041	3980A	Red*	Com cathode, right-hand dec	2.40	1.95

0.300" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°—high efficiency red.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9042	3910A	Red*	Com anode, right-hand dec	2.40	1.95
81F9043	3920A	Red*	Com anode, left-hand dec		
81F9044	3930A	Red*	Com anode, overflow ±1		
81F9045	3940A	Red*	Com cathode, right-hand dec		
81F9041	3980A	Red*	Com cathode, right-hand dec		

0.400" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°—high efficiency red.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9046	4905A	Red*	Uni (com anode or com cathode), overflow ±1, right-hand dec	2.65	2.15
81F9047	4910A	Red*	Com anode, right-hand dec		
81F9048	4940A	Red*	Com cathode, right-hand dec		
81F9036	4980A	Red*	Com cathode, right-hand dec		

0.400" SEVEN-SEGMENT LED DISPLAYS

Standard 14-pin dual-in-line packaging—common anode or common cathode models—categorized for luminous intensity—wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9027	4610A	ORG.	Com anode, right-hand dec	2.10	1.60
81F9024	4640A	ORG.	Com cathode, right-hand dec		
81F9072	4705A	Red	Uni. (common anode or com cathode), overflow ±, right-hand dec		
81F9025	4710A	Red	Com anode, right-hand dec		

0.400" SEVEN-SEGMENT LED DISPLAYS

Standard 10-pin dual-in-line packaging—H.P. compatible, common-cathode displays available in red, green, yellow, orange, and high efficiency red—categorized for luminous intensity, wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9032	4580A	GRN.	Com cathode, right-hand dec	3.05	2.40
81F9033	4680A	ORG.	Com cathode, right-hand dec	3.05	2.40
81F9034	4680A	Red	Com cathode, right-hand dec	2.10	1.60
81F9035	4880A	YEL.	Com cathode, right-hand dec	3.05	2.40
81F9036	4980A	Red*	Com cathode, right-hand dec	2.65	2.15

0.500" SEVEN-SEGMENT LED DISPLAYS

Two-digit and four-digit displays prematched for brightness and hue—end stackable—sculptured font for easy reading—available in red, yellow, and orange.

TWO-DIGIT

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9059	56120	ORG.	Com anode, direct drive	4.95	4.20
81F9060	56320	ORG.	Com anode, direct drive		
81F9061	58120	YEL.	Com anode, direct drive		
81F9062	58320	YEL.	Com cathode, direct drive		
81F9063	59120	Red*	Com anode, direct drive		
81F9064	59320	Red*	Com cathode, direct drive		

FOUR-DIGIT

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9065	56240	ORG.	Com anode, multiplexed	9.90	8.40
81F9066	56440	ORG.	Com cathode, multiplexed		
81F9067	58240	YEL.	Com anode, multiplexed		
81F9068	58440	YEL.	Com cathode, multiplexed		
81F9069	59240	Red*	Com anode, multiplexed		
81F9070	59440	Red*	Com cathode, multiplexed		

0.560" SEVEN-SEGMENT LED DISPLAYS

High efficiency orange, single or double display—categorized for luminous intensity—wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9029	6640	ORG.	1 digit, com cathode, right-hand dec	4.60	3.65
81F9028	6680	ORG.	2 digit, com cathode, right-hand dec	3.15	2.50

0.560" SEVEN-SEGMENT LED DISPLAYS

Standard high performance red—single- or double-digit displays—categorized for luminous intensity—wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9023	6710	Red	2 digit, com anode, right hand dec	3.55	2.80
81F9074	6730	Red	1½ digit, overflow ±1.8, right-hand dec		
81F9073	6740	Red	2 digit, com cathode, right hand dec	2.20	1.75
81F9031	6780	Red	1 digit, com cathode, right-hand dec		

0.560" SEVEN-SEGMENT LED DISPLAYS

High-efficiency red—single- or double-digit displays—categorized for luminous intensity—wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9049	6910	Red	2 digit, com anode, right-hand dec	4.20	3.35
81F9050	6930	Red	1½ digit, com anode, overflow ±1.8, right-hand dec		
81F9051	6940	Red	2 digit, com cathode, right-hand dec		
81F9052	6950	Red	1½ digit, com cathode, overflow ±1.8, right-hand dec		
81F9053	6960	Red	1 digit, com anode, right-hand dec	2.30	1.85
81F9054	6980	Red	1 digit, com cathode, right-hand dec		

0.800" SEVEN-SEGMENT LED DISPLAYS

High efficiency red—common cathode or anode models—categorized for luminous intensity—wide viewing angle of 150°.

Stk. No.	Type CMN	Color	Description	1-99	100-999
81F9055	8910	Red	Com anode, right-hand dec	2.94	2.40
81F9056	8930	Red	Com anode, ±1 overflow, right-hand dec		
81F9057	8940	Red	Com cathode, right-hand dec		
81F9058	8950	Red	Com cathode, ±1 overflow, right-hand dec		

DIALIGHT Readouts And Displays

.300" CHARACTER HEIGHT

- .300" High Characters
- High Brightness
- Low Power Requirements
- Standard 14 Pin DIP
- Single-Plane Wide Angle Visibility

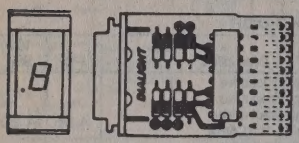
Solid state LED readout, character height .300". Standard 14 pin DIP. Compatible with most TTL and DTL circuits. Typical static forward voltage: 1.7V.

Stk. No.	Type	Description	1-9	10-99	100-249
28F1780	745-0017	Numeric Display	2.89	1.73	1.42
28F1781	745-0018	+/-1 Display	2.89	1.73	1.42

CONNECTOR

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
25F1447	501-0701-009	For Use With Above Displays	2.12	1.95	1.63	1.39

NUMERIC DISPLAY



Displays feature a bright, highly legible character in a 7-segment format, .300" in height. Decimal point included. User has the option of hard wiring to the board or using edge card connectors. 5V. operation.

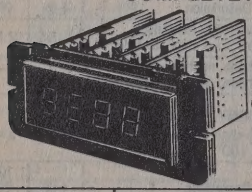
Stk. No.	Type	Description	1-9	10-24	25-99	100-249
60F1161	740-3006	W/Decoder Driver	13.44	9.71	9.19	6.95
60F1162	740-3008	+/-Display On PC Board	13.44	9.71	9.19	6.95
60F2746	740-3012	W/Decoder Driver, Latch				

BEZELS FOR 740 SERIES

Stylish black bezels for simplified panel mounting of multi-digit groupings. Bezel itself must be snapped together and readout will slide into it.

Stk. No.	Type	# Readouts That Will Fit	1-9	10-24	25-99	100-249
60F1163	743-1002	2	7.28	6.71	5.24	3.78
60F1164	743-1003	3	7.99	7.39	5.79	4.20
60F1165	743-1004	4	8.70	8.07	6.34	4.62
60F1166	743-1005	5	9.43	8.76	6.89	5.04
60F1167	743-1006	6	10.14	9.44	7.44	5.46
60F1168	743-1007	7	10.86	10.11	7.99	5.88
60F1169	743-1008	8	11.57	10.79	8.55	6.30
60F1170	743-1009	9	12.29	11.48	9.09	6.72
60F1171	743-1010	10	13.01	12.16	9.65	7.14

COMPLETE ASSEMBLIES



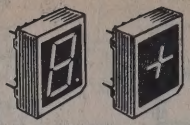
Displays with decoder driver are supplied with stylish black bezel for simplified panel mounting of multi-digit groupings. Displays feature a bright, highly legible character in a 7 segment format, .300" high character. User has the option of hard wiring to the board or using edge card connectors. 5V. operation.

Stk. No.	Type	Characters	Each
60F1172	749-1501-001	1	20.00
60F1173	749-1502-001	2	34.16
60F1174	749-1503-001	3	48.31
60F1175	749-1504-001	4	62.46
60F1176	749-1505-001	5	76.63
60F1177	749-1506-001	6	90.78
60F1178	749-1507-001	7	104.94
60F1179	749-1508-001	8	119.09
60F1180	749-1509-001	9	133.25
60F1181	749-1510-001	10	110.11

EDGE CARD CONNECTORS

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
60F1182	501-0700-005	Solder Connectors	4.62	4.35	3.80	3.47
60F1183	501-0700-009	PC or Wire Wrap	4.62	4.35	3.80	3.47

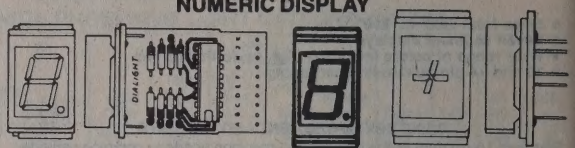
.600" CHARACTER HEIGHT



Solid state LED readout, large character-.600". Common anode construction. Seven segment format with decimal point. Low power requirement, typically 10mA per segment. Typical static forward voltage: 2.0V.

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
60F1184	730-6001	Numeric Display	6.37	4.86	4.63	3.99
60F1185	730-6005	+/- Display	7.64	5.91	5.55	4.81

NUMERIC DISPLAY



730-6007 730-6012 730-6009 730-6010

Hybrid Readout display. High efficiency GaP chips arranged in a large 7-segment format, .600" in height. Decimal point indicated. Operate with standard IC power supply levels. Wide viewing angle, high contrast ratio. User has option of hard wiring to the board or using edge card connectors. 5V except (†) 2V operation.

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
60F1186	730-6007	W/Decoder Driver	20.66	15.33	13.80	10.83
60F1187	730-6010	+/- Display (†)	11.52	8.85	8.45	7.35
28F1782	730-6009	W/O Decoder Driver (†)	10.01	7.70	7.35	6.37
28F1783	730-6020	W/Decoder Driver, Latch	24.45	20.92	17.65	14.29
60F2747	730-6012	+/- Display W/Res	19.26	13.85	12.44	9.54

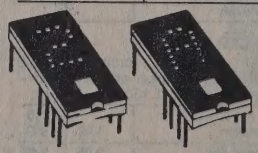
BEZELS FOR 730 SERIES

Stk. No.	Type	# Readouts That Will Fit	1-9	10-24	25-99	100-249
60F1188	733-6002	2	7.28	6.71	5.24	3.78
60F1189	733-6003	3	7.99	7.39	5.79	4.20
60F1190	733-6004	4	8.70	8.07	6.34	4.62
60F1191	733-6005	5	9.43	8.76	6.89	5.04
60F1192	733-6006	6	10.14	9.44	7.44	4.46
60F1193	733-6007	7	10.86	10.11	7.99	5.88
60F1194	733-6008	8	11.57	10.79	8.55	6.30
60F1195	733-6009	9	12.29	11.48	9.09	6.72
60F1196	733-6010	10	13.01	12.16	9.65	7.14

COMPLETE ASSEMBLIES

Displays with decoder driver are supplied with stylish black bezel for simplified panel mounting of multi-digit groupings. Displays feature a bright, highly legible character in a large 7 segment format .600" high character. User has the option of hard wiring to the board or using edge card connectors. 5V. operation.

Stk. No.	Type	Characters	Each
60F1197	739-0260-601	2	48.60
60F1198	739-0360-601	3	69.97
60F1199	739-0460-601	4	91.34
60F1200	739-0560-601	5	112.73
60F1201	739-0660-601	6	134.10
60F1202	739-0760-601	7	155.48
60F1203	739-0860-601	8	176.85
60F1204	739-0960-601	9	198.23
60F1205	739-1060-601	10	166.31



HEXADECIMAL DISPLAY

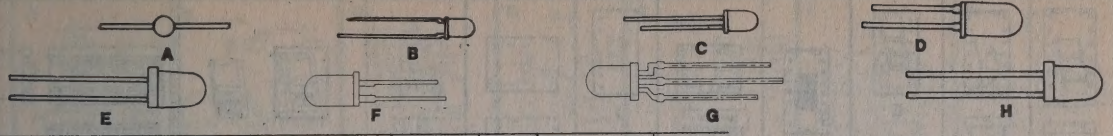
Solid-state visible, with integral TTL MSI circuit chip with latch, decoder, and driver to accept, store, and display 4-bit binary data. 0.270-inch-high character. Left-and-right-hand decimals. Operates from 5-volt or 6-volt supply.

Stk. No.	Type	Description	1-9	10-24	25-99	100-249
25F903	745-0007	Display	14.25	11.05	11.05	10.31
25F1147	501-0701-009	Connector	2.21	1.95	1.63	1.39

Discrete LEDs And Displays

DIALIGHT

SOLID STATE LED LAMPS



Stk. No.	Type 521	Fig.	Pkg.	Lens Color	Typ. Fwd. Volt. (mA)	Typ. Lum. (mcd)	1-99	100-999	1000-2499
25F866	9185	A	T-3/4	Red Non-Diff.	1.6 at 20	.8	.45	.25	.17
25F867	9186	A	T3/4	Red Diff.	1.6 at 20	8	.45	.25	.17
25F875	9216	B	T-	Red Diff.	1.6 at 20	2.0	.29	.19	.15
28F1784	9210	B	T-1	Green Diff.	2.4 at 20	2.0	.60	.50	.40
28F1785	9211	B	T-1	Yellow Diff.	2.2 at 10	2.0	.60	.50	.40
25F1460	9200*	C	T-1¾	Red Diff.	1.9 at 20	1.0	.28	.21	.17
25F1420	9165*	C	T-1¾	Red Diff.	1.7 at 20	2.0	.50	.37	.33
25F1457	9166*	C	T-1¾	Clear Diff.	1.7 at 20	2.0	.50	.37	.33
25F860	9173*	C	T-1¾	Green Diff.	2.3 at 20	3.2	.50	.37	.33
28F1786	9253*	C	T-1¾	Green Non-Diff.	2.3 at 20	8.0	.50	.37	.33
28F1787	9174*	C	T1¾	Yellow Diff.	2.3 at 20	3.2	.50	.37	.33
28F1788	9254*	C	T1¾	Yellow Non-Diff.	2.3 at 20	8.0	.50	.37	.33
28F1789	9240*	D	T-1¾	Red Diff.	1.9 at 20	1.5	.27	.21	.17
28F1790	9212*	D	T-1¾	Red Diff.	1.6 at 20	2.0	.30	.25	.20
28F1791	9175*	D	T-1¾	Green Diff.	2.3 at 20	3.2	.50	.37	.33
28F1792	9176*	D	T1¾	Yellow Diff.	2.3 at 20	3.2	.50	.37	.33
25F865	9183†	E	T1¾	Red Diff.	5.0 at 15	2.0	.60	.45	.35
25F877	9177*	F	T1¾	Red/Green‡	2.3 at 10	1.8	2.24	1.73	1.32
25F878	9178*	G	T1¾	Red/Green‡	1.9 at 10	1.5‡	2.24	1.73	1.32
28F1793	9246†	H	T1¾	Red Diff.	2.2 at 10	4.0	85	.70	.60
28F1794	9247†	H	T1¾	Red Non-Diff.	2.2 at 10	24.0			
28F1795	9248†	H	T1¾	Yellow Diff.	2.2 at 10	3.0			
28F1796	9249†	H	T1¾	Yellow Non-Diff.	2.2 at 10	16.0	.85	.70	.60
28F1797	9250†	H	T1¾	Green Diff.	2.4 at 10	3.0			
28F1798	9251†	H	T1¾	Green Non-Diff.	2.4 at 10	16.0			

‡Green is 2 at 20

- **High Luminus Intensity**
- **Low Power Consumption**

521 Series. High luminous intensity. Low power consumption. IC compatible. Vibration/shock resistant. Solid state reliability, life measured in years. Wide viewing angle. Many applications including panel lighting, circuit status indicators, numeric or alphanumeric displays, or visual indicators.

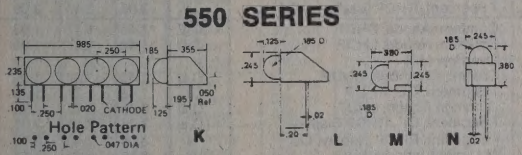
HOLDER

Mounting clip for items at left marked with (*) 515-0005
Mounting clip for item at left marked with (†) 515-0004

Stk. No.	Type	10-20	25-245	250-995	1000-2495
28F1799	515-0004	.15	.09	.08	.07
25F879	515-0005	.15	.09	.08	.07

Only sold in multiples of 5.

550 SERIES

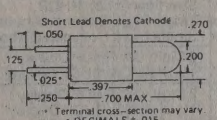


LED lamp with high light level for back panel illumination. Use a T-1¾ LED. TTL compatible. Four element units compatible with individual units. (*) Units with resistor for 5V operation.

Stk. No.	Type	Color	Fig.	VF (mA)	Typ. Lum.	1-99	100-999	1000-2499
25F882	550-0504	Green	N	2.2	0.8	.65	.50	.43
25F883	550-0304	Yellow	N	2.2	0.8	.65	.50	.43
25F884	550-0404	Red	N	1.9	2.0	.54	.37	.32
25F885	550-0504*	Red	N	1.9	2.0	.80	.66	.57
25F886	550-0205	Green	M	2.2	0.8	.65	.50	.43
25F887	550-0305	Yellow	M	2.2	0.8	.65	.50	.43
25F888	550-0405	Red	M	1.9	2.0	.54	.37	.32
25F889	550-0505*	Red	M	1.9	2.0	.80	.66	.57
25F890	550-0206	Green	L	2.2	0.8	.65	.50	.43
25F891	550-0306	Yellow	L	2.2	0.8	.65	.50	.43
25F892	550-0406	Red	L	1.9	2.0	.54	.37	.32
45F493	550-0506*	Red	L	1.9	2.0	.80	.66	.57
60F2740	550-0206-004	Green	K	2.3	3.2	2.50	1.76	1.51
60F2735	550-0306-004	Yellow	K	2.3	3.2	2.50	1.76	1.51
60F2736	550-0406-004	Red	K	2.3	2.0	2.12	1.43	1.25
81F4928	550-3004	Red/Green	N	2.3	1.8	1.72	1.20	.90
81F4929	550-3005	Red/Green	M	2.3	1.8	1.72	1.20	94
81F4930	550-3006	Red/Green	L	2.3	1.8	1.72	1.20	94

560 SERIES

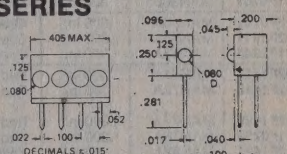
High brightness bi-pin lamps. Interchangeable with T-1-¾ incandescent lamps. With built in resistor for current limiting. Wide (diffused) or Narrow (non-diffused). 5 volts. Also available for operation at other voltages.



Stk. No.	Type	Color	1-9	10-24	25-99	100-249
60F2740	560-0103	Red Diff.				
60F2741	560-0203	Green Diff.				
60F2742	560-0303	Yellow Diff.	1.12	1.05	.98	.92
60F2743	560-0403	Red Non.-diff.				
60F2744	560-0503	Green Non-diff.				
60F2745	560-0603	Yellow Non-diff.				

555 SERIES

Red, Green, Yellow LED logic state/fault indicators. Typically they might be used as fault indicators for trouble shooting complex circuits. **For higher brightness, can be operated at 6V @ 20mA. Use a T¾ LED. *Requires external resistor.



Stk. No.	Type	Typ. Fwd. Volt. (mA)	Color	1-9	10-24	25-99	100-249
25F1727	555-2001	1.7 at 40*	R	1.00	.91	.83	.76
25F1800	555-2002	3.6 at 20	R	1.11	1.01	.92	.84
25F893	555-2007	5.0 at 3	R	1.11	1.01	.92	.84
25F895	555-2003	5.0 at 6.5	R	1.11	1.01	.92	.84
25F894	555-2004	5.0** at 16	R	1.22	1.11	1.01	.92
25F899	555-2005	10.0 at 14	R	1.11	1.01	.92	.84
25F901	555-2006	14.0 at 10	R	1.11	1.01	.92	.84
81F4931	555-2008	2.4 at 3	R	1.11	1.01	.92	.84
81F4930	555-2301	2.4 at 20*	G	1.12	1.02	.93	.84
81F4933	555-2401	2.2 at 20*	Y	1.16	1.05	.96	.88
81F4934	555-2303	4.7 at 5	G	1.16	1.05	.96	.88
81F4935	555-2403	4.7 at 5	Y	3.29	3.15	2.90	2.64
81F4936	555-4301	2.4 at 20*	G	3.62	3.34	3.15	2.87
81F4937	555-4303	4.7 at 5	G	3.29	3.15	2.90	2.64
81F4938	555-4401	2.2 at 20*	Y	3.62	3.34	3.15	2.87
81F4939	555-4403	4.7 at 5	Y				
60F2737	555-4001	1.5 at 20	R	3.00	2.88	2.65	2.41
60F2738	555-4003	5.0 at 6.5	R	3.50	3.25	2.98	2.72
60F2739	555-4007	5.0 at 3.0	R	3.50	3.25	2.98	2.72

5x7 DOT MATRIX ALPHA-NUMERIC DISPLAY

Solid-state visible dot matrix alpha-numeric display with clear transparent plastic encapsulation. 0.300" high character. 5x7 array with X-Y select and decimal. Compatible with UASCII and EBCDIC codes. Left hand decimal point. Typical static forward voltage: 1.6V.

Stk. No.	Type.	Description	1-9	10-99	100-999	1000-2499
25F904	745-0008	BCD Display	14.25	11.05	10.31	9.10
25F905	745-0009	Pulse Count Display	14.25	11.05	10.31	9.10
25F908	501-0702-009	Connector	2.52	2.17	1.83	1.54

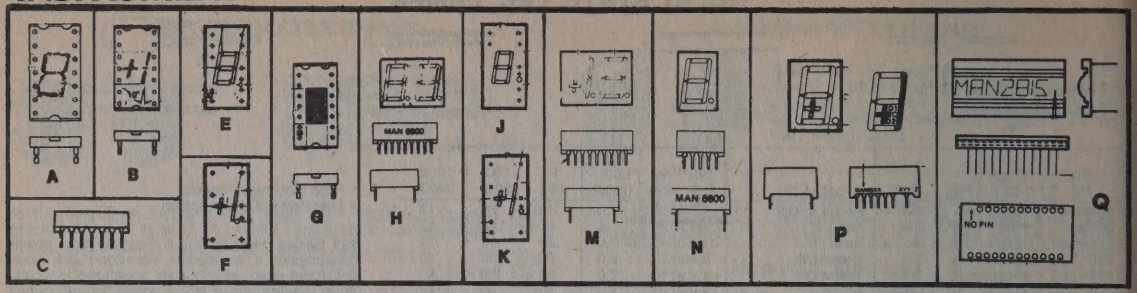
NUMERIC DISPLAY

Solid-state visible displays with integral TTL MSI circuit chip with latch, decoder, and driver. 0.270-inch-high character. Left hand decimal point. Supply voltage, VCC: continuous 5.5V.

Stk. No.	Type	Description	1-9	10-99	100-999	1000-2499
25F1443	745-0005	Dot Matrix	7.28	6.68	5.46	4.37
25F1447	501-0701-009	Connector	2.52	2.17	1.83	1.54

PRICES SUBJECT TO CHANGE. SEE PAGE 4

Displays



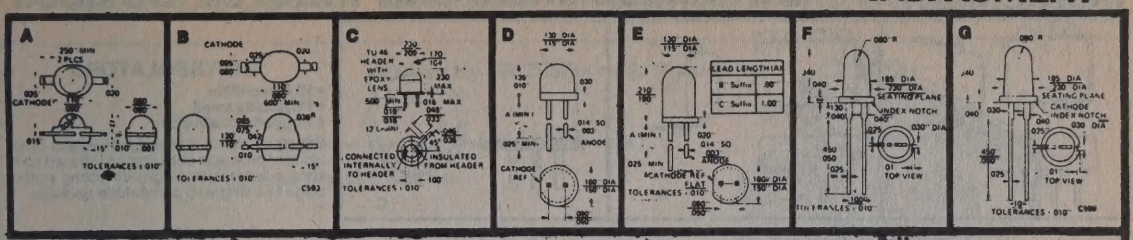
Stock No.	Type	Digit Height	Color	Peak Wave-Length (per)	Brightness	Volts Max. (Vp/Sep.)	Product Features	Pkg.	1-24	25-99	100-499
32F1510	MAN2815	.135	Red	660 nm	60 µcd	2.5 V	Alpha-Numeric	Qt.	32.00	24.00	19.50
									1-99	100-999	1000-Up
32F1400	MAN1A	.270 in.	Red	660 nm	74 ft.-L	3.4 V	Low Brightness 7 Segment	A	11.00	9.70	9.00
32F1401	MAN10A	.270 in.	Red	660 nm	74 ft.-L	3.4 V	High Brightness Low Current	A	11.00	9.70	9.00
13F9700	MAN1001A	.270 in.	Red	660 nm	74 µcd	3.4 V	Low Brightness ±1	B	11.00	9.70	9.00
13F9701	MAN101A*	.270 in.	Red	660 nm	74µcd	3.4 V	High Brightness ±1	B	11.00	9.70	9.00
32F1419	MAN73A	.294 in.	Red	660 nm	125 µcd	2.0 V	Common Anode, RHDP	C,F	1.48	1.27	1.06
32F1405	MAN3630A	.294 in.	Orange	630 nm	510 µcd	2.5V	Common Anode; RHDP Overflow (±1)	C,F	2.85	2.25	1.95
32F1403	MAN3610A	.300 in.	Orange	630 nm	510 µcd	2.5 V	Common Anode; RHDP	C,E	2.85	2.25	1.95
32F1404	MAN3620A	.300 in.	Orange	630 nm	510 µcd	2.5 V	Common Anode; LHDP	C,D	2.85	2.25	1.95
32F1406	MAN3640A	.300 in.	Orange	630 nm	510 µcd	2.5 V	Common Cathode; RHDP	C,E	2.85	2.25	1.95
81F9241	MAN3680	.300 in.	Orange	630 nm	510 µcd	2.5 V	7 Segment, RHDP Display, CC	J	2.85	2.25	1.95
13F9702	MAN53A	.300 in.	Green	565 nm	125µcd	3.0 V	Common Anode, ±1	C,F	3.05	2.40	2.05
32F1411	MAN54A	.300 in.	Green	565 nm	125 µcd	3.5 V	Common Cathode, RHDP	C,E	3.05	2.40	2.05
81F9246	MAN58A	.300 in.	Green	565 nm	126 µcd	3.0 V	7 Segment, RHDP Display, CC	J	3.05	2.40	2.05
32F1417	MAN71A	.300 in.	Red	660 nm	125 µcd	2.0 V	Common Anode; RHDP	C,E	1.48	1.27	1.06
32F1418	MAN72A	.300 in.	Red	660 nm	125 µcd	2.0 V	Common Anode; LHDP Overflow (±1)	C,D	1.48	1.27	1.06
32F1420	MAN74A	.300 in.	Red	660 nm	125 µcd	2.0 V	Common Cathode, RHDP	C,D	1.48	1.27	1.06
81F9259	MAN78A	.300 in.	Red	660 nm	125 µcd	2.0 V	7 Segment, CC, RHDP	J	1.48	1.27	1.06
32F1421	MAN82A	.300 in.	Yellow	585 nm	320 µcd	3.5 V	Common Anode, LHDP	C,D	3.05	2.40	2.05
81F9260	MAN88A	.300 in.	Yellow	585 nm	320 µcd	2.5 V	7 Segment, CC, RHDP Display	C,E	3.05	2.40	2.05
81F9245	MAN4880A	.300 in.	Yellow	585 nm	510 µcd	3.0 V	7 Segment, RHDP Display, CC	J	3.05	2.40	2.10
32F1402	MAN2A	.320 in.	Red	650 nm	125 µcd	2.0 V	35 Diode Alpha-Numeric	G	6.30	5.35	4.50
13F9707	MAN4540	.400 in.	Green	565 nm	320 µcd	3.0 V	Common Cathode, RHDP	J	3.05	2.40	2.05
81F9242	MAN4580A	.400 in.	Green	565 nm	320 µcd	3.0 V	7 Segment, RHDP Display, CC	J	3.05	2.40	2.10
13F9708	MAN4605	.400 in.	Orange	635 nm	510 µcd	2.5 V	Common Anode, ±1	K	3.05	2.40	2.10
32F1407	MAN4610A	.400 in.	Orange	630 nm	510 µcd	2.5 V	Common Anode, RHDP	C,E	3.05	2.40	2.10
32F1408	MAN4640A	.400 in.	Orange	630 nm	510 µcd	2.4 V	Common Cathode, RHDP	J	3.05	2.40	2.10
89F9243	MAN4680A	.400 in.	Orange	630 nm	510 µcd	2.5 V	7 Segment, RHDP Display, CC	J	3.05	2.40	2.10
13F9709	MAN4705	.400 in.	Red	660 nm	200 µcd	2.0 V	Common Anode, ±1	K	2.10	1.60	1.35
13F9710	MAN4710	.400 in.	Red	660 nm	200 µcd	2.0 V	Common Anode, RHDP	J	2.10	1.60	1.35
13F9711	MAN4740	.400 in.	Red	660 nm	200 µcd	2.0 V	Common Cathode, RHDP	J	2.10	1.60	1.35
81F9244	MAN4780A	.400 in.	Red	660 nm	660 µcd	2.0 V	7 Segment, RHDP Display, CC	J	2.10	1.60	1.35
13F9713	MAN4810	.400 in.	Yellow	585 nm	510 µcd	3.0 V	Common Anode, RHDP	J	3.05	2.40	2.10
13F9714	MAN4840	.400 in.	Yellow	585 nm	510 µcd	3.0 V	Common Cathode, RHDP	J	3.05	2.40	2.10
81F9247	MAN6410	.560 in.	Green	562 nm	510 µcd	3.0 V	2 Digit, CA, Rt. Hand Decimal	H	5.10	4.05	3.70
81F9248	MAN6430	.560 in.	Green	562 nm	510 µcd	3.0 V	1½ Digit, CA, Overflow ±1.8, RHDP	M	5.10	4.05	3.70
81F9249	MAN6440	.560 in.	Green	562 nm	510 µcd	3.0 V	2 Digit, CC, RHDP	H	5.10	4.05	3.70
81F9250	MAN6450	.560 in.	Green	562 nm	510 µcd	3.0 V	1½ Digit, CC, Overflow ±1.8, RHDP	M	5.10	4.05	3.70
81F9251	MAN6460	.560 in.	Green	562 nm	510 µcd	3.0 V	Single Digit, CA, RHDP Display	N	3.50	2.80	2.60
81F9252	MAN6810	.560 in.	Green	562 nm	510 µcd	3.0 V	Single Digit, CC, RHDP Display	N	4.60	3.65	3.35
32F1412	MAN6610	.560 in.	Orange	630 nm	510 µcd	2.5 V	2 Digit; Common Anode; RHDP	H	4.60	3.65	3.35
32F1413	MAN6630	.560 in.	Orange	630 nm	510 µcd	2.5 V	1½ Digit; Common Anode; Overflow (±1.8); RHDP	H	4.60	3.65	3.35
32F1414	MAN6640	.560 in.	Orange	630 nm	510 µcd	2.5 V	2 Digit, Common Cathode; RHDP	H	4.60	3.65	3.35
13F9715	MAN6650	.560 in.	Orange	635 nm	510 µcd	2.5 V	Common Cathode ±1.8	M	4.60	3.65	3.35
32F1415	MAN6660	.560 in.	Orange	630 nm	510 µcd	2.5 V	Single Digit; Common Anode; RHDP	N	3.15	2.50	2.35
32F1498	MAN6680	.560 in.	Orange	630 nm	510 µcd	2.5 V	Single Digit; Common Cathode; RHDP	N	3.15	2.50	2.35
32F1499	MAN6710	.560 in.	Red	660 nm	125 µcd	2.0 V	2 Digit; Common Anode; RHDP	H	3.55	2.80	2.45
32F1416	MAN6740	.560 in.	Red	660 nm	125 µcd	2.0 V	2 Digit; Common Cathode, RHDP	H	3.55	2.80	2.45
32F1501	MAN6750	.560 in.	Red	660 nm	125 µcd	2.0 V	1½ Digit; Common Cathode; Overflow (±1.8); RHDP	H	3.55	2.80	2.45
32F1502	MAN6760	.560 in.	Red	660 nm	125 µcd	2.0 V	Single Digit; Common Anode; RHDP	M	2.20	1.75	1.45
32F1503	MAN6780	.560 in.	Red	660 nm	125 µce	2.0V	Single Digit; Common Cathode; RHDP	N	2.20	1.75	1.45
81F9253	MAN6810	.560 in.	Yellow	585 nm	500 µcd	3.0 V	2 Digit, CA: RHDP Display	H	4.60	3.65	3.35
81F9255	MAN6830	.560 in.	Yellow	585 nm	500 µcd	3.0 V	1½ Digit, CA, RHDP Display	M	4.60	3.65	3.35
81F9254	MAN6840	.560 in.	Yellow	585 nm	500 µcd	3.0 V	2 Digit, CC, RHDP Display	H	4.60	3.65	3.35
81F9256	MAN6850	.560 in.	Yellow	585 nm	510 µcd	3.0 V	1½ Digit CC, RHDP Display	M	4.60	3.65	3.35
81F9257	MAN6860	.560 in.	Yellow	585 nm	510 µcd	3.0 V	Single Digit; CA, RHDP	N	3.15	2.50	2.35
81F9258	MAN6880	.560 in.	Yellow	585 nm	510 µcd	3.0 V	Single Digit; CC, RHDP	N	3.15	2.50	2.35
32F1504	MAN8610*	.800 in.	Orange	635 nm	600 µcd	2.5 V	Common Anode; RHDP	O	3.55	2.85	2.40
13F9716	MAN8630	.800 in.	Orange	635 nm	600 µcd	2.5 V	Common Anode, ±1	P	3.55	2.85	2.40
32F1505	MAN8640*	.800 in.	Orange	635 nm	600 µcd	2.5 V	Common Cathode; RHDP	O	3.55	2.85	2.40
81F9261	MAN8810	.800 in.	Yellow	585 nm	500 µcd	3.0 V	Segment; CA, RHDP Display	CE	3.55	2.85	2.40
81F9262	MAN8830	.800 in.	Yellow	585 nm	500 µcd	3.0 V	Pol & Overflow; CA, RHDP Display	CE	3.55	2.85	2.40
81F9263	MAN8840	.800 in.	Yellow	585 nm	500 µcd	3.0 V	7 Segment; CC, RHDP Display	CE	3.55	2.85	2.40
81F9264	MAN8850	.800 in.	Yellow	585 nm	500 µcd	3.0 V	Pol & Overflow, CC, RHDP Display	CE	3.55	2.85	2.40

* Test Condition (Ip) 20mA; +24 pin DIP w/8 characters

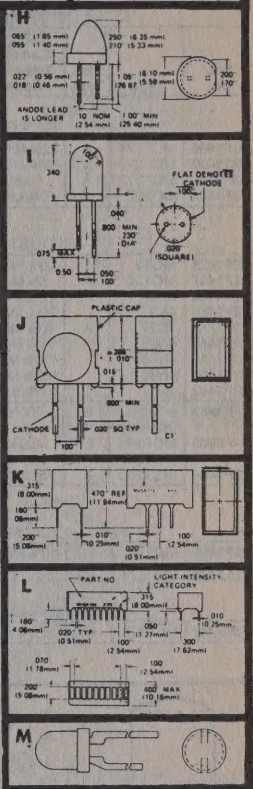
PRICES SUBJECT TO CHANGE. SEE PAGE 4

Discrete LED Lamps

GENERAL INSTRUMENT



Stock No.	Model No.	Viewed Color	Source Wave-Length	Fwd V.	Bright-ness No. and Units	Max. Forward* Current @ 25° C	Max. Power	Pkg. Key	1-99	100-999	1000	5000
81F3713	MV5051	Red	660 nm	1.7	1.6 mcd	100 mA	180 mW	I	.38	.32	.29	.27
81F3714	MV5052	Red	660 nm	1.7	2.0 mcd	100 mA	180 mW	I	.38	.32	.29	.27
81F3715	MV5056	Red	660 nm	1.7	.8 mcd	100 mA	180 mW	I	.40	.35	.32	.30
13F9718	MV5074B	Red	660 nm	1.68	2.5 mcd	50 mA	100 mW	E	.29	.24	.22	.20
13F9719	MV5077B	Red	660 nm	1.68	1.7 mcd	50 mA	100 mW	D	.52	.42	.38	.23
13F9720	MV50152	Red	600 nm	1.60	2.0 mcd	100 mA	180 mW	H	.45	.41	.38	.35
13F9721	MV50154	Red	660 nm	1.60	1.5 mcd	100 mA	180 mW	H	.45	.41	.38	.35
81F3719	MV52640	Green	565 nm		1.5 mcd	10 mA	120 mW	M	.30	.24	.21	.20
13F9722	MV52152	Green	565 nm	2.20	2.0 mcd	35 mA	180 mW	H	.49	.43	.39	.35
81F3720	MV53640	Yellow	585 nm	2.1	2.0 mcd	10 mA	120 mW	M	.30	.24	.21	.20
81F3721	MV53641	Yellow	585 nm	2.1	3.0 mcd	10 mA	120 mW	M	.42	.32	.27	.25
81F3722	MV53642	Yellow	585 nm	2.1	4.5 mcd	10 mA	120 mW	M	.57	.50	.45	.40
13F9724	MV53152	Yellow	585 nm	2.10	5.0 mcd	35 mA	180 mW	H	.49	.43	.39	.35
13F9725	MV53154	Yellow	585 nm	2.10	3.0 mcd	35 mA	180 mW	H	.49	.43	.39	.35
81F3716	MV51640	Orange	635 nm	2.0	1.0 mcd	10 mA	120 mW	M	.30	.24	.21	.20
81F3717	MV51641	Orange	635 nm	2.0	2.5 mcd	10 mA	120 mW	M	.42	.32	.27	.25
81F3718	MV51642	Orange	635 nm	2.0	3.5 mcd	10 mA	120 mW	M	.57	.50	.45	.40
13F9726	MV57152	Orange	635 nm	2.00	8.0 mcd	35 mA	180 mW	H	.49	.43	.39	.35
13F9728	MV5174B*	Orange	635 nm	2.00	5.0 mcd	35 mA	105 mW	E	.45	.40	.34	.30
13F9729	MV5177B*	Orange	635 nm	2.00	3.0 mcd	35 mA	105 mW	D	.45	.40	.34	.30
13F9730	MV5277B*	Green	565 nm	2.20	0.9 mcd	35 mA	105 mW	D	.45	.40	.34	.30
13F9731	MV5374B*	Yellow	585 nm	2.10	4.0 mcd	35 mA	105 mW	E	.45	.40	.34	.30
13F9732	MV5377B*	Yellow	585 nm	2.10	2.0 mcd	35 mA	105 mW	D	.45	.40	.34	.30
13F9733	MV5774B*	Orange	635 nm	2.00	5.0 mcd	35 mA	105 mW	E	.45	.40	.34	.30
13F9735	MV52124	Green	565 nm	2.00	3.0 mcd	35 mA	105 mW	J	.60	.55	.46	.40
13F9736	MV53164	Yellow	585 nm	2.50	1.0 mcd	30 mA	750 mW	K	4.00	3.70	3.00	2.75
13F9737	MV57164	Orange	635 nm	2.50	1.0 mcd	30 mA	750 mW	K	3.75	3.35	2.60	2.35
13F9738	MV53173	Yellow	585 nm	2.10	10.0 mcd	35 mA	200 mW	L	1.75	1.55	1.25	1.10
13F9739	MV57173	Orange	635 nm	2.00	10.0 mcd	35 mA	200 mW		1.75	1.55	1.25	1.10
32F1447	MV10B	Red	660 nm	1.65	0.8 mcd	70 mA	175 mW	C	1.70	1.55	1.40	1.30
32F1448	MV50	Red	660 nm	1.65	1.4 mcd	40 mA	80 mW	A	.29	.25	.23	.22
32F1467	MV52	Green	565 nm	2.2	1.5 mcd	35 mA	105 mW	A	.45	.38	.32	.28
32F1472	MV53	Yellow	585 nm	2.1	1.5 mcd	35 mA	105 mW	A	.45	.38	.32	.28
32F1476	MV54	Red	660 nm	1.65	1.0 mcd	40 mA	80 mW	A	.29	.25	.23	.22
32F1478	MV55A	Orange	635 nm	1.6	0.5 mcd	4 mA	6 mW	B	.45	.38	.32	.28
32F1449	MV5020	Red	660 nm	1.65	2.0 mcd	100 mA	180 mW	G	.55	.50	.47	.45
32F1450	MV5021	Red	660 nm	1.65	1.6 mcd	100 mA	180 mW	G	.55	.50	.47	.45
32F1451	MV5022	Red	660 nm	1.65	1.6 mcd	100 mA	180 mW	G	.55	.50	.47	.45
32F1452	MV5023	Red	660 nm	1.65	1.6 mcd	100 mA	180 mW	G	.49	.45	.39	.37
32F1453	MV5024	Red	660 nm	1.65	3.0 mcd	100 mA	180 mW	G	.49	.45	.39	.37
32F1454	MV5025	Red	660 nm	1.65	0.4 mcd	100 mA	180 mW	G	.49	.45	.39	.37
32F1455	MV5026	Red	660 nm	1.65	0.6 mcd	100 mA	180 mW	G	.50	.46	.40	.38
32F1456	MV5050	Red	660 nm	1.7	2.0 mcd	100 mA	180 mW	I	.38	.32	.29	.27
32F1457	MV5053	Red	660 nm	1.7	1.6 mcd	100 mA	180 mW	I	.27	.21	.19	.18
32F1458	MV5054A-1	Red	660 nm	1.8	2.0 mcd	100 mA	180 mW	I	.27	.22	.20	.19
32F1459	MV5054A-2	Red	660 nm	1.8	3.0 mcd	100 mA	180 mW	I	.33	.28	.24	.22
32F1460	MV5054A-3	Red	660 nm	1.8	4.0 mcd	100 mA	180 mW	I	.45	.39	.35	.29
32F1461	MV5055	Red	660 nm	1.7	0.6 mcd	100 mA	180 mW	I	.31	.25	.23	.22
32F1462	MV5075B	Red	660 nm	1.68	1.5 mcd	50 mA	100 mW	E	.29	.24	.22	.20
32F1464	MV5152	Orange	635 nm	2.0	4.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
32F1465	MV5153	Orange	635 nm	2.0	9.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
32F1466	MV5154	Orange	635 nm	2.0	10.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
81F3723	MV54124	Green	562 nm	2.5	2.0 mcd	35 mA	200 mW	J	.56	.45	.37	.32
81F3724	MV54643	Green	562 nm	2.2	5.0 mcd	10 mA	120 mW	M	.42	.34	.28	.24
81F3725	MV54644	Green	562 nm	2.2	10.0 mcd	10 mA	120 mW	M	.72	.58	.48	.42
32F1469	MV5253	Green	565 nm	2.2	3.5 mcd	35 mA	105 mW	I	.55	.45	.39	.30
32F1470	MV5254	Green	565 nm	2.2	3.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
81F3729	MV64520	Green	565 nm	2.2	25.0 mcd	35 mA	105 mW	I	.58	.47	.38	.34
81F3730	MV64521	Green	565 nm	2.2	60.0 mcd	35 mA	105 mW	I	.72	.58	.48	.42
81F3731	MV64530	Green	565 nm	2.2	6.0 mcd	35 mA	105 mW	I	.47	.38	.31	.27
81F3732	MV64531	Green	565 nm	2.2	14.0 mcd	35 mA	105 mW	I	.72	.58	.48	.42
32F1473	MV5352	Yellow	585 nm	2.1	40.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
32F1474	MV5353	Yellow	585 nm	2.1	8.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
32F1475	MV5354	Yellow	585 nm	2.1	10.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
81F3726	MV57640	Red	635 nm	2.0	2.0 mcd	10 mA	120 mW	M	.30	.24	.21	.20
81F3727	MV57641	Red	635 nm	2.0	2.5 mcd	10 mA	120 mW	M	.42	.32	.27	.25
81F3728	MV57642	Red	635 nm	2.0	3.5 mcd	10 mA	120 mW	M	.57	.50	.45	.40
32F1479	MV5752	Hi.Eff.Red	635 nm	2.0	40.0 mcd	35 mA	105 mW	I	.55	.45	.39	.30
32F1480	MV5753	Hi.Eff.Red	635 nm	2.0	9.0 mcd	35 mA	105 mW	I	.39	.32	.29	.27
32F1481	MV5754	Hi.Eff.Red	635 nm	2.0	10.0 mcd	35 mA	105 mW	I	.39	.32	.29	.27
32F1471	MV5274B	Green	565 nm	2.2	1.8 mcd	35 mA	105 mW	E	.45	.40	.34	.30
32F1483	MV5094	Red/Red	Note a	1.6	0.8 mcd	70 mA	140 mW	F	1.95	1.50	1.40	1.25
32F1477	MV5491	Red/Green	Note b									
		Red Diode		1.65	1.5 mcd	70 mA	200 mW	F				
		GreenDiode		3.0	0.5 mcd	35 mA	200 mW	F	3.00	2.50	2.20	1.80
32F1482	MV53124	Yellow	585 nm	2.0	4.0 mcd	35 mA	105 mW	J	.60	.55	.46	.40
32F1483	MV57124	Red	635nm	2.0	4.0 mcd	35 mA	105 mW	J	.60	.55	.46	.40



General Instrument offers a broad line of discrete light emitting diode products to provide a wide selection of off-the-shelf products to meet a customer's particular requirements.

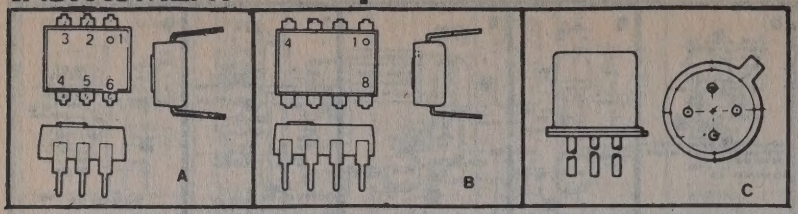
A broad selection of packages, lens effects, color power, and brightness is available. Product lines are continually being updated to provide modern, functional devices for customer use. New types added to stock as they are introduced.

(a) MV5094 contains two red diodes connected inversely parallel. Unit operates on either polarity DC current or AC current. Wavelength is 660 nm. For this unit, I^2T (0.1% duty cycle .... 2.5 x10^{-4} amps^2 sec.)

(b) MV 5491 contains one red and one green diode inversely parallel. Unit emits green light (570 nm) with one DC polarity and red light (660 nm) with the opposite DC polarity.

All specifications are typical unless otherwise specified.

GENERAL INSTRUMENT Optoelectronics and Infrared Devices



OPTOISOLATORS

- **IC compatible**
- **Physically small**
- **Rugged Construction**

Standard line of General Instrument optoisolator products combine an infrared solid state emitter with a light detecting output stage in a single IC compatible package.

TRANSISTOR SERIES

Stk. No.	Type	Pkg. Type	Current Transfer Ratio	Min. DC Isol. Volt.	Min. BV CEO	Max. Ton,Toff RL=100 (μ sec)	1-99	100-999
			DESIGNER SERIES					
32F1496	MCT274	A	225-400%	3150	30 V	25	1.85	1.60
32F1497	MCT275	A	70-210%	3150	80 V	15	1.65	1.35
13F9740	MCT276	A	15-60	3550	30 V	7	1.55	1.20
32F1436	MCT2E	A	20% Min.	3550	30 V	.....	1.10	.79
			INDUSTRY STANDARD					
32F1435	MCT2	A	20% Min.	1500	30 V	.....	.99	.75
32F1437	MCT26	A	6% Min.	1500	30 V	.....	.90	.63
32F1484	4N25		20% Min.	2500	30 V	.....	.96	.72
32F1485	4N26		20% Min.	1500	30 V	.....	.96	.72
13F9742	4N27	A	10% Min.	1500	30 V	6	.87	.69
32F1486	4N28		10% Min.	500	30 V	.....	.87	.69
32F1490	4N35		100% Min.	3550	30 V	10	1.10	.88
32F1491	4N36		100% Min.	2500	30 V	10	1.04	.83
32F1492	4N37		100% Min.	1500	30 V	10	.92	.73
81F9265	MCC670 (6N138)	B	300%	1500 V	30 V	.....	2.55	2.00
81F9266	MCC671 (6N139)	B	400%	1500 V	30 V	.....	2.90	2.40
32F1494	MCT272	A	75-150%	3550 V	30 V	.....	1.45	1.20
			DUAL CHANNEL					
32F1439	MCT6	B	20% Min.	1500	30 V	.....	1.90	1.45
32F1440	MCT66	B	6% Min.	1500	30 V	.....	1.85	1.40
			HERMETIC PACKAGE					
13F9743	MCT4R	C	15% Min.	1000	30 V	6	22.00	18.35

Stk. No.	Type	Pkg. Type	Min. DC Iso. Volt.	Max. Ton/ Toff	Detector Vol.	Detector IOH	1-99	100-999
13F9744	MID400	B	3550	1.0MS	.4V	100μA	4.60	3.45

TRANSISTOR OUTPUT

Stk. No.	Type	Pkg. Type	Current Transfer Ratio	Min. DC Isol. Volt.	Min. BV CEO	Max. Ton,Toff RL=100 (μ sec)	1-99	100-999
			DARLINGTON OUTPUT					
32F1423	MCA230	A	100% Min.	1500	30 V	.....	1.20	.90
32F1424	MCA231	A	200% Min.	1500	30 V	.....	1.70	1.30
32F1425	MCA255	A	100% Min.	1500	65 V	.....	1.50	1.10
32F1487	4N29		100% Min.	2500	30 V	.....	1.20	1.05
32F1488	4N32		500% Min.	2500	30 V	.....	1.35	1.08
32F1489	4N33		500% Min.	1500	30 V	.....	1.40	1.20

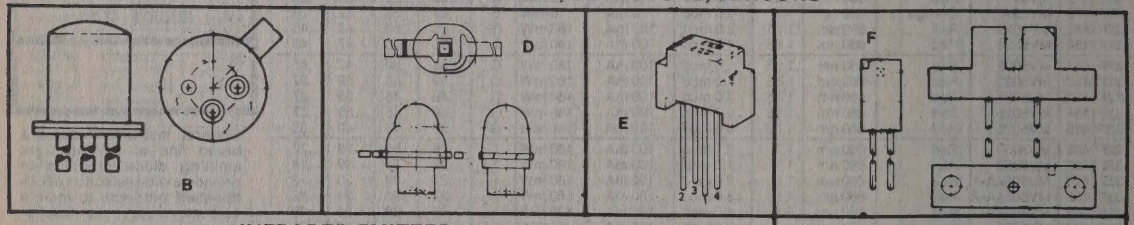
SCR OUTPUT

Stk. No.	Type	Pkg. Type	DC Isol. Volt.	Forward Blocking Voltage (VDRRM)	Max. Turn-on (IF)	1-99	100-999
32F1431	MCS2	A	1500	200 V	14.0 mA	1.65	1.30
32F1432	MCS2400	A	1500	400 V	14.0 mA	2.20	1.75
32F1433	MCS6200	B	1500	200 V	14.0 mA	5.50	4.60

HIGH SPEED LOGIC

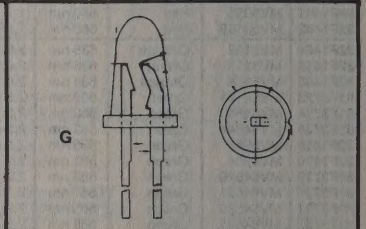
Stock No.	Type	Output Format	Pkg. Type	Min. DC Isol. Volt.	Max. Trig. (IF)	1-99	100-999
32F1429	MCL601	Logic Gate Totem Pole	B	2000	5.0 mA	8.95	6.45
32F1430	MCL611	Logic Gate Totem Pole	B	2000	15 mA	8.95	6.45

INFRARED EMITTERS, DETECTORS, SENSORS



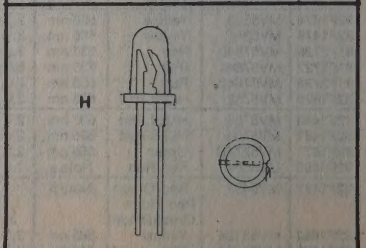
INFRARED EMITTERS

Stock No.	Type	Pkg.	Forward Voltage (VF)	Power Out (Po)	Test Current	Maximum Power	1-99	100-999
13F9745	ME61	D	1.5 V	550 μW	50 mA	75 mW	.88	.69
13F9746	ME7021	G	1.5 V	1000 μW	100 mA	150 mW	2.10	1.55
13F9747	ME7121	H	1.8 V	3 mW	100 mA	150 mW	1.65	1.30
32 F1444	ME7124	H	1.8V	3 mW	100 mA	150 mW	1.65	1.30
13F9748	ME7161	D	1.8V	3 mW	50 mA	75 mW	.74	.59



PHOTODETECTORS

Stock No.	Type	Pkg.	Sensitivity (μA/mW/cm²)	Collector Dk. Current	Col.-Emit. Breakd'n.	Max. Power	1-99	100-999
32F1448	MT2	B	1400	1 nA	65 V	200 mW	6.15	4.85
13F9749	MT8020	H	350	1.5 nA	65 V	200 mW	.90	.72



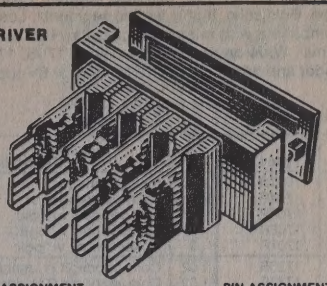
SENSOR SYSTEMS Max. Dark Current 100 nA (Iceo)

Stock No.	Type	Pkg.	Output Format	Package Type (Switch)	Collector Current (IC)	kHz	1-99	100-999
32F1426	MCA7	E	Darlington	Reflective Sensor	50 μA @ IF = 50 mA, Vce = 5	0.8	4.30	3.35
32F1441	MCT8	F	Transistor	Slotted Limit	200μA@IF=20smA, Vce=10	150	2.35	1.80
13F9750	MCT81	F	Transistor	Slotted Limit	50 μA @ IF = 20 mA, Vce = 10	200	2.10	1.60
32F1427	MCA8	F	Darlington	Slotted Limit	2 mA @ IF = 16 mA, Vce = 1	0.8	2.50	1.90
32F1428	MCA81	F	Darlington	Slotted Limit	1.6 mA @ IF = 50 mA, Vce = 1	1.5	2.25	1.75

LED Decoder Drivers, Mounting Hardware

IEE

SERIES 1760 LED DISPLAY DECODER/DRIVER

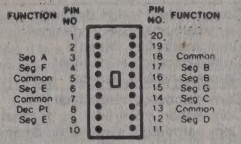


- Easy mounting
- Can be used with standard PC connector
- Operates with LED readouts

Designed to be integrally mounted onto the back of Series 1750/1751/1752-OX (wire-wrap terminal models). Accepts either four line, BCD or serial, pulse count inputs; inherent memory capability. Models 1760 series are designed to operate with common Anode readouts only. When mounted, extends behind the main body of the mounting hardware (measured from the back face of the socket) as follows: —01, —03, are 1.75" (44.5 mm); —02, —04, are 2.18" (55.4 mm). Can be used with standard PC connector, or directly solder terminated.

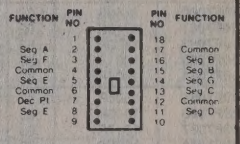
Stock No.	Type	Description	Each 1-9	Each 10-24	Each 25-49
12F1025	1760-01	Memory (LDP)	26.46	19.89	15.97
12F1026	1760-02	Memory, CTR (LDP)	34.56	25.98	20.86
12F1027	1760-03	Memory (RDP)	26.46	19.89	15.97
12F1028	1760-04	Memory CTR (RDP)	34.56	25.98	20.86

PIN ASSIGNMENT
SERIES DMH1750 & DMH 1751 SOCKET
AS VIEWED FROM FRONT



PINS NOT USED BY DISPLAY OR DECODER

PIN ASSIGNMENT
SERIES DMH1752 SOCKET
AS VIEWED FROM FRONT



PINS NOT USED BY DISPLAY OR DECODER

4

IEE ATLAS

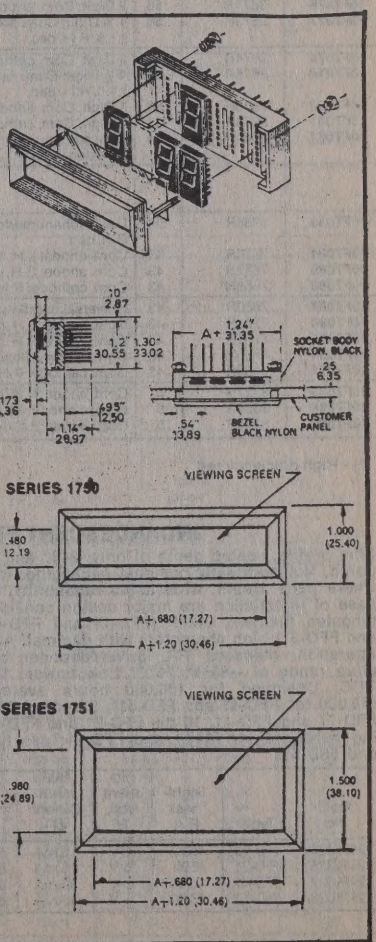
UNIVERSAL MOUNTING HARDWARE FOR LED DISPLAYS

MODELS 1750 AND 1751

For any 14-16 pin DIP package with .3" row spacing. Consists of a one-piece black nylon bezel requiring a single rectangular panel cutout, a red circularly polarized viewing screen and a universal socket body ready for wire wrap or PCB insertion. Oper. temp. 0° to +70°C. Display brightness is inversely related to oper. temp. Last two numbers in type are decades per assembly. Amber or neutral polarized screen available on spec. order.

MODELS 1752 AND 1754

1.3" window accommodates characters up to 1.1" with wide-angle viewing. For standard 14-, 16- and 18-pin DIP packaged LED or planar displays with .300" (model 1753) and .600" (model 1752) on-centers spacing; .900" c/c digit spacing, 1 through 8 digit configurations. Last two numbers in type number are decades per assembly. One-piece bezel. Non-glare, high contrast view screen.



1750 BEZEL ONLY

Stock No.	Type DMH-	1-9	10-24	25-49
69F132	22463R-02	7.56	5.68	4.56
69F133	22463R-03	8.10	6.09	4.89
69F134	22463R-04	8.64	6.50	5.22
69F135	22463R-05	9.18	6.90	5.54
69F136	22463R-06	9.72	7.31	5.87
69F137	22463R-07	10.53	7.92	6.36
69F138	22463R-08	11.07	8.32	6.68

1751-54 BEZEL ONLY

Stock No.	Type DMH-	1-9	10-24	25-49
69F154	23441R-02	8.37	6.29	5.05
69F155	23441R-03	8.91	6.70	5.38
69F156	23441R-04	9.45	7.11	5.71
69F157	23441R-05	10.26	7.71	6.19
69F158	23441R-06	10.80	8.12	6.52
69F159	23441R-07	11.34	8.53	6.85
69F160	23441R-08	11.88	8.93	7.17

1750-51 WIRE WRAP TERMINAL SOCKET ONLY

Stock No.	Type DMH-	1-9	10-24	25-49
69F139	22464-02	8.91	6.70	5.38
69F140	22464-03	11.61	8.73	7.01
69F141	22464-04	14.31	10.76	8.64
69F142	22464-05	17.01	12.79	10.27
69F143	22464-06	19.71	14.82	11.90
69F144	22464-07	22.41	16.85	13.53
69F145	22464-08	25.11	18.88	15.16

1752 BEZEL ONLY

Stock No.	Type DMH-	1-9	10-24	25-49
69F161	24036R-01	11.07	8.32	6.68
69F162	24036R-02	12.42	9.34	7.50
69F163	24036R-03	13.50	10.15	8.15
69F164	24036R-04	14.58	10.96	8.80
69F165	24036R-05	15.66	11.77	9.45
69F166	24036R-06	17.01	12.79	10.27
69F167	24036R-07	17.55	13.20	10.60
69F168	24036R-08	19.17	14.41	11.57

1752 SOCKET ONLY

Stock No.	Type DMH-	1-9	10-24	25-49
69F146	24038-01	9.45	7.11	5.71
69F147	24038-02	12.42	9.34	7.50
69F148	24038-03	16.20	12.18	9.78
69F149	24038-04	19.44	14.62	11.74
69F150	24038-05	22.68	17.05	13.69
69F151	24038-06	25.92	19.49	15.65
69F152	24038-07	30.51	22.94	18.42
69F153	24038-08	34.56	25.98	20.86

1754 WIRE WRAP SOCKET

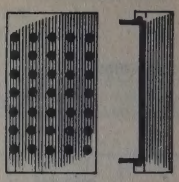
Stock No.	Type DMH-	1-9	10-24	25-49
69F125	25002-02	40.82	30.69	24.65
69F126	25005-03	41.53	31.22	25.07
69F127	25002-04	41.90	31.51	25.30
69F128	25002-05	42.55	31.99	25.69
69F129	25002-06	43.36	32.60	26.18
69F130	25002-07	44.66	33.58	26.96
69F131	25002-08	45.85	34.47	27.68

LED Digital Displays

Common anode or common cathode models. Fast switching, excellent for multiplexing. Low power consumption. Bold solid, highly legible segments. Long operation life. Impact resistant plastic construction. Directly compatible with integrated circuits. High brightness and contrast. Right hand (R.H.) or left hand (L.H.) decimal. Wide angle visibility. Types 1705, 1706, 1707 have internal TTL MSI chip and counter, latch, decoder and driver. Operates from 5V or 6V supply. Suffix in type number denotes color: E-Orange; R-Red.

Stock No.	Type LR-	Ht. (in.)	Description	1-99	100-999	1000-4999
10F7050	1057R	1.16	5 x 7 Dot matrix	5.10	4.08	3.32
10F7051	1704R	.3	5 x 7 Alpha-numeric	4.20	3.36	2.73
10F7052	1705R	.27	L.H. decimal, w/logic	14.09	9.06	7.40
10F7053	1706R	.27	L.H. decimal, w/logic	14.09	9.06	7.40
10F7054	1707R	.3	Hexadecimal, w/logic	14.46	9.30	7.60
10F7055	1720R	1.02	Com. anode; R.H. decimal	2.86	2.29	1.86
10F7056	1723R	1.02	Com. cathode; R.H. decimal	2.86	2.29	1.86
10F7057	1737R	.3	Com. anode; R.&L. hand decimal	1.38	1.10	.90
10F7058	1738R	.3	Com. cathode; R.H. decimal	1.38	1.10	.90
10F7059	1739R	.3	Com. anode; ±1; overflow	1.38	1.10	.90
10F7060	1740R	1.02	Com. anode; ±1; R.H. decimal	2.86	2.29	1.86
10F7061	1743R	1.02	Com. cathode; ±1; R.H. decimal	2.86	2.29	1.86
10F7062	1800R	.63	Com. anode; L.H. decimal	2.56	2.05	1.66
10F7063	1801R	.63	Com. cathode; L.H. decimal	2.56	2.05	1.66
10F7064	1804R	.63	Com. anode; L.H. decimal	2.26	1.81	1.47
10F7065	1805R	.63	Com. cathode; L.H. decimal	2.26	1.81	1.47
10F7066	1816R	.63	Com. anode; ±overflow, no decimal	2.56	2.05	1.66
10F7067	1817R	.63	Com. cathode; ±overflow, no decimal	2.56	2.05	1.66
10F7068	182R0	.63	Com. anode; ±overflow, no decimal	2.26	1.81	1.47
10F7069	1821R	.63	Com. cathode; ±overflow, no decimal	2.26	1.81	1.47
10F7070	2661E	.56	2 Digit; Com. anode; R.H. dec.			
10F7071	2663E	.56	1 ½ Digit; Com. anode; overflow ±1.8, R.H. dec.	4.60	3.65	3.35
10F7072	2664E					
10F7073	2665E	.56	1 ½ Digit; Com. cathode; overflow ±1.8, R.H. dec.			
10F7074	2666E	.56	1 Digit; Com. anode; R.H. dec.	3.15	2.50	2.35
10F7075	2668E	.56	1 Digit; Com. cathode; R.H. dec.	3.15	2.50	2.35
10F7076	2671R	.56	2 Digit; Com. anode; R.H. dec.	3.55	2.80	2.45
10F7077	2673R	.56	1 ½ Digit; Com. anode; overflow ±1.8, R.H. dec.	3.55	2.80	2.45
10F7078	2674R	.56	2 Digit; Com. cathode; R.H. dec.	3.55	2.80	2.45
10F7079	2675R	.56	1 ½ Digit; Com. cathode; overflow ±1.8, R.H. dec.	3.55	2.80	2.45
10F7080	2676R	.56	1 Digit; Com. anode; R.H. dec.	2.20	1.75	1.45
10F7081	2678R	.56	1 Digit; Com. cathode; R.H. dec.	2.20	1.75	1.45
10F7082	3784R	.54	Dual alphanumeric; Com. cathode; R.H. dec.	3.50	2.80	2.28
10F7083	3785R	.54	Dual alphanumeric; Com. cathode; R.H. dec.	3.50	2.80	2.28
10F7084	7650R*	.43	Com. anode; L.H. dec.	2.81	2.35	1.74
10F7085	7651R*	.43	Com. anode; R.H. dec.	2.81	2.35	1.74
10F7086	7653R*	.43	Com. cathode; R.H. dec.	2.81	2.35	1.74
10F7087	7656R*	.43	Universal overflow ±1, R.H. dec.	2.81	2.35	1.74
10F7089	7750R	.43	Com. anode; L.H. dec.	1.66	1.45	1.09
10F7090	7751R	.43	Com. anode; R.H. dec.	1.66	1.45	1.09
10F7091	7756R	.43	Universal overflow ±1, R.H. dec.	1.66	1.45	1.09
10F7092	7760R	.43	Com. cathode; R.H. dec.	1.66	1.45	1.09
10F7093	8321R	.5	Com. anode; R.H. dec.	1.66	1.45	1.09
10F7094	8322R	.5	Com. cathode; R.H. dec.	1.66	1.45	1.09
10F7095	8323R	.5	Com. anode; ±1, overflow	1.66	1.45	1.09

(*) - High efficiency red.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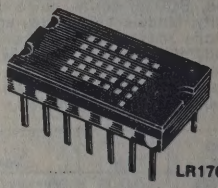
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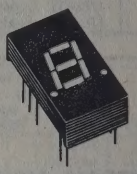
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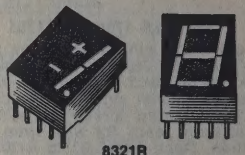
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LR1800R

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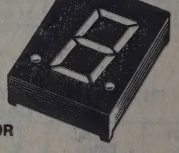

LR1720R

INCANDESCENT FLATBACK DIGITAL DISPLAYS

Slim profile, seated depth of only .248" and less than .5" overall depth. Volumetrically compact packaging. Ideal for applications where panel depth, wide angle readability, high brightness and ease of installation are major design considerations. 7-segment, tungsten filament, .427" (FFD-11 and FFD-41) or .614" (FFD21 and FFD-51) high characters with decimal. AC, DC or pulse mode operation: standard TTL driver/decoder compatible. Temperature range of —55 to 70°C. Low power: 15 mA/segment ⅛ 5 VDC. Designed for 100,000 hours average life expectancy (40,000 for FFD-41 and FFD-51). Standard DIP packaging; 14 pin FFD-11 and FFD-41, 16 pin FFD-21 and FFD-51. Use 1751 mounting hardware for FD-11 and FFD-41; use type 1753 for FFD-21 and 55D-51.

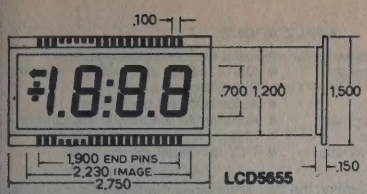
FFD-71

FFD-81

Stock No.	Type	Bright-ness FT./L	Fila-ment Volt. EF	Fila-ment Current LF	EACH 1-99	EACH 100-999	EACH 1000-2499
21F1025	FFD-11	4500	5 V	15 mA	6.47	5.17	4.21
21F1026	FFD-21	4500	5 V	15 mA	6.80	5.45	4.42
21F1027	FFD-41	13,000	5 V	30 mA	6.47	5.17	4.21
21F1028	FFD-51	13,000	5 V	30 mA	6.80	5.45	4.42

Liquid Crystal Displays

- **Low, 25 μw, Typical Average Power Consumption**
- **CMOS Compatible Drive Characteristic**
- **High Stability, Hermetically-Sealed Displays Offer Long Life and Reliability**
- **Custom Models Available to Meet Every Need**
- **Rugged DIL permanently fixed .250" DIL pins. Installed That Allow Simple Field Replacement of Displays Without Desoldering From User's PCB**
- **Models using elastomeric termination as well as models with hi-temp fluid available on special orders.**



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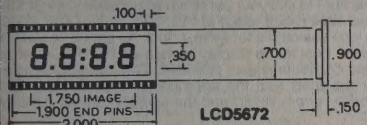

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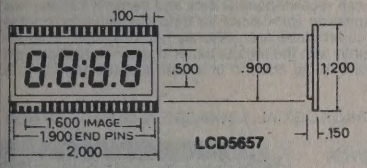

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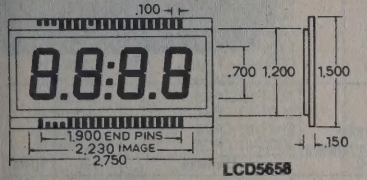

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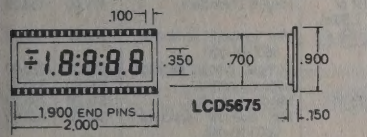

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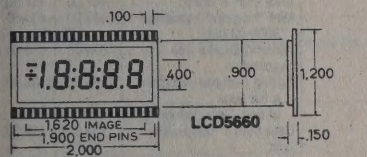

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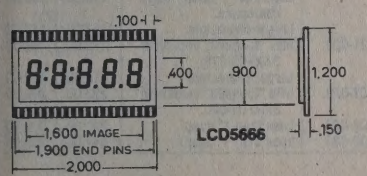

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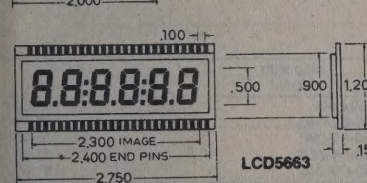

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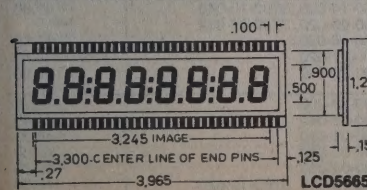

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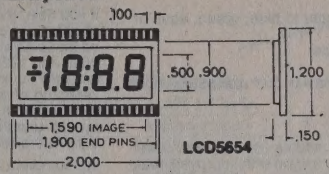

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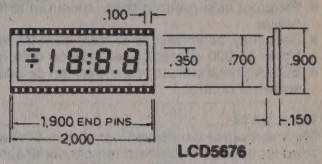


LCD5676

Field effect liquid crystal displays designed for use in mild environments. Equipped with reflective polarizers and permanently fixed DIL pins .250" length for ease in mounting to PC boards or standard sockets. Can be displayed continuously for up to two years w/o battery change. Compatible with low power, low voltage, CMOS drive circuitry. Crystal material is environmentally tested for stability and the package hermetically-sealed to assure a long life of greater than five years. A variety of models available to fill almost any need. Choice of voltages from 3 to 9 volts. Typical average power consumption is 25μw.

SPECIFICATIONS

UNITS	PARAMETERS		COMMERCIAL GRADE TYPE "5" FLUID MIN.	TYP.	MAX.
Vrms	Operating Voltage		3.0	5.0	9.0
Hz	Operating Freq Range		30.0	60.0	100.0
mV	Allowable DC Offset		—	—	50.0
	Operating current per digit (all segments)				
uA	.35 inch	Digit HT	—	.7	—
	.40 inch		—	.9	—
	.50 inch		—	1.25	20.0
	.70 inch		—	2.9	—
	DC Resistance per digit (all segments)				
MΩ	.35 inch	Digit HT	—	400	—
	.40 inch		—	300	—
	.50 inch		—	200	—
	.70 inch		—	100	—
	Capacitance per digit (all segments)				
pf	.35 inch	Digit HT	—	320	—
	.40 inch		—	500	—
	.50 inch		—	750	—
	.70 inch		—	1500	—
2" Wide Glass Size or Smaller			Optical response		
ms	Response Time: Segment On -		—	75	150
	Segment Off -		—	150	300
2" Wide Glass or Greater Size			Optical response		
ms	Response Time: Segment On -		—	150	250
	Segment Off -		—	250	400
Ratio	Contrast		—	20:1	—
Degrees	Viewing angle from normal)		—	±75° at 5V	—
			—	±60° at 4V	—
			—	±45° at 3V	—
°C	Operating Temp Range		−10	—	+55
	Storage Temp Range		−55	—	+60
Range	R.H. MAX. - 40%		−20		+60
	Storage Temp - 50%		−20		+50
	(indefinite) - 60%		−20		+40
	70%		−20		+30
Hrs.	Expected Lifetime.		50,000 Avg.		

Stk. No.	Type LCD	No. of Digits	Digit Size	1-9	10-24	25-49	50-99
21F1014	5654R-25H	3.5	.500"	19.79	14.84	11.90	9.89
21F1015	5655R-25H	3.5	.700"	28.62	21.47	17.21	14.31
21F1016	5657R-25H	4.0	.500"	19.79	14.84	11.90	9.89
*21F1017	5679R-25H	4.0	.700"	19.79	14.84	11.90	9.89
21F1018	5660R-25H	4.5	.400"	19.79	14.84	11.90	9.89
21F1019	5663R-25H	6.0	.500"	28.62	21.47	17.21	14.31
21F1020	5665R-25H	8.0	.500"	30.47	22.85	18.33	15.24
21F1021	5666R-25H	5.0	.400"	19.79	14.84	11.90	9.89
21F1022	5672R-25H	4.0	.350"	18.41	13.81	11.07	9.20
21F1023	5675R-25H	4.5	.350"	18.41	13.81	11.07	9.20
21F1024	5676R-25H	3.5	.350"	18.41	13.81	11.07	9.20

*Lo Batt Indicator

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

IEE FLIP VACUUM FLUORESCENT DISPLAYS

THE DISPLAY MAKERS

FEATURES

- 5×7 dot matrix for bright, clear display of upper and lower case characters
- On-board microprocessor controller
- Supports many ASCII control functions including carriage return, line feed, advance or backspace cursor
- 8-bit bi-directional bus requires minimum hardware to interface to most microprocessors
- TTL level serial operation at 1200 baud
- Requires only +5VDC power supply
- Pleasant blue-green display spectrum is filterable to blue, green, aqua or yellow
- Data may be written to or read from the module
- Up to 10,000 character per second data rate
- ECMA General European, German or Scandinavian font alternates under software control

APPLICATIONS

- Numerical control machine tools
- Telecommunications devices
- Medical equipment
- Copiers
- Automatic labeling equipment
- Mobile communications
- Automated banking terminals
- Point-of-sale terminals
- Remote data entry terminals
- Alarm, safety and security systems
- Simulators
- Automatic test equipment
- Automotive diagnostic equipment
- Energy management systems
- TTY terminals for the deaf

4

Tech. DATA:

The microprocessor-based serial data converter module (SDCM) was developed for applications where remote serial communication with improved noise immunity is desired with an IEE Flip Alphanumeric Display. Model 26685-03 will interface with all the Flip Alphanumeric Vacuum Fluorescent Display Modules.

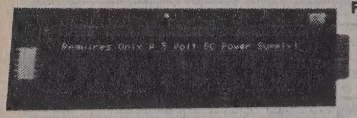
The data converter has provisions for receiving data at three input levels: RS-232-C, 20 ma current loop or RS-422 differential TTL. Upon receipt of the serial asynchronous data, the SDCM provides parallel data and control signal formatting to the selected display module.

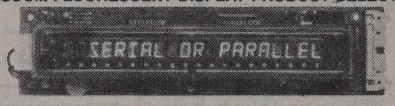
If you need increased versatility, the SDCM provides many standard features, of which one combination is sure to suit your particular application. The SDCM offers selectable serial data rates (baud rates) of 110, 300, 1200, 2400, 4800, 9600 and 19200. Parity is also selectable for even, odd or no parity. To further facilitate the interfacing of the host to the display system via the SDCM, error detecting of both parity and data rate is also provided. Thus, each character received with an error is replaced with the appropriate error symbol. The symbol used to indicate parity errors is "&" and the symbol used to indicate data rate errors is the "@."

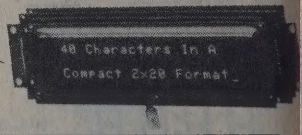
To complete your system, the auxiliary 8-bit parallel input port allows communication to the host system from a remote parallel data source. In this configuration, the SDCM can receive parallel data and transmit it to the host as an RS-232 data transmission (provisions for data transmission in either RS-422 TTL and 20 ma current loop are presently not available). This port may be operated concurrently with the remote panel to allow easy implementation of a remote terminal with the addition of a user supplied keyboard, or other parallel devices.

NEWARK IS YOUR ONLY NATIONAL DISTRIBUTOR OF I.E.E. FLIP DISPLAYS IN THE U.S. AS TECHNOLOGICAL ADVANCES ARE MADE OTHER DISPLAYS CAN BE ORDERED THROUGH YOUR LOCAL NEWARK OFFICE.

FLIP VACUUM FLUORESCENT DISPLAY PRODUCT SELECTOR







Stock No.	Model	Lines × Characters	Character Ht. (in.)	Character Ht. (mm)	Character Format: 5×7 Dot	Underbar	5×12 Dot	14 Segment	Lower Case	Blinking Cursor	Invisible** Cursor	Blinking Characters	Mounting Holes Center to Center Spacing (W × H)	Remarks	1-9	10-24
81F9348	3600-14-020	1 × 20	0.35	9.00	X				X		A		8.50 × 1.75"	Larger characters.	264.00	248.00
81F9349	3600-16-020	1 × 20	0.59	15.00	X				X		A		14.90W on center or adjustable W × 2.59H"	Largest characters.	479.00	450.00
81F9351	3600-21-020	1 × 20	0.20	5.05	X				X		A		5.90 × 1.20"	Mini "footprint" version of 3600-01-020.	264.00	248.00
81F9352	3600-22-040	2× 20	0.20	5.05	X				X		A		6.70 × 1.20"	Compact 2-board package.	347.00	326.00
81F9344	3600-02-040	1 × 40	0.20	5.05	X	X			X				9.90 × 2.70"	Edge connector.	330.00	310.00
81F9350	3600-20-040	1 × 40	0.20	5.05	X	X			X				Same as 3600-02-040.	Header connector.	314.00	295.00
81F9354	3600-42-040	1× 40	0.20	5.05	X	X			X				8.90 × 1.25"	Mini "footprint" version of 3600-20-040.	347.00	326.00
81F9345	3600-03-080	2 × 40	0.20	5.05	X	X			X	X	X		10.50 × 3.50"	Less than 1" deep.	487.00	457.00
81F9353	3600-23-080	2 × 40	0.20	5.05	X	X			X	X	X		9.00 × 1.60"	Mini "footprint" version of 3600-03-080.	462.00	434.00
81F9346	3600-04-080	1 × 80	0.20	5.05		X	X		X	X	X		8.75 × 2.40"	Lower case has true descenders.	594.00	558.00
81F9347	3600-06-240	6 × 40	0.20	5.05	X	X			X	X	X	X	11.50 × 5.10"	Editing features—displays a full page of text. User defined font.	1155.00	1085.00
81F9355	3700-01-010	1 × 10	0.32	8.00				X		B	X	X	5.65 × 1.55"	Less than 1" deep—low cost.	149.00	140.00
81F9356	3700-02-012	1 × 12	0.51	13.00				X		B	X	X	7.52 × 1.50"	Less than 1" deep—large characters.	198.00	186.00
81F9357	3700-04-016	1 × 16	0.37	9.35				X		B	X	X	7.5 × 1.75"	Larger characters.	157.00	147.00
81F9361	3700-13-016	1 × 16	0.24	6.00				X		B	X	X	Same as 3600-21-020.	Mini "footprint" version of 3700-03-016.	173.00	163.00
81F9358	3700-06-020	1 × 20	0.35	9.00				X		B	X	X	8.5 × 1.75"	Larger characters.	215.00	202.00
81F9362	3700-15-020	1 × 20	0.22	5.50				X		B	X	X	Same as 3600-21-020.	Mini "footprint" version of 3700-05-020.	223.00	209.00
81F9359	3700-07-032	1 × 32	0.24	6.00				X		B	X	X	Same as 3700-06-020.	Less than 1" deep.	223.00	209.00
81F9360	3700-10-040	1 × 40	0.21	5.25				X		B	X	X	Same as 3700-06-020.	Less than 1" deep.	247.00	233.00

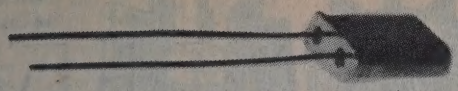
**A = Always invisible (no underbar). B = Always blinking when visible (14 segment "star").

FLIP ACCESSORIES

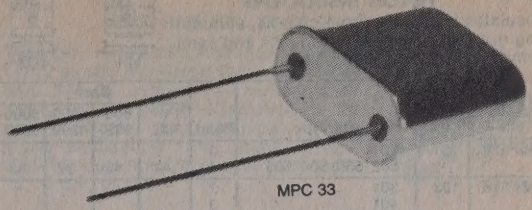
Filter kit consist of 3 filters. 1 each neutral gray, blue and green.

Stk. No.	Type	Description	Use with Model	NET
81F5773	26685-03	Serial data converter module	All Models	190.00
81F5774	27600-01	Filter Kit	3600-02-040	40.80
81F5775	27601-01	Filter Kit	3600-03-080	40.80
81F5776	27602-01	Filter Kit	3600-04-080	40.80
81F5777	27603-01	Filter Kit	3600-06-240	51.00
81F5778	27604-01	Filter Kit	3600-14-020, 3700-10-040, 3700-06-020, 3700-07-032	40.80
81F5779	27605-01	Filter Kit	3600-16-020	40.80
81F5780	27606-01	Filter Kit	3600-21-020	40.80
81F5781	27607-01	Filter Kit	3600-22-040	40.80
81F5782	27608-01	Filter Kit	3600-23-080	40.80
81F5783	27609-01	Filter Kit	3600-42-040	40.80
81F5784	27610-01	Filter Kit	3700-01-010	40.80
81F5785	27611-01	Filter Kit	3700-02-012	40.80
81F5786	27612-01	Filter Kit	3700-04-016	40.80
81F5787	27613-01	Filter Kit	3700-13-016, 3700-15-020	40.80

MICROPROCESSOR CRYSTALS MICRONIUM™ brand



MPC18



MPC 33

All crystals are hermetically sealed in metal HC-33/HC-18 packages. Standard tolerance for these crystal units is ±.01% overall, 0-70°C. The listing of microprocessor/clock types is not intended to be complete. It only gives an indication of some of the standard applications.

OVERALL TOLERANCE ±.01% 0-70°C

1 MHz to 3.5795 MHz

SPECIFICATION +.002 HC33/U

Stk. No.	Type	Frequency	Microprocessor	1-24	25-49	50-99
81N2524	MPC-33-0100	1.000	6800/56860	9.00	8.80	8.60
81N2525	MPC-33-0184	1.8432	MC/4411	5.50	4.35	4.20
81N2526	MPC-33-0200	2.000	F-8/CUP 3850	4.50	3.90	3.70
81N2527	MPC-33-0209	2.097152	MM5378/MM5379	4.50	3.90	3.70
81N2528	MPC-33-0245	2.4576	34702	4.50	3.90	3.70
81N2529	MPC-33-0300	3.000	MCS 48	4.50	3.90	3.70
81N2530	MPC-33-0357	3.5795	NSC MM5369	4.50	3.90	3.70

4MHz to 20MHz

SPECIFICATION +.002 HC18/U

Stk. No.	Type	Frequency	Microprocessor	1-24	25-49	50-99
81N2531	MPC-18-0400	4.000	4040/4004/4201 PACE	3.65	2.95	2.85
81N2532	MPC-18-0491	4.9152	Several MPU's	3.65	2.95	2.85
81N2533	MPC-18-0500	5.0000	Several MPU's	3.65	2.95	2.85
81N2534	MPC-18-0506	5.0688	Com 5016/Com 5016T	3.65	2.95	2.85
81N2535	MPC-18-0600	6.000	MCS48	3.65	2.95	2.85
81N2536	MPC-18-0614	6.144	Intel 8085	3.65	2.95	2.85
81N2537	MPC-18-0800	8.0000	Signetics	3.65	2.95	2.85
81N2538	MPC-18-1000	10.000	Several MPU's	2.85	2.65	2.45
81N2539	MPC-18-1431	14.318	Several MPU's	2.85	2.65	2.45
81N2540	MPC-18-1800	18.000	8080/8008/8224	2.85	2.65	2.45
81N2541	MPC-18-1843	18.4320	8080/8008/8224	2.85	2.65	2.45
81N2542	MPC-18-2000	20.000	Several MPU's	2.85	2.65	2.45

Semiconductor Coolers WAKEFIELD

Literally hundreds of heat dissipation products for almost every conceivable type of electronic cooling application. Everything from relatively simple extruded and stamped heat sinks to sophisticated heat exchangers, forced convection package assemblies and liquid-cooled plates, all with one purpose in mind: to keep the temperatures of various electronic components at desired safe operating levels.

HEAT SINK LOCATOR TABLE

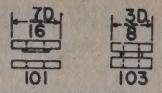
Heat Sink Series No.	201	202	203	204	205	206	207	208	209	211	213	215	222	224	254	256	258	259	260	289 290	291	292	295	296	297	298	300	310	400	500	600	630	635	650 651	671	672	673	680	689	690	695
TO-3(1)																													x	x	x	x	x		x	x	x	x	x	x	x	
TO-5(2)				x	x		x	x	x					x	x			x	x					x		x																
TO-8										x	x	x																														
TO-9				x	x		x	x	x					x				x																								
TO-11				x	x		x	x	x					x				x	x							x																
TO-12(3)				x	x		x	x	x					x	x			x	x							x																
TO-18(4)	x	x	x			x							x					x	x																						
TO-24	x	x	x			x							x					x																								
TO-26				x	x		x	x	x					x				x																								
TO-28(5)	x	x	x			x							x					x																								
TO-29				x	x		x	x	x					x				x							x																	
TO-33(3)				x	x		x	x	x					x				x	x						x																	
TO-36																													x	x	x				x						
TO-38										x	x	x																														
TO-39(3)				x	x		x	x	x					x	x			x	x							x																
TO-40	x	x	x			x												x																								
TO-43(3)				x	x		x	x	x					x				x								x																
TO-44	x	x	x			x												x																								
TO-45				x	x		x	x	x					x				x																								
TO-52	x	x	x			x							x					x	x																							
TO-58(6)	x	x	x			x							x					x																								
TO-59(7)																											x	x	x	x	x								x		x	x
TO-61(8)																											x	x	x	x	x								x		x	
TO-63																												x	x	x	x								x		x	
TO-66(9)																													x	x	x	x	x		x	x	x	x	x	x	x	
TO-82																													x	x	x								x			
TO-92													x									x																				
TO-102																															x											x
TO-202																				x x			x		x										x		x	x	x	x	x	
TO-220																				x x			x		x																	
Glass Diode																		x																								
DO-4(10)																											x	x	x	x	x								x			x
DO-5(11)																											x	x	x	x	x								x			
DO-8																												x	x	x	x								x			
DO-9																												x	x													
DO-21																											x		x		x											
DO-30																												x	x	x	x								x			

DELTA DIVISION

WAKEFIELD Semiconductor Coolers & Hardware

TEFLON INSULATORS

Insulates heat sinks from chassis, eliminating mica insulators between sink and semiconductor. ⅛ to 3½ oz.



Stock No.	Type	For Type	Read.	Each 1-499	500-999	1000-4999	5000-9900
58F519	101	501 502, 530, 504, 505	3 4	.44	.40	.37	.33
58F518	103	301 401 302, 303, 403, 424, 431 423, 433, 621, 623, 641	2 3 4 4	.14	.13	.12	.11
58F469	105	441, 1244, 1245, 1541	4	.67	.60	.55	.50
58F412	107	Same as 103	2	.77	.69	.63	.58

TYPE 120, 121 THERMAL COMPOUND

Used between semiconductor and heat sink, or for thermoelectric modules. Zinc oxide crystals of **Series 120** in a silicon grease will increase thermal conductivity between semiconductor and heat sink. **Series 121** is synthetic oil based. Ideal for applications where silicon oil based compounds are not allowed.

Stk. No.	Type	Quantity	1-9	10-24	25-49	50-99
58F470	120-2	2 oz.	4.07	3.83	3.35	3.22
58F372	120-5	5 oz. tube	7.17	6.66	6.07	5.51
58F471	120-8	8 oz.	10.03	9.59	8.45	7.41
58F402	120-80	5 lb.	50.04	48.72	43.42	38.85
30F1294F	121-2	2 oz.	3.55	3.34	2.91	2.80

THERMALLY CONDUCTIVE ADHESIVE

Type 152. High conductivity adhesive used: As general adhesive, for bonding semi-conductors to chassis heat sinks, fabricating heat sinks or thermal links, for permanent bonding of all materials with highly thermal conductive interface. Yields high bond strength. **Type 155** is noted for its ease of application. Packaged 1½ oz. hard, 1½ oz. resin. Maximum operating temperature, 65°C.

Temp. range −70°F to +300°F.

Stk. No.	Type	Size	1-9	10-24	25-49	50-99
58F345	152-1-A	1 oz.	6.37	5.46	5.22	4.77
58F386	152-K-A	7½ oz.	24.66	21.14	20.29	18.48
58F1364	155	1½ oz.	7.44	6.64	5.98	5.18

VERTICAL MOUNTING BRACKETS

Meets vibration requirements of Mil 202B. Two brackets required per sink. To insulate, use Teflon insulator #103. Heat sinks 401 and 403 use #111, 421 uses #113. Wt., 10 oz.

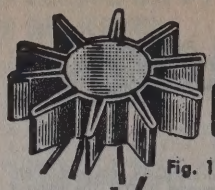
Stk. No.	Type	Pkgs. of 2 1-99	100-499
58F525	111	.53	.47
58F526	113	.59	.52

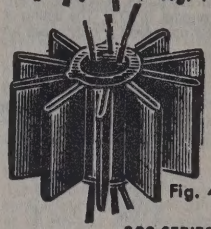
SERIES 170 INSULATING WAFERS

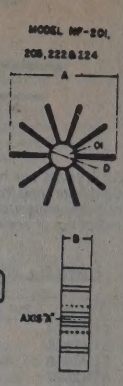
For TO-3 and TO-66 transistors. Features thermally conductive dielectric coating providing excellent thermal path between the case and heat sink. Coating on transistor side only, including edges, hole. I.D. **Sold in packages of 10. Series 177.** Beryllium oxide thermal conductor like aluminum, but also an excellent electrical insulator.

Stock No.	Type	Finish	For Case	Per Package of 10 1-99	100-499	500-999	1000-4999
58F177	170DC	Delta Coat 151H	TO-3	.19	.17	.16	.14
58F1337	171DC	Delta Coat 151H	TO-3	.20	.18	.16	.15
58F1338	172DC	Delta Coat 151H	TO-66	.17	.16	.14	.13
58F176	170HC	Hard Coat	TO-3	.18	.16	.15	.14
58F1339	171HC	Hard Coat	TO-3	.19	.17	.16	.15
58F1340	172HC	Hard Coat	TO-66	.17	.15	.14	.13

Stock No.	Type	Finish	For Case	1-99	100-490
58F1031	177-3-62	Beryllium Oxide	TO-66	3.40	2.80
58F1033	177-66-62	Beryllium Oxide	TO-66	2.50	2.10







200 SERIES FEATHERWEIGHT COOLERS

Flexin design. Spring action provides maximum contact of large area to assure repeatable thermal performance. Black copper.

Stk. No.	Type	Fig.	Inches A	B	Fits Case Dia.	Each 1-199	200-499	500-999	1000-4999
58F527	201CB	1	.64	.19	.161/.195	.33	.28	.25	.22
58F388	202CB	1	.49	.20	.161/.195	.35	.29	.26	.24
58F528	203CB	2	.64	.38	.161/.195	.54	.45	.40	.36
58F387	204CB	1	.55	.20	.275/.335	.31	.26	.23	.21
58F529	205CB	1	.72	.19	.275/.335	.43	.36	.31	.29
58F530	207CB	2	.72	.38	.275/.335	.54	.45	.40	.36
58F531	209CB	3	1.26	.44	.275/.335	.73	.61	.54	.49
58F441	211CB	1	.82	.19	.444/.524	.62	.52	.46	.42
58F442	213CB	2	.82	.38	.444/.524	.56	.47	.42	.38
58F443	215CB	3	1.38	.44	.444/.524	.46	.38	.34	.31
58F499	222CB	4	.64	.38	.161/.195	.68	.57	.50	.45
58F498	224CB	4	.72	.44	.275/.335	.66	.55	.49	.44

58F532. 160 tool for Models 201, 2, 3, 4, 5, 7, 9 ..... **3.05**
58F389. 161 installation tool for Models 211, 213, 215 ..... **3.32**

225 Series Heat Sink For TO-5 Case Styles

The 225 Series heat sink is a press-on, low cost unit for TO-5 case devices. The 225 comes in four heights from 0.25" to 1.00." Finished in Black anodized.

Stk. No.	Type	Height	1-199	200-400	500-900	1000-4900
81F038	225-1AB	.025	.15	.12	.10	.10
81F039	225-2AB	.50	.17	.14	.12	.11
81F040	225-3AB	.75	.18	.14	.12	.12
81F041	225-4AB	1.00	.19	.15	.14	.14

SERIES 260 CUP CLIPS FOR TO-5 AND TO-18

260-10SH5B Stud Mtg. for TO-5 | 260-4SH18E Stud Mtg. for TO-18 | 26X-4T5 Tapped Base | 260-P18 Plain Base

Beryllium copper cup clips with brass bases for TO-5 case style transistors except (*) for TO-18. "E" suffix are epoxy insulated. "B" suffix are beryllium oxide insulated for applications requiring low stray capacity. No suffix are non-insulated and are soldered together with 63/67 tin lead alloy. Max. temperature is 300°F. Size: 0.29" I.D. cup, hex base .37" across flats for TO-5; .170" I.D. with .25" hex for TO-18. **Sold in packages of 10.**

Stock No.	Type	For Base	Per Package of 10 1-19	20-40	50-90	100-490
58F184	260-4T5	4-40 tap; chamfer	11.60	9.48	8.13	7.15
58F185	260-4T5E	4-40 tap; chamfer	16.80	13.80	11.90	10.40
58F1057	260-4TH5B	4-40 tapped	34.30	28.80	24.60	21.60
58F1058	260-4TH5E	4-40 tapped	23.00	18.80	16.10	14.20
58F1060	*260-4SH18B	4-40 stud	24.60	20.10	17.30	15.20
58F1061	260-6SH5	6-32 stud	15.70	13.00	10.70	9.68
58F1062	260-6SH5E	6-32 stud	29.40	24.10	20.70	18.00
58F188	260-6SH5B	6-32 stud	39.80	32.60	28.20	24.50
58F1063	*260-6SH18	6-32 stud	12.20	9.92	8.54	7.48
58F189	260-105SH5B	10-32 stud	36.70	30.10	25.90	22.80
58F1067	260-105SH5E	10-32 stud	16.00	13.00	11.20	9.91

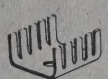
Semi Conductor Coolers & Hardware

WAKEFIELD DELTA DIVISION

270, 271, 272 and 280 Series Heat Sinks for TO-220 Style Devices. The 270, 272, and 280 Series heat sinks have a .375" height. The 272 heat sink is designed to accept two TO-220 devices. The 271 is added to these on top of the TO-220 device when additional cooling in required.

Stk. No.	Type	Dimensions L×H×W	EACH
81F042	270AB	.53×1.75×.375	.16
81F043	271AB	.70×1.75×.50	.16
81F044	272AB	1.45×1.75×.375	.21
81F045	280AB	.70×1.75×.375	.16

273 Series Heat Sink For Plastic-Cased Devices. The 273 Series heat sink is a 0.75" wide, 0.375" high heat sink for plastic-cased power SCRs and transistors.

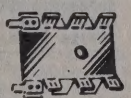


Stk. No.	Type	Dimensions L×H×W	EACH
81F046	273AB	.75×.75×.375	.13

274 Series Heat Sinks For Plastic-Cased Devices. The 274 Series heat sinks are low cost units which have height profiles as low as 0.375". Designed for plastic-cased power SCRs or transistors, 274 Series are available in two fin heights.

Stk. No.	Type	Dimensions L×H×W	EACH
81F047	274-1AB	.75×3.75×.52	.13
81F048	274-2AB	.7× .50×.52	.13

SERIES 287 AND 288 HEAT SINKS

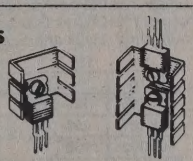


Designed to be vertical inserted in printed circuit board. As PC board is wave soldered feet are also soldered into place. Ideal for hand soldering. Made with nickel plated stainless steel feet. Finished in black anodized aluminum.

Stock No.	Type	Height Inches	1-499	500-999	1000-4999	5000-9999
30F1286	287-1AB	.50	.36	.30	.26	.23
30F1287	287-2AB	1.00	.40	.34	.29	.25
30F1288	288-1AB	....	.33	.27	.23	.20

289 & 290 SERIES

Made for plastic power devices with mounting tabs. **289** accommodates a single semiconductor. **290** will handle either one or two devices. Constructed of aluminum alloy. (AB-Black, AP-Plain).

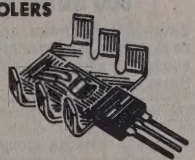


Stock No.	Type	Dimensions L×H×W	No. Devices	EACH 1-499	500-999	1000-4999
58F1359	289-AB	.71×.5×1.0"	1	.22	.16	.13
58F1365	289-AP	.71×.5×1.0"	1	.18	.14	.11
58F1360	290-1AB	1.18×.5×1.0"	1	.25	.19	.15
58F1366	290-1AP	1.18×.5×1.0"	1	.22	.17	.14
58F1361	290-2AB	1.18×.5×1.0"	2	.25	.19	.15
58F1367	290-2AP	1.18×.5×1.0"	2	.22	.17	.14

SERIES 291 CLIP-COOLERS

Clip-on, one-piece construction. Aluminum black finish. **Type No.** code: Series No., Height (inches), Finish and Mtg. Style.

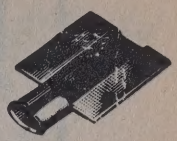
C1—Clip-on for TO-202
C2—Clip-on for TO220
H—Clrnce hole for TO202, TO220



Stock No.	Type	1-499	500-999	1000-4999	5000-9999
58F153	291-C1-8AB	.26	.23	.20	.19
58F154	291-C2-36AB	.17	.15	.14	.13
58F155	291-C2-8AB	.26	.23	.20	.19
58F156	291-H-36AB	.17	.15	.14	.13
58F157	291-H-8AB	.26	.23	.20	.19

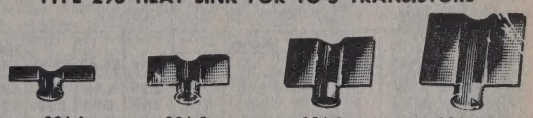
HEAT SINK FOR TO-92 TRANSISTOR

Type 292. Heat Sink accommodates most TO-92 plastic transistors for heat dissipation. Natural convection characteristics show that for power dissipation of .20 watts, collector lead temperature rise above ambient is 18°C. Made of type 6061-T6 Aluminum or copper with black "C" finish, or plain.



Stock No.	Type	Material	Finish	Each 1-499	500-999	1000-4999	5000-9999
58F1021	292AP	Alum.	Plain	.07	.06	.05	.04
58F373	292AB	Alum.	Black	.24	.19	.17	.14

TYPE 296 HEAT SINK FOR TO-5 TRANSISTORS



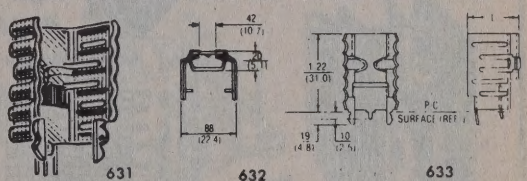
296-1 296-2 296-3 296-4

Heat Sink snaps onto TO-5 transistor, uses minimum amount of PC board layout space. Material: 6061T6 aluminum. Plain or Black finish. Use type 120 thermal joint compound.

ALUMINUM

Stock No.	Type	Wing Height	Finish	Each 1-499	500-999	1000-4999	5000-9999
58F163	296-1-AP	¼"	Plain	.07	.06	.05	.04
58F1028	296-1-AB	¼"	Black	.28	.22	.19	.17
58F164	296-2-AP	½"	Plain	.08	.07	.06	.05
58F1024	296-2-AB	½"	Black	.24	.19	.16	.14
58F165	296-3-AP	¾"	Plain	.10	.08	.07	.06
58F1025	296-3-AB	¾"	Black	.25	.20	.17	.15
58F1026	296-4-AB	1"	Black	.26	.21	.18	.16

SERIES 297 HEAT SINKS FOR TO-220 AND TO-202



631 632 633

Designed to insert directly into drilled holes or circuit boards Locking tabs require no soldering or fastening. Mounting pole (in place of tab) for attaching components to the rear of heat sink. Made of aluminum alloy with black anodized finish.

V1 for TO-202; V2 for TO-220; V3 has mounting hole .125" (3,18 mm) diameter.

Stock No.	Type* 297-	Height Inches	1-499	500-999	1000-4999	5000-9999
30F1280	V1-80B	.80	.22	.20	.18	.17
30F1281	V1-130B	1.30	.25	.23	.21	.20
30F1282	V2-80B	.80	.22	.20	.18	.17
30F1283	V2-130B	1.30	.25	.23	.21	.20
30F1284	V3-80B	.80	.22	.20	.18	.17
30F1285	V3-130B	1.30	.25	.23	.21	.20

SERIES 298 TO-5 HEAT SINK

Heat sink pressed on top of any TO-5 cased semiconductor. SB (Black ebanol) finishes. Made from copper. .75" dia.

Stock No.	Type	Finish	Fits Case	1-199	200-499	500-999
58F1363	298-SB	Black ebanol	TO-5	.15	.13	.11

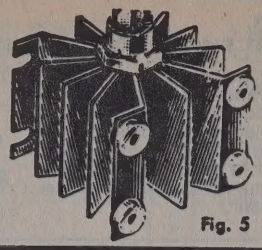
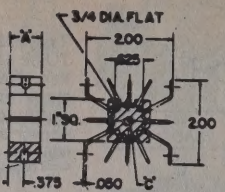
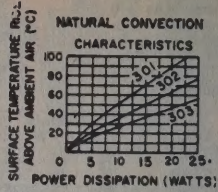


Fig. 5

300 Series





300 SERIES RADIAL RECTIFIER COOLERS

Radial fin coolers for rectifier or stud mounting transistor applications. Adaptable to stack arrangements. Uses standard teflon insulating washers. Accommodates press-fitted and stud-mounted rectifiers and transistors up to 1 1/16" hex case. Semiconductor mounting surface and one mounting foot unanodized. Type no. suffix indicates mtg. accommodations.

Stk. No.	Type	Fig.	Inches A	W	D	1-24	25-49	50-99	100-249
58F533	301K	5	.75	2.00	2.00	2.79	2.10	1.72	1.49
58F496	301M	5	.75	2.00	2.00	3.14	2.37	1.93	1.68
58F495	301N	5	.75	2.00	2.00	3.14	2.37	1.93	1.68
58F494	301R	5	.75	2.00	2.00	3.14	2.37	1.93	1.68
58F534	302K	5	1.50	2.00	2.00	3.50	2.64	2.15	1.87
58F493	302M	5	1.50	2.00	2.00	3.41	2.58	2.10	1.82
58F492	302N	5	1.50	2.00	2.00	3.41	2.58	2.10	1.82
58F535	303K	5	3.00	2.00	2.00	3.81	2.87	2.35	2.04
58F1002	303M	5	3.00	2.00	2.00	4.20	3.17	2.58	2.24
58F487	303N	5	3.00	2.00	2.00	4.20	3.17	2.58	2.24
58F486	303R	5	3.00	2.00	2.00	4.20	3.17	2.58	2.24

400 Series

Fig. 6

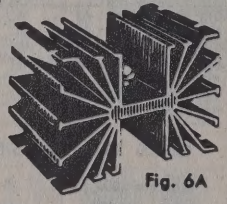
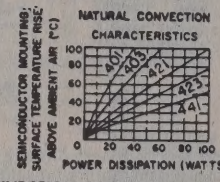


Fig. 6A

Fig. 7



400 SERIES NATURAL CONVECTION COOLERS

Type 401 has thermal resistance of 1.8°C W at medium power.

Type 413, 1.4°C/W natural convection, 0.3°C W moderate air flow. Type 433, 70°C rise at 100 W power dissipation.

Type 441 with 400 sq. in. cooling area, 55°C/W at high power levels.

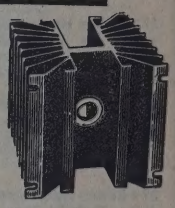
Type 423, 0.8°C/W at higher power levels.

Stk. No.	Type	Fig.	Inches H	W	D	1-24	25-49	50-99	100-249
58F500	401A	6	1.50	4.81	1.25	2.82	2.13	1.82	1.54
58F501	401B	6	1.50	4.81	1.25	3.66	2.76	2.37	2.00
58F502	401K	6	1.50	4.81	1.25	2.82	2.13	1.82	1.54
58F503	403A	6	3.00	4.81	1.25	4.22	3.19	2.73	2.32
58F504	403B	6	3.00	4.81	1.25	4.85	3.66	3.14	2.65
58F505	403K	6	3.00	4.81	1.25	4.22	3.19	2.73	2.32
58F1003	413A	6	3.00	4.75		6.78	5.12	4.37	3.72
58F1004	413K	6	3.00	4.75		6.78	5.12	4.37	3.72
58F506	421A	6	3.00	4.81	1.25	5.85	4.41	3.77	3.19
58F507	421B	6	3.00	4.81	2.63	6.53	4.93	4.20	3.58
58F508	421K	6	3.00	4.81	2.63	5.85	4.41	3.77	3.19
58F509	423A	6	5.50	4.81	2.63	9.38	7.08	6.05	5.14
58F510	423B	6	5.50	4.81	2.63	9.11	6.86	5.87	4.98
58F511	423K	6	5.50	4.81	2.63	9.38	7.08	6.05	5.14
58F334	433K	6A	5.50	4.37	3.00	12.53	9.45	8.07	6.86
58F521	441K	7	5.50	4.75	4.50	15.63	11.80	10.08	8.57

SERIES 400 EXTRUSIONS

465, 476

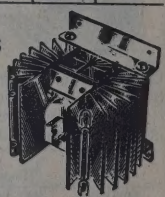
486, 489



Type 465 accepts 1 1/16" hex high power rectifiers and SCR's; **476** accepts 1 1/4" hex rectifiers and SCR's; **486** and **489** accept 1 3/4" hex SCR's. Tapped 1/4-20. Weight, 1.8 to 5.8 lbs.

Stk. No.	Type	Inches H	W	D	1-24	25-49	50-99	100-249
58F420	465-K	5.00	4.00	4.00	10.00	8.47	7.55	6.89
58F1005	476-J	6.00	5.00	5.00	19.77	16.73	14.91	13.61
58F422	476-K	6.00	5.00	5.00	17.39	14.72	13.10	11.96
58F421	476-W	6.00	5.00	5.00	19.77	16.73	14.91	13.61
58F425	486-K	6.00	6.25	6.25	25.15	21.27	18.98	.....
58F428	489-K	9.00	6.25	6.25	34.20	28.94	25.76	.....

SERIES 490 KING-SIZE HEAT SINKS



- Aluminum Alloy
- Mounts & cools multicell 240/650 amp rectifiers
- Four mtg. lugs per end

Designed to mount and cool multicell 240/650 amp rectifiers and stud mounts. Takes square plate types as large as 3 1/2" x 3 1/2". Type 490-12, under natural convection conditions, will permit case temperature rise of only 110°C at 600 watts dissipation, with 3 1/2" sq. rectifier. Aluminum alloy; black anodized finish. Four mounting lugs on each end

Stk. No.	Type	Dimensions (in.)	1-24	25-49	50-99
58F409	490-3.5-K	3.5 × 9.25 × 6.75	25.52	21.59	19.23
58F407	490-12-K	12.0 × 9.25 × 6.75	63.16	53.45	47.59
58F403	109	1.5 × 7.5 × 1.5	Fiberglass Mtg. 2.85 ea.		

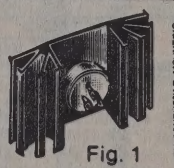
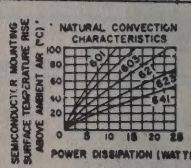


Fig. 1



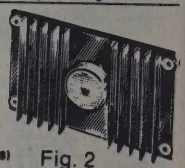


Fig. 2

600 SERIES CIRCUIT BOARD COOLERS

Externally mounted applications. Models 601 and 603 especially designed to accomodate the stud mounts. Models 621, 623 and 641 accept all standard transistor case styles and case sizes up to 1 1/4" Shpg. wt., 16 oz.

Stk. No.	Type	Fig.	Inches H	W	D	1-24	25-49	50-99	100-249
58F536	601K	1	1.25	2.24	.56	2.13	1.60	1.35	1.16
58F537	603K	1	2.00	2.24	.56	1.92	1.44	1.22	1.05
58F482	621A	2	1.50	4.81	.46	2.11	1.59	1.33	1.16
58F538	621K	2	1.50	4.81	.46	2.11	1.59	1.33	1.16
58F480	623A	2	3.00	4.81	.46	3.02	2.28	1.92	1.65
58F539	623K	2	3.00	4.81	.46	3.02	2.28	1.92	1.65
58F467	641A	1	3.00	4.12	1.00	4.19	3.16	2.66	2.30
58F540	641K	1	3.00	4.12	1.00	4.19	3.16	2.66	2.30

Semiconductor Coolers & Hardware

WAKEFIELD DELTA DIVISION

SERIES 630 HEAT SINKS FOR TO-3 AND TO-66

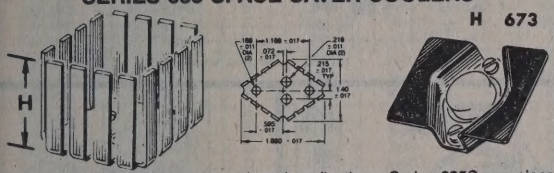
631 632 633

Provides maximum cooling per unit cost. Suffix -3 in Type No. indicates unit is for TO-3 transistor; suffix -66, for TO-66 transistor. Made of type 1100-H14 aluminum, .062" thick. Black anodized (suffix B) or plain (suffix P) finish. Temperature rise for 5 watts: type 631, 68°C; type 632, 57°C; 633, 45°C.

Stock No.	Type	Height	Finish	Each 1-199	200-999	1000-2499	2500-4999
58F1035	631-3-B	1"	Black	.24	.21	.19	.17
58F167	631-3-P	1"	Plain	.15	.13	.12	.11
58F1036	631-66-B	1"	Black	.24	.21	.19	.17
58F168	631-66-P	1"	Plain	.15	.13	.12	.11
58F1037	632-3-B	2"	Black	.30	.25	.23	.21
58F169	632-3-P	2"	Plain	.21	.18	.17	.15
58F1038	632-66-B	2"	Black	.30	.25	.23	.21
58F170	632-66-P	2"	Plain	.21	.18	.17	.15
58F1039	633-3-B	3"	Black	.33	.28	.25	.23
58F171	633-3-P	3"	Plain	.26	.22	.20	.18
58F1040	633-66-B	3"	Black	.33	.28	.25	.23

SERIES 635 SPACE SAVER COOLERS

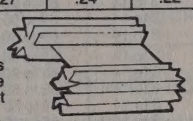
H 673



Lightweight heat sinks for circuit-board applications. Series 635S one-piece design conforms to diamond shape of the TO-3, TO-66 and TO-220 packages for minimum space usage in high-density appl. Directly interchangeable with other TO-3 heat sinks. Last digit of Type No. indicates hole pattern: '2' for standard TO-3, '3' for a TO-66. Digits after series no. indicates height in inches. Series 673 low profile design for circuit boards. 1B for 1¾" width, and 2B for 2¾". Universal hole pattern accommodates TO-3, TO-66 or TO-220 style devices.

Stock No.	Type	Each 1-199	200-999	1000-2499	2500-4999
58F1341	635—.5B2	.34	.28	.25	.23
58F1345	635—.5B3	.34	.28	.25	.23
58F1342	635—.75B2	.36	.29	.27	.25
58F1346	635—.75B3	.36	.29	.27	.25
58F1343	635—1.0B2	.41	.34	.31	.29
58F1344	635—1.25B2	.44	.36	.33	.30
30F1289	673—1AB	.29	.24	.22	.20
30F1290	673—2AB	.32	.27	.24	.22

637 SERIES WAVESOLDERABLE HEAT SINKS FOR PLASTIC-CASED DEVICES



The 637 Series are high performance heat sinks designed for plastic power transistors. Solderable pins allow for vertical mounting on printed circuit boards. These heat sinks come in four heights.

Stk. No.	Type	Dimensions L x H x W	Each
81F055	637-10ABP	.50 x 1.00 x .437	.43
81F056	637-15ABP	.50 x 1.50 x .437	.47
81F057	637-20ABP	.50 x 2.00 x .437	.52
81F058	637-25ABP	.50 x 1.50 x .437	.58

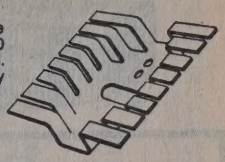
SERIES 652, 653, 654 HEAT SINKS FOR DUAL INLINE DEVICES

The 652 series and 653 series are bonded to the top surface of Dual Inline packages. The 652 series fits 24, 28, 40 and 64 pin devices, the 653 series fits 14 and 16 pin devices. They are bonded using 152 or 155 Delta Bond. The 653 series is designed for 14 or 16 pin devices and consists of a top and bottom piece.

Stk. No.	Type	Dimensions H x L x W	Each
81F049	652-5AB	.19 x 1.25 x .52	.34
81F050	652-6AB	.19 x 1.45 x .52	.39
81F051	652-7AB	.19 x 2.00 x .52	.53
81F052	652-8AB	.19 x 3.20 x .52	.64
81F053	653-AB	.212 x .75 x .25	.25
81F054	654-HB	.81 x 1.09 x .75	1.01

673 SERIES LOW COST HEAT SINK FOR TO-3, TO-66 AND TO-220 CASES

The 673 Series heat sink is designed for use with either the TO-3, TO-66, or two TO-220 style devices where low height is required. This is a low cost series used in high density packaging applications.



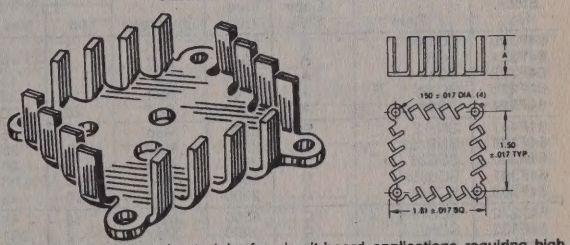
Stk. No.	Type	Dimensions L x H x W	Each
81F059	673-1AB	2.00 x 1.75 x 1.20	.29
81F060	673-2AB	2.00 x 2.25 x 1.20	.32

SERIES 680 CIRCUIT BOARD COOLERS

Provides optimum natural convection cooling per unit volume occupied above the circuit board. Mounting in any position is possible since the cooler permits free air flow in any direction. High thermal conductivity aluminum alloy. Temp. rise: 680-.5, 90°C at 10 watts; 680-.75, 90°C at 13 watts; 680-1.0, 90°C at 15 watts, 680-1.25, 100°C at 21 watts. All have 1.81" sq. base with 1.50" between mtg. holes. 1.3 to 1.9 oz.

Stk. No.	Type	Hgt. (in.)	1-49	50-99	100-499	500-999
58F401 58F400 58F1008 58F399	680-.5A 680-.5B 680-.5G1 680-.5K	.50	1.33	1.15	1.00	.88
58F398 58F396	680-.75A 680-.75K	.75	1.38	1.19	1.03	.91
58F395 58F394 58F1010 58F393	680-1.0A 680-1.0B 680-1.0G1 680-1.0K	1.00	1.42	1.22	1.07	.94
58F392 58F391 58F390	680-1.25A 680-1.25B 680-1.25K	1.25	1.49	1.27	1.12	.98

SERIES 689 SLANTED FIN COOLERS



Low-cost one-piece heat sinks for circuit-board applications requiring high thermal efficiency. Interchanges directly with other TO-3 heat sinks. Air movement from any direction is diverted to the center of the heat sink to create turbulence and improve heat transfer. Last digit of Type No. indicates hole pattern: '2' for a standard TO-3, '3' for TO-66, and '4' for TO-220. Digits after series number indicate height in inches.

Stock No.	Type	1-199	200-900	1000-2400	2500-4900
58F138	689— .75B2	.50	.42	.38	.35
58F139	689— .75B3	.50	.42	.38	.35
30F1291	689— .75B4	.50	.42	.38	.35
58F140	689—1.0B2	.55	.46	.41	.38
30F1292	689—1.0B4	.55	.46	.41	.38
58F142	689—1.25B2	.58	.48	.43	.40
30F1293	689—1.25B4	.58	.48	.43	.40

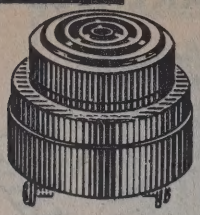
TYPE 690 CIRCUIT BOARD HEAT SINKS

Deisgned to give the most power dissipation per unit cost. Dissipation of 10-20 watts is obtainable. Made of 1100 alloy aluminum in mounting patterns for TO-3 or TO-66 JEDEC packages. Available plain (suffix P) or black anodized (suffix B).

Stock No.	Type	Fits Case	Size, Inches W x H	Each 1-199	200-900	1000-2400	2500-4900
58F1310	690-3-P	TO-3	1.81x1.31	.55	.46	.42	.40
58F1311	690-66-P	TO-66	1.81x1.31	.55	.46	.42	.40
58F1312	690-3-B	TO-3	1.81x1.31	.61	.49	.42	.39
58F1313	690-66-B	TO-66	1.81x1.31	.61	.49	.42	.39

MALLORY

Solid State Signals

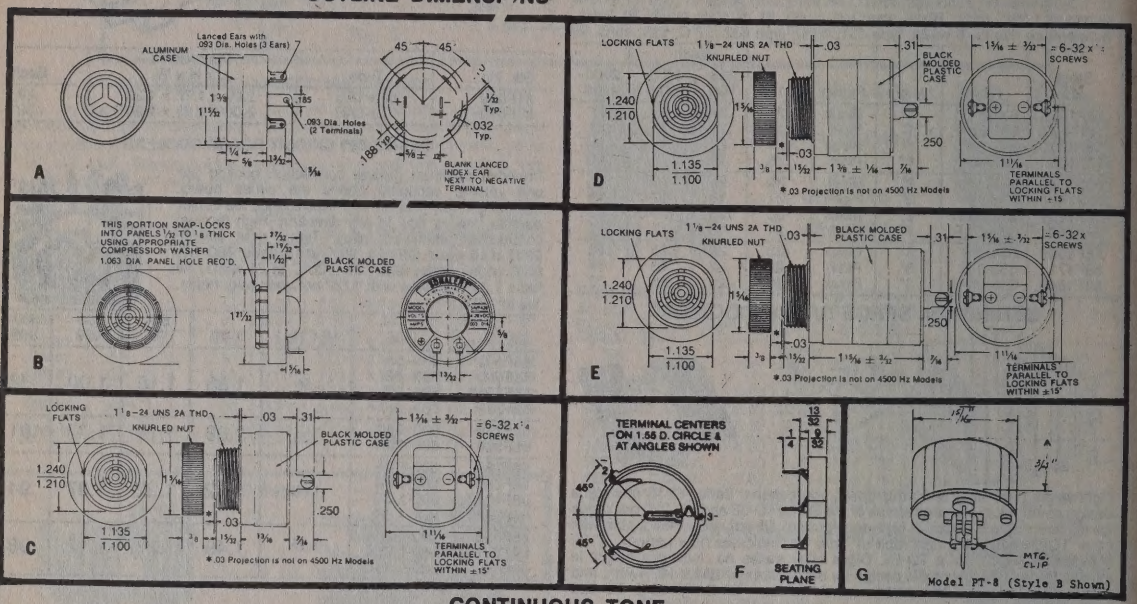


AUDIBLE ELECTRONIC SIGNAL

- Compact and Lightweight
- Completely Solid State
- No Moving Parts
- No Arcing, RF Noise or Mechanical Wear
- Salt Spray Resistant

Operating voltage ranges from 1 volt to 250 volts. All Sonalerts, excluding AC models, are polar devices and will not operate when voltage is applied in reverse direction. Electrical power is converted to sound by means of a piezo-electric transducer operating substantially at reasonance in a solid state oscillator. Sound output depends upon part number and voltage. Sonalert will operate and produce sound over a temperature range of −30°C to +65°C (ambient) surge voltage is 15% over maximum rated voltage applied for less than one minute.

OUTLINE DIMENSIONS


A
ALUMINUM CASE
Lanced Ears with .093 Dia. Holes (3 Ears)
BLANK LANCED INDEX EAR NEXT TO NEGATIVE TERMINAL
B
THIS PORTION SNAP-LOCKS INTO PANELS 1/32 TO 1/8 THICK USING APPROPRIATE COMPRESSION WASHER
1.063 DIA. PANEL HOLE REQ'D.
BLACK MOLDED PLASTIC CASE
C
LOCKING FLATS
KNURLED NUT
BLACK MOLDED PLASTIC CASE
6-32 x 1/4 SCREWS
TERMINALS PARALLEL TO LOCKING FLATS WITHIN ±15°
*.03 Projection is not on 4500 Hz Models
D
LOCKING FLATS
KNURLED NUT
BLACK MOLDED PLASTIC CASE
6-32 x 1/4 SCREWS
TERMINALS PARALLEL TO LOCKING FLATS WITHIN ±15°
*.03 Projection is not on 4500 Hz Models
E
LOCKING FLATS
KNURLED NUT
BLACK MOLDED PLASTIC CASE
6-32 x 1/4 SCREWS
TERMINALS PARALLEL TO LOCKING FLATS WITHIN ±15°
*.03 Projection is not on 4500 Hz Models
F
TERMINAL CENTERS ON 1.56 D. CIRCLE & AT ANGLES SHOWN
SEATING PLANE
G
MTG. CLIP
Model PT-8 (Style B Shown)

CONTINUOUS TONE

Stock No.	Type	Case Style	Freq. (Hz)	Loudness	DC Voltage Min.	DC Voltage Max.	Operating Current in mA	Sound Output (dB)	1-24	25-49	50-99	100-249
64F320	SC1.5	A	3500	Soft	1	4	4@1.5V	60@1.5V				
64F321	SC6	A	3500	Soft	4	8	12@6V	70@6V				
64F322	SC12	A	3500	Soft	8	15	14@12V	70@12V	6.84	6.64	6.32	5.69
64F323	SC18	A	3500	Soft	14	22	16@18V	70@18V				
64F324	SC24	A	3500	Soft	20	30	16@24V	70@24V				
81F447	SNP-2	B	2900	Med	1	5	2 to 12	55 to 68	6.84	6.64	6.32	5.69
64F378	SNP428	B	2900	Med	4	28	1.8 to 14	64 to 78	6.84	6.64	6.32	5.69
64F300	SC628	C	2900	Med	6	28	3 to 14	68 to 80	8.07	7.83	7.45	6.71
64F301	SC628H	C	4500	Med	6	28	3 to 14	68 to 80	8.75	8.48	8.07	7.27
64F306	SC648	C	2900	Med	10	48	3 to 14	68 to 80	8.07	7.83	7.45	6.71
64F270	SC648H	C	4500	Med	10	48	3 to 14	68 to 80	8.48	8.23	7.83	7.05
64F302	SC628A	D	2900	Med	6	28*	3 to 14	68 to 80	11.56	11.22	10.68	9.61
64F313	SC628AH	D	4500	Med	6	28*	3 to 14	68 to 80	13.92	13.51	12.86	11.58
64F271	SC648A	D	2900	Med	10	48*	3 to 14	68 to 80	10.74	10.42	9.92	8.93
64F272	SC648AH	D	4500	Med	10	48*	3 to 14	68 to 80	13.92	13.51	12.86	11.58
64F303	SC110	D	2900	Med	30	120*	4 to 16	68 to 80	11.56	11.22	10.68	9.61
64F273	SC110D	D	1900	Med	30	120*	4 to 16	68 to 80	12.84	12.46	11.85	10.68
64F274	SC110E	D	1900	Soft	30	120*	2 to 10	55 to 70	12.84	12.46	11.85	10.68
64F316	SC110H	D	4500	Loud	30	120*	4 to 16	68 to 80	13.92	13.51	12.86	11.58
64F276	SC110N	D	2900	Loud	30	120*	4 to 16	80 to 95	14.74	14.30	13.61	12.26
64F307	SC250	D	2900	Med	60	250*	4 to 16	68 to 80	11.56	11.22	10.68	9.61
64F277	SC250D	D	1900	Med	60	250*	4 to 16	68 to 80	12.14	11.78	11.21	10.10
64F278	SC250E	D	1900	Soft	60	250*	2 to 10	55 to 70	12.14	11.78	11.21	10.10
64F279	SC250F	D	2900	Soft	60	250*	2 to 10	55 to 70	10.74	10.42	9.92	8.93
64F280	SC250H	D	4500	Med	60	250*	4 to 16	68 to 80	13.92	13.51	12.86	11.58
64F282	SC616N	C	2900	Loud	6	16	4 to 16	80 to 95	10.12	9.82	9.34	8.41
64F283	SC628AD	D	1900	Med	6	28*	3 to 14	68 to 80	12.84	12.46	11.85	10.68
64F284	SC628AE	D	1900	Soft	6	28*	2 to 10	55 to 70	12.84	12.46	11.85	10.68
64F285	SC628AF	D	2900	Soft	6	28*	2 to 10	55 to 70	10.74	10.42	9.92	8.93
64F286	SC628D	C	1900	Med	6	28	3 to 14	68 to 80	8.75	8.48	8.07	7.72
64F287	SC628E	C	1900	Soft	6	28	2 to 10	55 to 70	8.12	7.88	7.50	6.75
64F288	SC628F	D	2900	Soft	6	28	2 to 10	55 to 70	7.47	7.25	6.89	6.21
64F289	SC648AD	D	1900	Med	6	28	3 to 14	68 to 80	12.84	12.46	11.85	10.68
64F290	SC648D	C	1900	Med	10	48	3 to 14	68 to 80	8.26	8.02	7.63	6.87

COMPRESSION WASHERS

Compression washers for panel mounting of Type SNP Sonalerts. For panel holes 1.063 ± 0.005 inches in diameter. Mounts from rear of panel.

Stock No.	Type	Panel Thickness (in.)	Each	25/Box
64F375	PW-1	.109 to .125 (11-12 Ga.)	.08	1.25 box
64F376	PW-2	.065 to .093 (13-17 Ga.)	.11	1.75 box
64F377	PW-3	.031 to .050 (18-22 Ga.)	.15	2.50 box

PRICES SUBJECT TO CHANGE. SEE PAGE 4.

Sonalert Solid State Signals

MALLORY

FAST PULSE

Stock No.	Type	Case Style	Freq. (Hz)	Loudness	DC Volt. Min.	DC Volt. Max.	Operating Current	Sound Level (dB)	1-24	25-49	50-99	100-249
64F325	SC110DP	E	2000	Med	30	120*	4 to 16	68 to 80	16.94	16.43	15.64	14.08
64F326	SC110EP	E	2000	Soft	30	120*	2 to 10	55 to 70	16.02	15.54	14.79	13.32
64F327	SC110FP	E	2900	Soft	30	120*	2 to 10	55 to 70	16.02	15.54	14.79	13.32
64F318	SC110HP	E	4500	Med	30	120*	4 to 16	68 to 80	16.94	16.43	15.64	14.08
64F328	SC110NP	E	2900	Loud	30	120*	4 to 16	80 to 95	16.02	15.54	14.79	13.32
64F317	SC110P	E	2900	Med	30	120*	4 to 16	68 to 80	17.27	16.76	15.95	14.36
64F332	SC250HP	E	4500	Med	60	250*	4 to 16	68 to 80	16.16	15.68	14.92	13.44
64F334	SC250P	E	2900	Med	60	250*	4 to 16	68 to 80	15.10	14.65	13.94	12.56
64F335	SC616NP	C	2900	Loud	6	16	4 to 16	80 to 95	11.56	11.22	10.68	9.61
64F336	SC628ADP	E	2000	Med	6	28*	3 to 14	68 to 80	16.33	15.85	15.08	13.58
64F337	SC628AEP	E	2000	Soft	6	28*	2 to 10	55 to 70	16.44	15.66	14.90	13.42
64F339	SC628AHP	E	4500	Med	6	28*	3 to 14	68 to 80	16.02	15.54	14.79	13.32
64F340	SC628AP	E	2900	Med	6	28*	3 to 14	68 to 80	16.02	15.54	14.79	13.32
64F341	SC628DP	E	2000	Med	10	48	3 to 14	68 to 80	12.14	11.78	11.21	10.10
64F343	SC628FP	D	2900	Soft	6	28	2 to 10	55 to 70	12.14	11.78	11.21	10.10
64F312	SC628HP	D	4500	Med	6	28	3 to 14	68 to 80	13.92	13.51	11.58	10.25
64F304	SC628P	D	2900	Med	6	28	3 to 14	68 to 80	13.11	12.71	12.10	10.90
64F344	SC648ADP	E	2000	Med	10	48*	3 to 14	68 to 80	16.33	15.85	15.08	13.58
64F346	SC468AP	E	2900	Med	10	48*	3 to 14	68 to 80	16.02	15.54	14.79	13.32

SLOW PULSE

64F347	SC110DJ	E	2000	Med	30	120*	4 to 16	68 to 80	17.03	16.52	15.72	14.16
64F348	SC110EJ	E	2000	Soft	30	120*	2 to 10	55 to 70	16.72	16.22	15.44	13.90
64F350	SC110HJ	E	4500	Med	30	120*	4 to 16	68 to 80	16.69	16.20	15.41	13.88
64F351	SC110J	E	2900	Med	30	120*	4 to 16	68 to 80	16.94	16.43	15.64	14.08
64F352	Sc110NJ	E	2900	Loud	30	120*	4 to 16	80 to 95	16.02	15.54	14.79	13.32
64F353	SC250DJ	E	2000	Med	60	250*	4 to 16	68 to 80	16.96	16.45	15.66	14.10
64F357	SC250J	E	2900	Med	60	250*	4 to 16	68 to 80	15.10	14.65	13.94	12.56
64F359	SC616NJ	C	2900	Loud	6	16	4 to 16	80 to 95	10.74	10.42	9.92	8.93
64F360	SC628ADJ	E	2000	Med	6	28*	3 to 14	68 to 80	16.79	16.29	15.50	13.96
64F362	SC628AFJ	E	2900	Soft	6	28*	2 to 10	55 to 70	16.02	15.54	14.79	13.32
64F364	SC628AJ	E	2900	Med	6	28*	3 to 14	68 to 80	16.02	15.54	14.79	13.32
64F365	SC628DJ	D	2000	Med	6	28	3 to 14	68 to 80	12.96	12.57	11.97	10.78
64F366	SC628EJ	D	2000	Soft	6	28	2 to 10	55 to 70	12.14	11.78	11.21	10.10
64F367	SC628FJ	D	2900	Soft	6	28	2 to 10	55 to 70	12.14	11.78	11.21	10.10
64F368	SC628J	D	2900	Med	6	28	3 to 14	68 to 80	12.14	11.78	11.21	10.10
64F369	SC648ADJ	E	2000	Med	10	48*	3 to 14	68 to 80	16.79	16.29	15.50	13.96
64F371	SC648AJ	E	2900	Med	10	48*	3 to 14	68 to 80	16.02	15.54	14.79	13.32

SHORT PULSE

64F291	SC110FK	E	2900	Soft	30	120*	2 to 10	55 to 70	16.02	15.54	14.79	13.32
64F292	SC110K	E	2900	Med	30	120*	4 to 16	68 to 80	16.94	16.43	15.64	14.08
64F297	SC628FK	C	2900	Soft	6	28	2 to 10	55 to 70	12.14	11.78	11.21	10.10
64F298	SC628K	D	2900	Med	6	28	3 to 14	68 to 80	12.14	11.78	11.21	10.10

*AC-DC

FAST WARBLE

64F372	SC628FW	F	2900	Med	6	28	3 to 16	68 to 80	12.14	11.78	11.21	10.10

SLOW WARBLE

64F373	SC628JW‡	F	2900	Soft	6	28	3 to 14	55 to 70	12.14	11.78	11.21	10.10
64F374	SC628JW†	F	2900	Med	6	28	3 to 16	68 to 80				

†Use with SC628D
‡Use with SC628E

CHIME TONE

81F453	SC616CP	D	2900	Med	6	16	3 to 8	68 to 80	13.13	12.74	12.12	10.92

CHIRP TONE

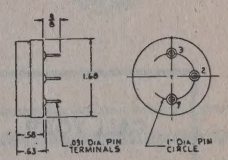
81F454	SC110Q	C	2900	Med	30	120	3 to 10	68 to 80	7.66	7.43	7.07	6.37
81F455	SC616Q	C	2900	Med	6	16	1 to 4	68 to 78	8.09	7.85	7.47	6.73

PRINTED BOARD SONALERT

SPECIFICATIONS

STOCK NO.	TYPE	FUNCTION	DC VOLTAGE MIN	DC VOLTAGE MAX	NET
42F968	SBM2	CONT. TONE	1	4	6.34
42F969	SBM428	CONT. TONE	4	28	6.84
42F970	SBM616P	FAST PULSE	6	16	8.12
42P971	SBM6161J	SLOW PULSE	6	16	8.12
42F972	SBM616PC	FAST PULSE or CONT. TONE	6	16	9.40
42F973	SBM616JC	SLOW PULSE or CONT. TONE	6	16	9.40

Low profile pin mounted. Hand or wave soldered. Sound level: 64–78db @ 2900 Hz. Oper. current: 2-12 mA max. VDC: 6-16 (except SBM2; 1-5 & SBM428; 4-28).



PT-3 DRIVEN TRANSDUCER

2900 HZ piezo electric transducer package is designed for direct insertion into an oscillator circuit sizes. 1.65D x .343H. Mtg. Holes .046 ± .033 D on a printed circuit board, and will produce an audible signal when connected in 1.55 circle Case style F.

81F447 Model PT-3 ..... NET 2.60

Variable FREQUENCY DRIVEN TRANSDUCER

This transducer is designed to produce an audible signal when connected to an external source of audio frequency voltage. Typical input current 20mA.

STOCK NO.	TYPE	CASE STYLE	HGT.	AUDIO INPUT	FREQ. RANGE	MAX. V	1-24	25-49	50-99	100-249	250-499	500-up
81F449	PT-7A	G	½"	70dB	2.5 to 3.5 KHZ	30 Vp-P	1.69	1.59	1.42	1.33	1.19	1.10
81F450	PT-7B	G	½"	70dB	2.5 to 3.5 KHZ	30 Vp-P	1.69	1.59	1.42	1.33	1.19	1.10
81F451	PF-8A	G	¾"	65dB	2.10 to 3.0 KHZ	30 Vp-P	1.69	1.59	1.42	1.33	1.19	1.10
81F452	PT-8B	G	¾"	65dB	2.10 to 3.0 KHZ	30 Vp-P	1.69	1.59	1.42	1.33	1.19	1.10

*May be driven from CMOS or TTL amplifiers orgates maximum input voltage 30 Vp-P.

Receiving, Industrial & Special Purpose Tubes

LARGEST STOCKS OF MAJOR BRANDS

Whatever your tube needs—standard receiving, industrial or special purpose types—Newark can quickly fill your order. We can ship OEM quantities at OEM prices directly from stock. Just order by tube type and we will ship one of the leading manufacturer's tubes to fill your order.

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4

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CONTACT YOUR LOCAL NEWARK OFFICE FOR PRICES ON LARGER QUANTITIES

RAYTHEON

RCA

GTE SYLVANIA

NL

GE

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Type Tube	1-9	10-24	25-49
0A2	5.30	4.77	4.51
0A2	5.90	5.31	5.02
0A2WA	7.95	7.16	6.76
0A3	15.45	13.91	13.14
0A4G	17.22	15.50	14.64
0B2	6.25	5.63	5.32
0C3	9.90	8.91	8.42
0C3A	10.34	9.31	8.79
0D3A	12.97	11.68	11.03
1G3GTA-1B3GT	7.30	6.94	6.76
C1K/6014	57.50	51.75	48.88
1L4	9.12	8.67	8.44
1P21	116.00	104.40	98.60
1P22	38.00	34.20	32.30
1P28	55.00	49.50	46.75
1P28A	58.00	52.20	49.30
1P39	25.25	22.73	21.47
1P40	25.75	23.18	21.89
1R5	11.34	10.78	10.49
1U4	7.28	6.92	6.74
1V2	4.58	4.36	4.24
2BP1	78.60	70.74	66.81
2C39WA/C	100.00	90.00	85.00
2D21	5.30	4.77	4.51
2E26	21.00	18.90	17.85
NL-C3J/L	42.50	38.25	36.13
C3J/5632	56.00	50.40	47.60
C3JA/5684	56.00	50.40	47.60
3A3C	6.50	6.18	6.02
3A4	8.23	7.41	7.00
3B24W	29.00	26.10	24.65
3B28	32.00	28.80	27.20
3C23	44.30	39.87	37.66
4CX2508	104.00	93.60	88.40
4CX350A/8321	134.50	121.05	114.33
4X150A	100.00	90.00	85.00
5AQ5	7.18	6.83	6.65
5AR4/GZ34	10.12	9.62	9.37
5R4GB	5.39	4.86	4.59
5R4GB	5.95	5.36	5.06
5R4GYB	5.95	5.36	5.06
5U4G	6.46	6.14	5.98
5U4GB	6.44	6.12	5.96
5V4GA	11.44	10.87	10.59
5Y3GT	6.56	6.24	6.07
NL-C6J/K	75.20	67.68	63.92
C6JA/5685	104.00	93.60	88.40
6AB4	7.08	6.73	6.55
6AC7	7.70	6.93	6.55
6AG7	23.00	21.85	21.28
6AH6	12.46	11.84	11.53
6AK5/EF95	9.14	8.69	8.46
6AK6	5.95	5.36	5.06
6AL5	6.26	5.95	5.80
6AL5	6.58	6.26	6.09
6AM8A	10.42	9.90	9.64
6AN4	10.02	9.52	9.27
6AN8A	8.76	8.33	8.11
6AQ5A	5.64	5.36	5.22
6AQ6	6.26	5.95	5.80
6AQ7GT	5.90	5.61	5.46
6AQ8/ECC85	7.22	6.86	6.68
6AR8	10.10	9.60	9.35
6AS7GA	16.25	14.63	13.82
6AU4GTA	9.34	8.88	8.64
6AU5GT	11.46	10.89	10.61
6AU6A	5.54	5.27	5.13
6AU6A	6.72	6.39	6.22
6AU6A	2.82	2.68	2.61
6AU6WC	6.70	6.03	5.70
6AU8A	10.12	9.62	9.37

Type Tube	1-9	10-24	25-49
6AV5GA	10.42	9.90	9.64
6AV6	5.36	5.10	4.96
6AW8A	7.60	7.22	7.03
6AX5GT	9.20	8.74	8.51
6AZ8	15.26	14.50	14.12
6BA6/EF93	5.64	5.36	5.22
6BA8A	9.78	9.30	9.05
6BC4	16.24	15.43	15.03
6BC7	5.76	5.48	5.33
6BC8/6BZ8	10.46	9.94	9.68
6BE6	7.08	6.73	6.55
6BG6GA	12.44	11.82	11.51
6BH6	7.30	6.94	6.76
6BJ6	7.86	7.47	7.28
6BJ8	10.12	9.62	9.37
6BK4C/6EL4A	12.06	11.46	11.16
6BK7B	9.78	9.30	9.05
6BL7GTA	12.70	12.07	11.75
6BL8/ECF80	5.06	4.81	4.69
6BM8/ECL82	9.32	8.86	8.63
6BN6/6KS6	9.34	8.88	8.64
6BN8	9.48	9.01	8.77
6BQ5/EL84	6.72	6.39	6.22
6BQ6GTB/6CU6	11.94	11.35	11.05
6BQ7A/6BZ7/6BS8	9.90	9.41	9.16
6BR8A/6FV8A	10.08	9.58	9.33
6BV8	10.58	10.06	9.79
6BW4	7.72	7.34	7.15
6BX6/EF80	5.66	5.38	5.24
6BX7GT	11.22	10.66	10.38
6BY6	6.96	6.62	6.44
6C4	7.58	7.21	7.02
6C5	25.84	24.55	23.91
6CA4	7.62	7.24	7.05
6CA7/EL34	11.10	10.55	10.27
6CB5A	12.40	11.78	11.47
6CB6A/6CF6	5.64	5.36	5.22
6CD6GA	13.42	12.75	12.42
6CL6	9.40	8.93	8.70
6CW4	14.98	14.24	13.86
6CW5/EL86	6.06	5.76	5.61
6CX8	11.02	10.47	10.20
6CY5	10.96	10.42	10.14
6CZ5	10.12	9.62	9.37
6D4	8.30	7.47	7.06
6DC6	7.86	7.47	7.28
6DJ8	5.40	4.86	4.59
6DJ8/ECC88	4.60	4.14	3.91
6DJ8/ECC88	4.45	4.01	3.79
6DK6	6.96	6.62	6.44
6DL5/EL95	7.28	6.92	6.74
6DQ5	13.58	12.91	12.57
6DS4	14.74	14.01	13.64
6DW4B	6.06	5.76	5.61
6E5	23.88	22.69	22.09
6EA8	6.62	6.29	6.13
6EJ7/EF184	6.20	5.89	5.74
6EU7	7.32	6.96	6.78
6EW6	6.12	5.82	5.67
6F6	12.36	11.75	11.44
6FQ7/6CG7	5.00	4.75	4.63
6GF7A	8.76	8.33	8.11
6GH8A	5.12	4.87	4.74
6GM6	7.08	6.73	6.55
6GT5A	14.08	13.38	13.03
6GV8/ECL85	8.18	7.78	7.57
6GW6/6DQ6B	9.92	9.43	9.18
6GW8/ECL86	8.74	8.31	8.09
6GY6/6GX6	5.90	5.61	5.46
6H6	26.26	24.95	24.30
6F5	24.42	23.20	22.59
6HF8	11.22	10.66	10.38

Receiving, Industrial & Special Purpose Tubes

Type Tube	1-9	10-24	25-49
6HM5/6HA5	6.84	6.50	6.33
6J5	12.96	12.32	11.99
6J6A	10.42	9.90	9.64
6J7	33.06	31.41	30.59
6JB6A	11.62	11.04	10.75
6JC6A	7.38	7.02	6.83
6K6GT	7.86	7.47	7.28
6KD6	13.66	12.98	12.64
6KE8	10.30	9.79	9.53
6KT8	8.98	8.54	8.31
6L6GC	12.38	11.77	11.46
6L6GC	10.38	9.87	9.61
6L6WGB	11.20	10.08	9.52
6LB6	13.02	12.37	12.05
6LQ6/6JE6C	13.52	12.85	12.51
6N7	16.72	15.89	15.47
6S4A	7.80	7.41	7.22
6SC7	26.60	25.27	24.61
6SF5	26.80	25.46	24.79
6SH7	29.46	27.99	27.26
6SJ7	29.46	27.99	27.26
6SJ7GT	11.32	10.76	10.48
6SK7	25.84	24.55	23.91
6SL7GT	10.44	9.92	9.66
6SN7GTB	6.60	6.27	6.11
6SN7GTB	7.54	7.17	6.98
6SN7WGTA	10.00	9.00	8.50
6SQ7	25.84	24.55	23.91
6SR7	15.20	14.44	14.06
6U5	14.72	13.99	13.62
6U8A/6AX8/6KD8	7.56	7.19	7.00
6U8A/6KD8	6.62	6.29	6.13
6V4/EZ80	7.26	6.90	6.72
6V6	27.12	25.77	25.09
6V6GTA	7.80	7.41	7.22
6V6GTA	8.46	8.04	7.83
6W4GT	5.12	4.87	4.74
6W6GT	8.92	8.48	8.26
6X4	6.14	5.84	5.68
6X4	7.00	6.65	6.48
6X5GT	7.08	6.73	6.55
6X5GT	7.46	7.09	6.91
6Y6GA/6Y6G	8.72	8.29	8.07
12AL5	8.18	7.78	7.57
12AT7/ECC81	5.80	5.51	5.37
12AT7/ECC81	2.94	2.80	2.72
12AU6	6.84	6.50	6.33
12AU7A/ECC82	5.18	4.93	4.80
12AU7A/ECC82	2.64	2.51	2.45
12AV6	5.66	5.38	5.24
12AV7	9.22	8.76	8.53
12AX7A/ECC83	5.20	4.94	4.81
12AX7A/ECC83	2.78	2.65	2.58
12AX7WA	10.35	9.32	19.15
12AY7	5.80	5.22	4.93
12B4A	8.38	7.97	7.76
12BA6	5.40	5.13	5.00
12BE6	6.22	5.91	5.76
12BH7A	6.74	6.41	6.24
12BY7A/BV7/DQ7	6.06	5.76	5.61
12HG7/12GN7A	9.24	8.78	8.55
12SJ7	16.16	15.36	14.95
12SL7GT	11.52	10.95	10.66
12SN7GTA	8.84	8.40	8.18
13GF7A	8.92	8.48	8.26
C16J/5665	193.00	173.70	164.05
NL-KY21A	144.75	130.28	123.04
25C5	6.84	6.50	6.33
25L6GT/25W6GT	8.60	8.17	7.96
25Z6GT	8.90	8.46	8.24
35L6GT	9.46	8.99	8.76

CONTACT YOUR LOCAL NEWARK OFFICE FOR PRICES ON LARGER QUANTITIES

Type Tube	1-9	10-24	25-49
35W4	4.84	4.60	4.48
35Z5GT	6.84	6.50	6.33
50C5	5.22	4.96	4.83
50L6GT	9.26	8.80	8.57
80	8.76	8.33	8.11
83	14.21	12.79	12.08
407A	11.75	10.58	9.99
408A	11.50	10.35	9.78
CK512AX	23.31	20.98	19.82
575A	102.00	91.80	86.70
NL-604	71.20	64.08	60.52
604/7014	85.70	77.13	72.85
NL-604L	75.65	68.09	64.31
NL-606	104.00	93.60	88.40
NL-606L	108.60	97.74	92.31
NL-610/7723	43.55	39.20	37.02
615/7018	41.50	37.35	35.28
NL-615	25.05	22.55	21.30
NL-623	70.35	63.32	59.80
NL-635L/7020	69.30	62.37	58.91
NL-635P/6930	70.15	63.14	59.13
NL-660L/7786	85.05	76.55	72.30
678	152.60	137.34	129.71
710/6011	50.00	45.00	42.50
NL-710L/7518	45.95	41.36	39.06
NL-714	33.85	30.47	28.78
NL-734L	110.30	99.27	93.76
NL-740/6856	62.10	55.89	52.79
NL-740L/7022	76.00	68.40	64.60
NL-740P/6857	76.00	68.40	64.60
NL-760	100.30	90.27	85.26
NL-760L	108.35	97.52	92.10
NL-760P	108.35	97.52	92.10
807	23.00	20.70	19.55
NL-807	12.50	11.25	10.63
NL-809	35.35	31.82	30.05
810	130.00	117.00	110.50
811A	33.60	30.24	28.56
812A	38.50	34.65	32.73
813	135.00	121.50	114.75
816	39.00	35.10	33.15
829B	96.00	86.40	81.60
NL-840/8754	24.00	21.60	20.40
NL841	26.05	23.45	22.15
NL-842	26.05	23.45	22.15
NL-843	25.30	22.77	21.51
NL-845	26.70	24.03	22.70
NL-848	30.40	27.36	25.84
866A	28.00	25.20	23.80
872A	28.45	25.61	24.19
884	15.29	13.77	13.00
922	24.25	21.83	20.62
927	28.50	25.65	24.23
929	18.50	16.65	15.73
930	26.50	23.85	22.53
931A	28.50	25.65	24.23
931VA	28.50	25.65	24.23
934	30.90	27.81	26.27
935	65.00	58.50	55.25
NL-1051A	201.00	180.90	170.85
2033	6.25	5.63	5.32
2050A	7.44	6.70	6.33
2055	31.50	28.35	26.78
4552	27.00	24.30	22.95
4848	50.00	45.00	42.50
NL-5440	25.15	22.64	21.38
NL-5440A	29.35	26.42	24.95

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MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE FOR INDUSTRIAL ELECTRONICS EQUIPMENT

CONTACT YOUR NEAREST NEWARK BRANCH FOR FAST, DEPENDABLE SERVICE

Receiving, Industrial & Special Purpose Tubes

CONTACT YOUR LOCAL NEWARK OFFICE FOR PRICES ON LARGER QUANTITIES

RAYTHEON

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NL

Type Tube	1-9	10-24	25-49
NL-5441A	31.85	28.67	27.08
NL-5442A	25.40	22.86	21.59
5557	37.00	33.30	31.45
5563A	228.60	205.74	194.31
5581	33.70	30.33	28.65
5582	41.45	37.31	35.24
5583	39.00	35.10	33.15
NL5632/C3J	38.15	34.34	32.43
5632/C3J	44.80	40.32	38.08
5642	11.97	10.78	10.18
5651A	5.18	4.67	4.41
5654	7.61	6.85	6.47
5665/C16J	140.20	126.18	119.17
5670	6.30	5.67	5.36
NL5684/NE	42.30	38.07	35.96
5686	9.95	8.96	8.46
5687	7.77	7.00	6.61
5691	21.50	19.35	18.28
5692	18.35	16.52	15.60
5693	27.15	24.44	23.08
5696	6.15	5.54	5.23
5696A	5.65	5.09	4.81
5725	6.80	6.12	5.78
5726	4.97	4.48	4.23
5727	6.58	5.93	5.60
5750	7.10	6.39	6.04
5751	5.80	5.22	4.93
5763	6.86	6.18	5.84
5814A	5.39	4.86	4.59
5823	5.32	4.79	4.53
5840W	13.35	12.02	11.35
5866	167.00	150.30	141.95
NL5869/9950	54.55	49.10	46.37
NL-5870L	33.00	29.70	28.05
5879	9.62	9.14	8.90
5879	9.62	9.14	8.90
5881	7.06	6.36	6.01
CK5886	34.41	30.97	29.25
5886	22.30	20.07	18.96
5894	101.00	90.90	85.85
5915	7.45	6.71	6.34
5933WA	27.95	25.16	23.76
5963	5.31	4.78	4.52
5963	4.95	4.46	4.21
5965	6.32	5.69	5.38
NL-5971	98.60	88.74	83.81
NL-5992	36.05	32.45	30.67
6005	8.00	7.20	6.80
6012	16.73	15.06	14.23
6021	14.59	13.13	12.40
6028	12.85	11.57	10.93
6072	7.65	6.89	6.51
6080	18.61	16.75	15.82
6080WC	33.95	30.56	28.86
6084/E80F	24.80	22.32	21.08
6085/E80CC	22.80	20.52	19.38
6130/3C45	168.00	151.20	142.80
6136	6.70	6.03	5.70
6146A	17.00	15.30	14.45
6146B/8298A	15.15	13.64	12.88
6146W	21.85	19.67	18.58
6159B	30.00	27.00	25.50
6189	8.20	7.38	6.97
6197	7.80	7.02	6.63
6199	158.00	142.20	134.30
6201	6.43	5.79	5.47

Type Tube	1-9	10-24	25-49
6202	6.35	5.72	5.40
6203	12.80	11.52	10.88
6211	6.65	5.99	5.66
6267	4.45	4.01	3.79
6267-EF86	6.60	6.27	6.11
6336A	76.00	68.40	64.60
6360A	12.06	10.86	10.26
CK6418	21.46	19.32	18.25
6476A	22.15	19.94	18.83
6550	11.30	10.17	9.61
6550A	12.40	11.16	10.54
6678/6U8A	5.95	5.36	5.06
6681/12AX7A	4.69	4.23	3.99
6686	14.95	13.46	12.71
6807	160.00	144.00	136.00
NL-6844A	37.40	33.66	31.79
6883B/8032A/8552	22.00	19.80	18.70
6922	8.25	7.43	15.27
6922/E88CC	11.29	10.17	9.60
6973	11.00	10.45	10.18
NL-6989-NE	106.15	95.54	90.23
NL-6989/C6J/KL	82.70	74.43	70.30
7025	5.76	5.48	5.33
7027A	14.66	13.93	13.57
7119/E182CC	28.30	25.47	24.06
7189A	7.90	7.51	7.31
7199	11.76	11.18	10.88
7233	9.60	8.64	8.16
7247	8.50	8.08	7.87
7360	15.26	13.74	12.98
7534/E130L	65.80	59.22	55.93
7551	9.95	8.96	8.46
7558	9.95	8.96	8.46
7581A	14.26	13.55	13.20
7586	18.64	16.78	15.85
7591A	9.28	8.82	8.59
NL-7723-NE	56.05	50.45	47.65
7734	19.50	17.55	16.58
7735	61.50	55.35	52.28
7735A	139.00	125.10	118.15
NL-7786-NE	93.90	84.51	79.82
7788	52.90	47.61	44.97
7868	9.82	9.33	7.90
7905	21.40	19.26	18.19
7984	18.15	16.34	15.43
8008	49.00	44.10	41.65
8020W	71.50	64.35	60.78
8068	14.90	13.41	12.67
8072	123.00	110.70	104.55
8106	11.56	10.41	9.83
8122	140.00	126.00	119.00
8156	16.00	14.40	13.60
8165/4-65A	125.00	112.50	106.25
8233	99.15	89.24	84.28
8393	20.12	18.11	17.11
8417	14.72	13.99	13.62
NL-8421/5092	36.95	33.26	31.41
NL-8422/5991	36.05	32.45	30.65
8438/4-400A	161.00	144.90	136.85
8458	47.25	42.53	40.17
8451	75.00	67.50	63.75
8541A	200.00	180.00	170.00
8643	137.30	123.57	116.71
8844	50.00	45.00	42.50
8908	15.55	14.00	13.22
8950	13.55	12.20	11.52

MAKE NEWARK YOUR DEPENDABLE SOURCE

FOR ALL ELECTRONIC PARTS AND EQUIPMENT

Index of Resistors and Controls

IMMEDIATE SHIPMENT—UNLIMITED QUANTITIES AT FACTORY PRICES

Newark's staff of merchandising experts have carefully selected these resistors, pots, trimmers and controls for a wide variety of electronic installations—from the simple to the highly sophisticated. All items listed are stocked, ready to be shipped at factory OEM prices. See pages 2 and 3 for the Newark facility nearest to you.

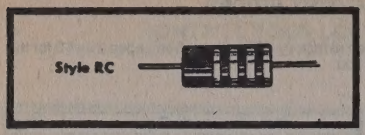
Manufacturer's Type	Page
ALLEN-BRADLEY	
Resistors	
RC (MIL TYPE)	124
RCR (MIL TYPE)	124
100 Networks	125
314, (Resistor Networks)	125
316, 406, 408, 410 (Resistor Networks)	125
Pots and Trimmers	
JAIL, JAIN, JDIN,	140
F	138
G	141
GA	141
GD	141
NP	139
RP	139
RS	139
RV4L (MIL TYPE)	140
RV4N (MIL TYPE)	140
S	138
W	141
WRA	141
WRS	141
Y	138
70, 72, 73	136, 137
81	139
90	138
94	139
Pot Hardware	
B-13750, JS-1, M-2786, M-2898, M-3236, M-3318	140
M-4721, M-4748, M-4761	141
BOURNS	
CT	149
H90, H91	145
H400 (DIALS)	149
H510 (DIALS)	149
H800	143
H1400 (DIALS)	149
MFT	143
20	143
81, 83, 84, 91	147
3005	146
3006	143
3009	144
3057	146
3059	144
3067	146
3069	144
3099	144
3250	146
3252	144
3260	146
3262	144
3290	146
3292	144
3299	144
3305	146
3329	145
3339	145
3345	146
3352	145
3359	145
3386	145
3400	148
3500	148
3501	148
3507	148
3509	148
3520	148
3540	148
3541	148
3600	149
3610	149
3640	149
3650	149
3682	149
3683	149
3852	147

Manufacturer's Type	Page
BOURNS (Cont.)	
3862	147
4100 (NETWORK)	142
4600 (NETWORK)	142
CLAROSTAT	
Resistors	
VC	134
VP	134
VPR	134
VK	134
Pots	
DR	153
RA20	152
RA30	152
RV4	152
RV6 (MIL-R-94)	152
SC380-3	152
43C	153
58C1	153
62JA	153
73JA	153
388N	153
400 SERIES	153
389N	153
U80	153
DALE	
Resistors	
CSC Networks	127
MSP (NETWORK)	127
RH (MIL TYPE)	126
RS (MIL TYPE)	126
RN (MIL TYPE)	126
X033B	127
FENWALL	
Thermistors	
CA	162
FA	162
FB	162
FT	162
GA	162
GB	162
JA	162
JB	162
KA	162
KB	162
KD	162
LA	162
LB	162
NA	162
PA	162
PB	162
PT	162
UU	162
ZB	162
Keystone Carbon	
RL	160
CL	160
MALLORY	
Pots and Controls	
L	159
LW	159
MTC	159
M-4 CONTROLS	159
MLC	159
MTC-151 (KIT)	159
RVG	158
RVS KIT	158
T	159
U	159
VW	159

Manufacturer's Type	Page
MURATA/ERIE	
RVA	206
RVG	206
OHMITE	
Resistors	
CAB Assortments	133
200	132
210	131
270	130
995	132
2122, 2126,	131
2121, 2125, 2133	131
3420, 3430 Decade	133
Power Rheostats	
C	150
E	150
H	151
J	151
K	151
L	151
N	151
R	150
5000 Dial Plates	150
5100 Knobs	150
6500 Coupling Kits	150
Controls	
PCA	150
PCD	150
SPC	
AR-25 Resistor Kits	
CFR	129
RSU-280 Substitution Unit	129
SPECTROL	
Pots and Trimmers	
6	154
8	156
43	155
50	154
53	156
55	154
62	156
63	156
64	155
70	155
84	154
132	157
140	157
148	156
149	156
162	157
533	157
534	157
830	157
860	157
Counting Dials	
11	158
15	158
16	158
21	158
SPRAGUE	
Resistors	
242	135
243	135
247	135
256C	135
TRW	
RN-55 (MIL-TYPE),	128
RN-60 (MIL-TYPE)	128
BWH, RCR	128
YELLOW SPRINGS INSTRUMENT	
Thermistors	
44000, 44100, 44200, 44300 Series	161

Allen-Bradley Carbon Composition Resistors

INDUSTRIAL GRADE AND MIL-R-11 STYLE RC



Hot-molded fixed composition resistors are designed for general purpose use in electronic equipment, and are unequaled for uniformity, predictable performance, appearance, and freedom from catastrophic failure when used according to published ratings and recommendations. The tightly compressed resistance material has a large cross-section resulting in low current density and high overload capacity. Uniformity of the material reduces hot spots and noise.

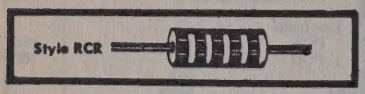
STYLE RC 5% TOLERANCE (SOLD IN STANDARD PKG. ONLY)

Stock No.	Rating (watts)	MIL-R-11 Style	A-B Type	Size	Volts	Ohmic Range	Std. Pkg.	Each 25-75	100-225	250-475	500-975	1000-4975
10F300	⅛	RC05	BB	.145" x .062"	150	2.7-9.1	50	.32	.26	.22	.19	.16
						10-22M	50	.27	.22	.18	.16	.13
10F305	¼	RC07	CB	.250" x .090"	250	2.7-9.1	50	.17	.14	.11	.08	.06
						10-22M	50	.14	.12	.09	.07	.05
10F310	½	RC20	EB	.375" x .140"	350	1.0-9.1	50	.18	.15	.12	.09	.07
						10-22M	50	.15	.13	.10	.08	.06
10F315	1	RC32	GB	.562" x .225"	500	2.7-9.1	25	.21	.17	.15	.14	.12
						10-22M	25	.17	.14	.12	.11	.10
10F320	2	RC42	HB	.688" x .312"	750‡	10-22M	25	.33	.26	.23	.21	.17

STYLE RC 10% TOLERANCE (SOLD IN STANDARD PKG. ONLY)

10F325	⅛	RC05	BB	.145" x .062"	150	2.7-8.2	50	.26	.21	.18	.15	.13
						10-22M	50	.21	.18	.15	.13	.11
10F330	¼	RC07	CB	.250" x .090"	250	2.7-8.2	50	.15	.12	.09	.06	.04
						10-22M	50	.12	.10	.07	.05	.04
10F335	½	RC20	EB	.375" x .140"	350	1.0-8.2	50	.15	.13	.10	.06	.05
						10-22M	50	.13	.11	.08	.05	.04
10F340	1	RC32	GB	.562" x .225"	500	2.7-8.2	25	.18	.15	.13	.11	.09
						10-22M	25	.15	.13	.11	.09	.08
10F345	2	RC42	HB	.688" x .312"	750‡	10-22M	25	.29	.23	.20	.17	.13

ESTABLISHED RELIABILITY MIL-R 39008 STYLE RCR



Style RCR resistors not only meet the requirements of MIL-R-39008, but also far exceed the "S" level of established reliability 0.001% failure rate per 1000 hours, Resistors are available in "S" level reliability in all five wattage sizes over the entire resistance range. The "S" reliability level is indicated by a yellow 5th color band on body.

STYLE RCR 5% TOLERANCE (SOLD IN STANDARD PKG. ONLY)

10F350	⅛	RCR05	BB	.145" x .062"	150	2.7-9.1	50	.35	.28	.24	.22	.18
						10-22M	50	.29	.24	.20	.19	.15
10F355	¼	RCR07	CB	.250" x .090"	250	2.7-9./1	50	.19	.15	.12	.09	.07
						10-22M	50	.15	.13	.10	.08	.06
10F360	½	RCR20	EB	.375" x .140"	350	1.0-9.1	50	.20	.16	.13	.10	.08
						10-22M	50	.16	.13	.11	.09	.06
10F365	1	RCR32	GB	.562" x .225"	500	2.7-9.1	25	.29	.24	.16	.15	.13
						10-22M	25	.24	.20	.13	.13	.11
10F390	2	RCR42	HB	.688" x .312"	750‡	10-22M	25	.37	.30	.26	.24	.18

STYLE RCR 10% TOLERANCE (SOLD IN STANDARD PKG. ONLY)

10F370	⅛	RCR05	BB	.145" x .062"	150	2.7-8.2	50	.29	.23	.20	.17	.15
						10-22M	50	.24	.19	.17	.14	.12
10F375	¼	RCR07	CB	.250" x .090"	250	2.7-8.2	50	.16	.13	.10	.07	.05
						10-22M	50	.14	.11	.08	.06	.04
10F380	½	RCR20	EB	.375" x .140"	350	1.0-8.2	50	.17	.14	.11	.07	.05
						10-22M	50	.15	.12	.09	.06	.04
10F385	1	RCR32	GB	.562" x .225"	500	2.7-8.2	25	.22	.18	.14	.11	.10
						10-11M	25	.18	.15	.12	.09	.08
10F395	2	RCR42	HB	.688" x .312"	750‡	10-22M	25	.36	.29	.24	.18	.13

STANDARD NOM. RESISTANCE VALUES

Figures in large bold type are ±10% values. All values available in ±5% tolerance.

Ohms

1.0	5.1	**27**	130	**680**	3600	**18000**	91000
1.1	**5.6**	30	**150**	750	**3900**	20000	**100000**
1.2	6.2	**33**	160	**820**	4300	**22000**	110000
1.3	**6.8**	36	**180**	910	**4700**	24000	**120000**
1.5	7.5	**39**	200	**1000**	5100	**27000**	130000
1.6	**8.2**	43	**220**	1100	**5600**	30000	**150000**
1.8	9.1	**47**	240	**1200**	6200	**33000**	160000
2.0	**10**	51	**270**	1300	**6800**	36000	**180000**
2.2	11	**56**	300	**1500**	7500	**39000**	200000
2.4	**12**	62	**330**	1600	**8200**	43000	**220000**
2.7	13	**68**	360	**1800**	9100	**47000**	
3.0	**15**	75	**390**	2000	**10000**	51000	
3.3	16	**82**	430	**2200**	11000	**56000**	
3.6	**18**	91	**470**	2400	**12000**	62000	
3.9	20	**100**	510	**2700**	13000	**68000**	
4.3	**22**	110	**560**	3000	**15000**	75000	
4.7	24	**120**	620	**3300**	16000	**82000**	

Megohms

0.24	0.43	0.75	1.3	2.4	4.3	7.5	13.0
0.27	**0.47**	**0.82**	**1.5**	**2.7**	**4.7**	**8.2**	**15.0**
0.30	0.51	0.91	1.6	3.0	5.1	9.1	16.0
0.33	**0.56**	**1.0**	**1.8**	**3.3**	**5.6**	**10.0**	**18.0**
0.36	0.62	1.1	2.0	3.6	6.2	11.0	20.0
0.38	**0.68**	**1.2**	**2.2**	**3.9**	**6.8**	**12.0**	**22.0**

HOW TO ORDER

A-B INDUSTRIAL GRADE

EB — 514 — 5 —
(A) (C) (D)

MIL-R-11 STYLE RC

RC20 — GF — 514 — J —
(A) (B) (C) (D)

MIL-R-3900R STYLE RCR

RCR05 — G — 541 — J — S
(A) (B) (C) (D) (E)

(A) A-B Type No. or MIL-Style No.

A-B Type	MIL-R-11 Style	MIL-R-39008 Style	Rating, Watts
BB	RC05	RCR05	⅛
CB	RC07	RCR07	¼
EB	RC20	RCR20	½
GB	RC32	RCR32	1
HB	RC42	RCR42	2

(B) For MIL types only; maximum ambient temperature and resistance-temperature characteristic per MIL-R-11 or MIL-R-39008. See Allen-Bradley **Publication EC21** for actual performance limits.

(C) Three-digit number represents resistance. First two digits are significant figures, third is number of zeros that follow. **For values less than 10 ohms:** Industrial Grade; substitute **G** for third digit, making desired resistance value the first two digits multiplied by 0.1—e.g., **27G** = 2.7 ohms; for MIL-R-11 and MIL-R-39008 substitute **R** for decimal point—e.g., **2R7** = 2.7 ohms.

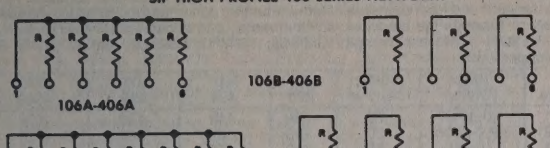
(D) Tolerance: Code for ±5% is **5** for Industrial Grade, **J** for MIL types; ±10% is **1** for **Industrial** Grade, **K** for MIL types.

(E) MIL-R-39008 resistors only; expresses Failure Rate Level at 50% rated wattage in % per 1,000 hours: M = 1.0%, P = 0.1%, R = 0.01%, S = 0.001%. Available only in "S" level.

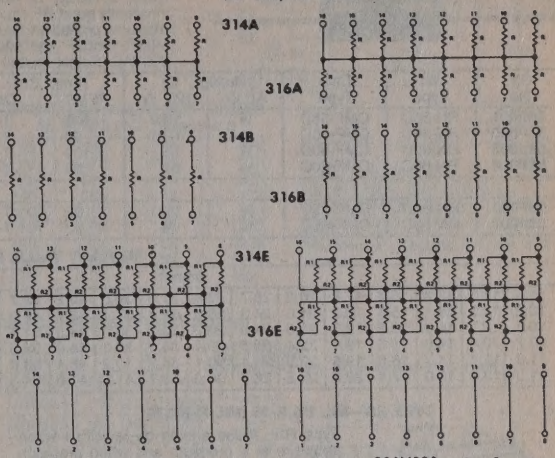
Sip and Dip Cermet Resistor Networks

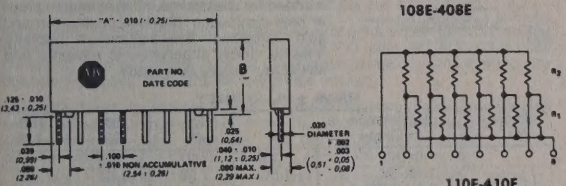
- Res. Tol.:±2%
- Tempo. Coeff.: ± 100PM/°C
- Oper. Temp Range −55°C to +125°C (316L08 is 0°C to 70°C)
- Solid Ceramic Body
- Solder Coated Leads
- Machine Insertable

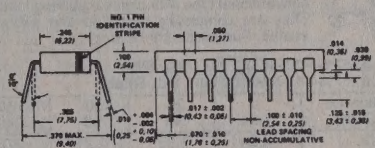
SIP LOW PROFILE 100 SERIES NETWORKS
SIP HIGH PROFILE 400 SERIES NETWORKS



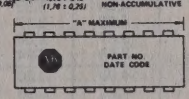
DIP 314, 316 SERIES NETWORKS

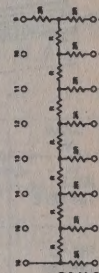






"A" Maximum		Number of Leads
Decimal	Metric	
.745	18,92	14
.845	21,46	16





Pkg. Style	No. of Pins	'A' Dimension	'B' Dimension
106	6	.578 (14.68)	.200 (5.08)
108	8	.778 (19.76)	.200 (5.08)
110	10	.978 (24.84)	.200 (5.08)
406	6	.578 (14.68)	.350 (8.89)
408	8	.778 (19.76)	.350 (8.89)
410	10	.978 (24.84)	.350 (8.89)

STANDARD RESISTANCE VALUES

SERIES 106A, 106B, 108A, 110A
110B, 314A, 314B, 316A, 316B, 406A,* 406B*
408A,* 408B,* and 410A,* 410B* RESISTOR NETWORKS

22*	68	220*	680*	2200*	6200	20K	62K	390K
24	75	240	750	2400	6800*	22K*	68K	470K*
27	82	270	820	2700	7500	24K	75K	560K
30	91	300	910	3000	8200	27K	82K	680K
33	100*	330*	1000*	3300*	9100	30K	91K	1M*
36	110	360	1100	3600	10K*	33K	100K*	
39	120	390	1200	3900	11K	36K	120K	
43	130	430	1300	4300	12K	39K	150K	
47*	150	470*	1500*	4700*	13K	43K	180K	
51	160	510	1600	5100	15K*	47K*	220K*	
56	180	560	1800	5600	16K	51K	270K	
62	200	620	2000	6000	18K	56K	330K	

STANDARD NETWORK APPLICATIONS

106A 108A 110A 314A 316A 406A 408A 410A	106B 108B 110B 314B 316B 406B 408B 410B	106E 108E 110E 314E 316E 406E 408E 410E	314M110 314M120 314M125	316L08	314X101 316X101
Pull-Up Resistor Arrays for Unused TTL Gates	Trans. Line Term. Power Gate	Digital Line Term. ECL & TTL	Comp. 7520 Series of Core Memory	8 Bit R/2R Ladder. Network for D/A and A/D	Intercon. Networks. Storing Appl. Matrix
Parallel High Speed Circuitry TTL-MOS Interfacing	Pull-Up Current Limiting Logic Level Trans.	Appli.	Sense Amps	Converter with Bi Polar or CMOS Switches	Inter-connect Test Plugs

PRICING INFORMATION

Stock No.	Type	1-99	100-249	250-499	500-999	1000-1999
10F8616	106A	.59	.49	.40	.33	.32
10F8617	106B	.59	.49	.40	.33	.32
10F8618	106E	1.13	.94	.74	.65	.59
10F8619	108A	.60	.50	.42	.36	.33
10F8620	108B	.60	.50	.42	.36	.33
10F8621	108E	1.24	1.02	.81	.71	.64
10F8622	110A	.63	.53	.44	.38	.34
10F8623	110B	.63	.53	.44	.38	.34
10F8624	110E	1.33	1.10	.88	.77	.70

Stock No.	Type	1-99	100-249	250-499	500-999	1000-1999
10F3800	314A	.97	.81	.64	.58	.51
10F3900	314B	.97	.81	.64	.58	.51
10F4000	316A	1.00	.83	.66	.60	.52
10F4100	316B	1.00	.83	.66	.60	.52
10F4200	314E	2.04	1.68	1.34	1.22	1.06
10F4210	316E	2.13	1.75	1.40	1.28	1.11
10F4220	316L08	2.73	2.40	2.25	1.88	1.51
10F4218	314X101	.97	.86	.81	.65	.53
10F4219	316X101	1.00	.89	.83	.67	.55

Stock No.	Type	1-99	100-249	250-499	500-999	1000-1999
10F3790	406A	.59	.49	.40	.33	.32
10F3791	406B	.59	.49	.40	.33	.32
10F3796	406E	1.13	.94	.74	.65	.59
10F3792	408A	.60	.50	.42	.36	.33
10F3793	408B	.60	.50	.42	.36	.33
10F3797	408E	1.24	1.02	.81	.71	.64
10F3794	410A	.63	.53	.44	.38	.34
10F3795	410B	.63	.53	.44	.38	.34
10F3798	410E	1.33	1.10	.88	.77	.70

SERIES 106E†, 108E†, 110E†, 314E, 316E, 406,* 408E,* 410E* RESISTOR NETWORKS

R1/R2	Zo (Characteristic Impedance)	R1/R2	Zo (Characteristic Impedance)	R1/R2	Zo (Characteristic Impedance)
81/130	50	160/260	100	330/390	179
120/200	75	220/270	121	330/470	194
90/660	80	180/390	123	330/680	222
130/210	80	220/330*†	132	1.5K/3.3K	1.03K
				3K/6.2K*	2.02K

Precision Resistors

METAL FILM RESISTORS—MILITARY TYPE, 1% TOLERANCE

All popular valves are stocked in-depth. It is not feasible to inventory the thousands of possible resistance values. Contact your local Newark Branch for availability. Manufactures minimums on non-standard values may apply.

Meets a variety of industrial and military applications. Vacuum deposited metal film resistors have inherently good RF characteristics and low noise level. Flame retardant epoxy coating provides excellent moisture protection. Meets or exceeds the electrical, environmental, and dimensional requirements of MIL-R-10509F and MIL-R-22684. Dielectric strength: CMF-55: 450VAC; CMF-60: 750VAC; CMF-65: 900VAC. Solder-coated copper leads.

Stk. No.	Mil. Type	Dale Type	Rating (° C) 70° W	125° W	Temp. Char. PPM/° C	Dale	Range (Ohms)	Sold in mult. of	1-299	300-499	500-999	1000-4999
58F001	RN-55D	CMF-55D	⅛	1/10	100	T-1	10-301K	50	.189	.149	.139	.109
58F005	RN-55C	CMF-55C	⅛	1/10	50	T-2	49.9-100K	50	.209	.189	.169	.129
58F002	RN-60D	CMF-60D	¼	1/8	100	T-1	10-1M	50	.209	.159	.149	.119
58F006	RN-60C	CMF-60C	¼	1/8	50	T-2	49.9-499K	50	.229	.209	.179	.149
									1-99	100-499	500-999	1000-4999
58F003	RN-65D	CMF-65D	½	1/4	100	T-1	10-1M	20	.50	.38	.20	.17
58F007	RN-65C	CMF-65C	½	1/4	50	T-2	49.9-1M	20	.67	.50	.28	.23

5

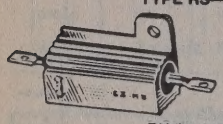
MILITARY VALUE RESISTANCE TABLE

Ohms

10.0	11.5	13.3	15.4	17.8	20.5	23.7	27.4	31.6	36.5	42.2	48.7	56.2	64.9	75.0	86.6
10.2	11.8	13.7	15.8	18.2	21.0	24.3	28.0	32.4	37.4	43.2	49.9	57.6	66.5	76.8	88.7
10.5	12.1	14.0	16.2	18.7	21.5	24.9	28.7	33.2	38.3	44.2	51.1	59.0	68.1	78.7	90.9
10.7	12.4	14.3	16.5	19.1	22.1	25.5	29.4	34.0	39.2	45.2	52.3	60.4	69.8	80.6	93.1
11.0	12.7	14.7	16.9	19.6	22.6	26.1	30.1	34.8	40.2	46.4	53.6	61.9	71.5	82.5	95.3
11.3	13.0	15.0	17.4	20.0	23.2	26.7	30.9	35.7	41.2	47.5	54.9	63.4	73.2	84.5	97.6

Standard resistance values are obtained from the decade table by multiplying by powers of 10. Ex.: 13.3 can be 13.3, 133, 1.33K, 13.3K: 133K, or 1.33MΩ.

TYPE RS—MIL 1% R-26 (MIL-R-23379)



Type RS. These should be specified when space is at a premium and when precision and power are needed. They are of the conventional type with pigtail mounting leads. They are completely protected and silicone sealed. Surpasses Mil-R-26.

TYPE RH MIL-R-18546

Designed to meet MIL-R-18546 specifications. Provides a flat surface and recommended for chassis mounting to assure proper heat dissipation. Molded construction and gold anodized finned-aluminum radiator housing. 100% impervious to moisture and salt spray. Heavy duty leads.

RH-5 ±1%—7.5 WATT MIL. NO. RE60
RH-10 ±1%—12.5 WATT MIL. NO. RE65

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
RH-5 13F1878	1.0-1K	2.94	2.35	2.21	2.05
	1.1-5K	3.08	2.47	2.31	2.16
	5.1-10K	3.37	2.68	2.52	2.35
	10.1-12K	3.68	2.94	2.78	2.58
RH-10 13F139	12.1-15K	4.00	3.20	3.01	2.81
	15.1-25K	4.30	3.95	3.59	3.21
	25.1-40K	4.78	4.37	3.97	3.57
	40.1-47.1K	5.24	4.75	4.36	3.99

RH-25 ±1%—25 WATT MIL. NO. RE70

13F140	1.0-1K	2.94	2.35	2.21	2.05
	1.1-5K	3.08	2.47	2.31	2.16
	5.1-10K	3.36	2.68	2.52	2.34
	10.1-12K	3.68	2.94	2.78	2.58
	12.1-15K	4.01	3.21	3.02	2.82
	15.1-25K	4.30	3.95	3.59	3.21
	25.1-40K	4.78	4.37	3.97	3.57
	40.1-50K	5.24	4.76	4.36	3.99
	50.1-60K	5.72	5.22	4.71	4.17
	60.1-75K	6.23	5.68	5.10	4.54
	75.1-95.2K	6.86	6.23	5.61	5.04

RH-50 ±1%—50 WATT MIL. NO. RE75

13F141	1.0-5.9Ω	4.01	3.64	3.23	2.97
	6.0-1K	3.61	2.88	2.69	2.52
	1.1-5K	3.76	3.03	2.84	2.65
	5.1-10K	4.08	3.25	3.06	2.87
	10.1-20K	4.53	3.62	3.39	3.19
	20.1-55K	4.94	3.95	3.68	3.46
	55.1-75K	5.37	4.28	4.01	3.76
	75.1-100K	5.75	4.58	4.34	4.02
	100.1-125K	6.26	4.99	4.69	4.38
	125.1-150K	6.72	5.39	5.04	4.70
	150.1-175K	7.21	5.75	5.39	5.04
	175.1-225K	7.65	6.04	5.78	5.31
	225.1-273K	8.25	6.48	6.25	5.68

RS-28 ±1%—3 WATT

Stock No.	Resistance in Ohms	1-24	25-49	50-99	100-249
13F142	1.0-1K	1.22	.97	.92	.84
	1.1K-5K	1.35	1.08	1.02	.93
	5.1K-10K	1.41	1.11	1.04	.97
	10.1K-15K	1.47	1.17	1.09	1.03
	15.1K-20K	1.91	1.22	1.16	1.08
	20.1K-24.5K	1.63	1.30	1.22	1.12

RS-5 ±1%—5 WATT—MIL. NO. RW-67 & RWP-21

13F143	1.0-1K	1.22	.97	.92	.84
	1.1K-5K	1.35	1.08	1.02	.93
	5.1K-10K	1.41	1.01	1.04	.97
	10.1K-15K	1.47	1.17	1.09	1.03
	15.1K-20K	1.91	1.22	1.16	1.08
	20.1K-40K	1.63	1.30	1.22	1.12
	40.1K-55K	1.75	1.41	1.31	1.22
	55.1K-75K	1.92	1.52	1.45	1.34
	75.1K-100K	2.12	1.70	1.60	1.48

RS-10 ±1%—10 WATT—MIL. NO. RW-68 & RWP-23

13F136	1.0-1K	1.22	.97	.92	.84
	1.1K-5K	1.35	1.08	1.02	.93
	5.1K-10K	1.41	1.11	1.04	.97
	10.1K-15K	1.47	1.17	1.09	1.03
	15.1K-20K	1.91	1.22	1.16	1.08
	20.1K-40K	1.63	1.30	1.22	1.12
	40.1K-55K	1.75	1.41	1.31	1.22
	55.1K-75K	1.92	1.52	1.45	1.34
	75.1K-100K	2.12	1.70	1.60	1.48
	100.1K-125K	2.32	1.91	1.75	1.63
	125.1K-150K	2.53	2.03	1.90	1.77
	150.1K-175K	2.79	2.21	2.07	1.93
	175.1K-225K	2.95	2.43	2.28	2.13
	225.1K-273K	3.32	2.67	2.51	2.37

WIREWOUND STANDARD RESISTANCE VALUES

RH STANDARD VALUES IN OHMS

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
.008	.5	6	22.5	56	150	400	910	3.5K
.01	.75	7	25	60	160	430	1K	4K
.02	1	7.5	27	62	180	450	1.2K	5K
.03	1.5	8	30	70	200	470	1.3K	10K
.05	2	10	33	75	220	500	1.5K	15K
.1	2.5	12	35	80	250	560	1.8K	20K
.15	3	15	40	82	270	600	2K	25K
.2	3.3	16	45	100	300	680	2.2K	40K
.25	4	20	47	110	330	700	2.5K	50K
.3	5	22	50	120	390	750	3K	100K
								150K

RS STANDARD VALUES IN OHMS

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
.1	1.2	10	50	220	500	825	2K	10K
.13	1.5	15	60	250	510	900	2.2K	12K
.15	2	20	75	270	560	909	2.5K	15K
.2	3	25	100	300	600	1K	3K	20K
.25	4	30	110	330	619	1.1K	3.3K	25K
.3	5	33	120	332	620	1.2K	3.5K	30K
.33	6	35	125	350	681	1.3K	4K	40K
.5	7	40	150	400	700	1.5K	5K	50K
.75	7.5	45	180	450	750	1.78K	7K	100K
1	8	47	200	470	800	1.8K	8.2K	150K

RESISTOR NETWORKS AND OSCILLATORS

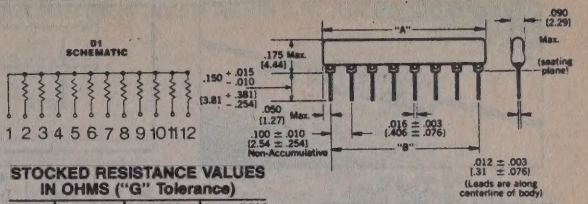
DALE®

CSC (COATED) SINGLE-IN-LINE THICK FILM RESISTOR NETWORK

CIRCUIT APPLICATION.

CSCXXA-01 single-in-line resistor networks provides choice of 3, 4, 5, 6, 7, 8, 9, 10 or 11 nominally equal resistors, each connected to a common pin (Pin No. 1). Commonly used in the following applications: "Wired OR" Pull-up; Power Gate Pull-up; MOS/ROM Pull-up/Pull-down; Open Collector Pull-up; TTL Input Pull-down; TTL Unused Gate Pull-up. .175" [4.44] maximum seated height. Low profile for high density packaging. Low temperature coefficient ±200 PPM/°C (−55°C to +125°C standard). Resistor elements protected by tough epoxy conformal coating. Power Rating: .19 watt/resistor; 4 pin = .57 watt, 5 pin = .76 watt, 6 pin = .95 watt, 7 pin = 1.14 watts, 8 pin = 1.33 watts, 9 pin = 1.52 watts, 10 pin = 1.71 watts, 11 pin = 1.9 watts, 12 pin = 2.09 watts max. @ 25°C.

Stk. No.	Type CSC-	1-99	100-249	250-499	500-999	1000 & Up
81F4858	-06A-01-XXXG	.36	.30	.25	.22	.20
81F4859	-08A-01-XXXG	.40	.33	.28	.25	.22
81F4857	-10A-01-XXXG	.44	.36	.31	.27	.24



STOCKED RESISTANCE VALUES IN OHMS ("G" Tolerance)

33	330	2.7K	22K
56	470	3.3K	27K
68	510	4.7K	33K
100	560	5.6K	47K
120	1K	6.8K	68K
150	1.2K	10K	100K
180	1.5K	12K	220K
220	2K	15K	330K
270	2.2K	18K	1 Meg.

Type	A (Max.)	B	No. of Res.
CSC06A	.590 [14.99]	.500 [12.70]	5
CSC08A	.790 [20.07]	.700 [17.78]	7
CSC10A	.990 [25.15]	.900 [22.86]	9

[Numbers in brackets indicate millimeters]

5

SINGLE-IN-LINE SERIES MSP THICK FILM RESISTOR NETWORKS

Type SIP Resistor Network

- Highly stable thick film .
- Std. resistance tol. ±2% (Code G)
- Lead spacing .10" ± .010
- Rugged, molded case construction
- Low temperature coefficient ± 100 PPM/°C (−55°C to +125°C standard)
- Compatible with automatic insertion equipment
- Marking resistance to solvents and solderability per MIL-R-83401

MSPXXA01 circuits contain 5, 7, or 9 resistors of equal value, each connected between a common pin (No. 1) and discrete P.C. pins. MSPXXA03 circuits contain 3, 4, or 5 resistors of equal value, each resistor is connected to two discrete P.C. pins. A01, A03 are low profile version.

MSPXXA05 circuits contain 4, 6 or 8 pairs of resistors. Each series pair is connected between two common lines. The junction of these resistor pairs is connected to the input terminals. The 05 circuits are designed for TTL dual-line termination and pulse squaring. A05 is low profile version.

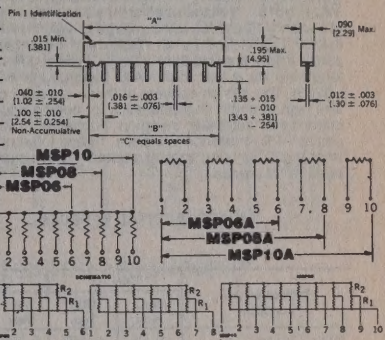
Stk. No.	Type MSP	1-99	100-249	250-499	500-999	1000-Up
68F104 68F105	06A01-XXXG 06A03-XXXG	.55	.45	.38	.33	.29
68F108 68F109	08A01-XXXG 08A03-XXXG	.58	.47	.40	.35	.32
68F112 68F113	10A01-XXXG 10A03-XXXG	.60	.49	.41	.37	.33
*	06A05-XXXG	.84	.73	.63	.56	.50
*	08A05-XXXG	.88	.75	.66	.58	.52
*	10A05-XXXG	.98	.83	.73	.65	.59

* Contact local Newark branch for stock numbers

Type	A
MSP06A	.590 [14.99] Max.
MSP08A	.790 [20.07] Max.
MSP10A	.990 [25.15] Max.

Type	B	C
MSP06A	.500 [12.70]	5
MSP08A	.700 [17.78]	7
MSP10A	.900 [22.86]	9

DIMENSIONAL AND TERMINAL CONFIGURATIONS [Numbers in brackets indicate millimeters]



MSPXX05-XXX XXXG	
R_1/R_2	Zo
220/270	121
180/390	123
220/330	132
330/390	179
330/470	194
330/680	222
1.5K/3.3K	1031

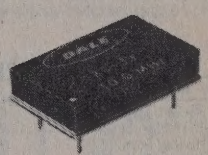
STOCKED RESISTANCE VALUES IN OHMS ("G" Tolerance)

22	68	150	390	820	2.0K	4.7K	10K	27K	68K	180K
33	82	180	470	1K	2.2K	5.6K	12K	33K	82K	220K
39	100	220	510	1.2K	2.7K	6.0K	15K	39K	100K	330K
47	110	270	560	1.5K	3.3K	6.8K	18K	47K	120K	470K
56	120	330	680	1.8K	3.9K	8.2K	22K	56K	150K	1 Meg.

HYBRID CRYSTAL CLOCK OSCILLATOR

MODEL XO-33 B 250 KHz to 60 MHz Low Profile

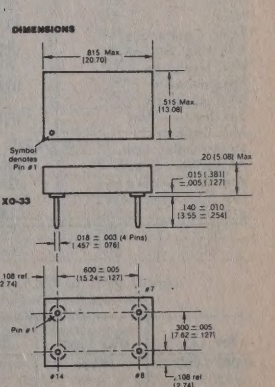
Temperature Range: Operating: 0°C to 70°C; Storage: −55°C to +125°C. Input Voltage: +5 VDC ±0.5 V. One level sourcing 0.4 mA: 2.4 volts min. Environmental: Temperature Cycle: −55°C to +85°C, 3 cycles. Shock: 1000 G's 0.1 millisecond, ½ sine wave, 3 shocks each plane. Vibration: .06" D.A., 10–55 Hz, 35 G, 55–2000 Hz. Humidity: 85% relative humidity @ 85°C, 240 Hours.
Mechanical: Hermetically Sealed Package: Leak rate less than 2×10^{-8} atmosphere cc/sec. of helium. Pin Material: Phosphor bronze. Marking Ink: Epoxy, solvent resistant. Solvent Resistance: Isopropyl alcohol, Tricholoroethane, Freon TMC. Terminal Solderability: Per MIL-STD-202, Method 208C. B = ±.01% (±100 PPM). One level sourcing @ 0.4 mA is 2.4 V min. All are Type No. X0-33B plus stnd. frequency.*



XO—33B

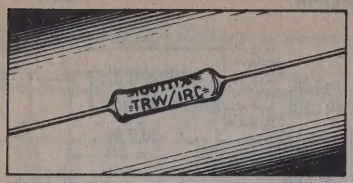
Ordering Example: 81F4838 is Type No. X0-33B1.2288.

Stk. No.	Standard* Frequencies (Mhz)	Input Current (mA)	Waveform Symmetry @ 1.4 VDC	TTL Output Rise & Fall Time (From Zero to One Level)	"Zero" Level Sinking 16 mA	1-4	5-9	10-24	25-49	50-99
81F4838	1.2288	65 max./45 typ.	55/45	10 nS typ./15 nS max.	0.4 v max.	23.10	20.07	16.78	15.20	13.50
81F4839	2.4576	65 max./45 typ.	55/45	10 nS typ./15 nS max.	0.4 v max.	23.10	20.07	16.78	15.20	13.50
81F4840	4.0	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4841	4.9152	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4842	5.0	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4843	5.0688	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4844	6.0	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4845	8.0	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4846	10.0	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4847	12.0	40 max./30 typ.	60/40	10 nS typ./15 nS max.	0.4 v max.	16.45	14.29	11.95	10.83	9.61
81F4848	16.0	70 max./60 typ.	60/40	3 nS typ./10 nS max.	0.5 v max.	17.85	15.51	12.97	11.75	10.43
81F4849	16.384	70 max./60 typ.	60/40	3 nS typ./10 nS max.	0.5 v max.	17.85	15.51	12.97	11.75	10.43
81F4850	18.432	70 max./60 typ.	60/40	3 nS typ./10 nS max.	0.5 v max.	17.85	15.51	12.97	11.75	10.43
81F4851	19.6608	70 max./60 typ.	60/40	3 nS typ./10 nS max.	0.5 v max.	17.85	15.51	12.97	11.75	10.43
81F4852	20.0	70 max./60 typ.	60/40	3 nS typ./10 nS max.	0.5 v max.	17.85	15.51	12.97	11.75	10.43
81F4853	24.0	70 max./60 typ.	60/40	3 nS typ./10 nS max.	0.5 v max.	17.85	15.51	12.97	11.75	10.43
81F4854	25.0	70 max./60 typ.	60/40	3 nS typ./10 nS max.	0.5 v max.	17.85	15.51	12.97	11.75	10.43
81F4855	30.0	50 max./40 typ.	60/40	3 nS typ./ 5 nS max.	0.5 v max.	19.72	17.10	14.31	12.97	11.52
81F4856	32.0	50 max./40 typ.	60/40	3 nS typ./ 5 nS max.	0.5 v max.	19.72	17.10	14.31	12.97	11.52



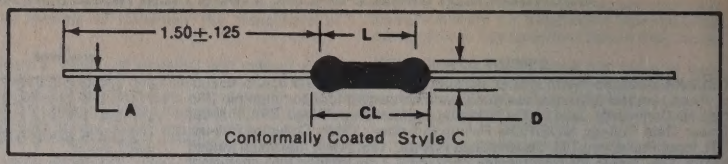
TRW IRC RESISTORS

METAL FILM 1% TOLERANCE PRECISION FIXED RESISTORS



- **Low Noise**
- **High Strength**
- **Extended Range**

TRW/IRC metal film precision resistor has brought the state of the art in thin-film to a performance level equalling that of high-stability wirewounds. Over 488 million hours of government-monitored test data have determined an actual failure rate of only 0.00043% per 1000 hours. Significantly better than the military "S" level specification of 0.001% per 1000 hours. Manufactured to the tightest controls for best performance with respect to low noise, high stability, and the ultimate in TCs and tolerances for precision applications. TRW/IRC evaporated metal film resistors will exceed all MIL-R-specification requirements, including the highest reliability level of MIL-R-55182. Voltage coefficient when measured between 1/10 and full rated voltage is typically less than 0.5 PPM/Volt for all values and essentially zero for low and medium values. Typical ΔR for long term life is less than .04%. Lead gauge #22 (.0253). The design concept of these resistors offers high strength characteristics for potting applications and automatic insertion. Furnished in values at ±1% resistance tolerance. Tighter tolerance units available upon special request. Sold in packages of 50 pieces.



Conformally Coated Style C

Stk. No.	MIL Type	IRC Type	Watt Rating 70°C	Watt Rating 125°C	Temp. Coeff. PPM/°C	Temp. Coeff. IRC Code	Body Style	Size (in.) D	Size (in.) L	Size (in.) C	Range (Ohms)
08F950	RN-55D	TO-55	1/8	1/10	±100	TO	C	.09	.25	.325	10-301K
08F951	RN-55Q	T2-55	1/8	1/10	±50	T2	C	.09	.25	.325	49.9-100K
08F952	RN-60D	TO-60	1/4	1/8	±100	TO	C	.14	.40	.540	10-1M
08F953	RN-60C	T2-60	1/4	1/8	±50	T2	C	.14	.40	.540	49.9-499K

RESISTANCE VALUE TABLE

1.00	1.21	1.47	1.78	2.15	2.61	3.16	3.83	4.64	5.62	6.81	8.25
1.02	1.24	1.50	1.82	2.21	2.67	3.24	3.92	4.75	5.76	6.98	8.45
1.05	1.27	1.54	1.87	2.26	2.74	3.32	4.02	4.87	5.90	7.15	8.66
1.07	1.30	1.58	1.91	2.32	2.80	3.40	4.12	4.99	6.04	7.32	8.87
1.10	1.33	1.62	1.96	2.37	2.87	3.48	4.22	5.11	6.19	7.50	9.09
1.13	1.37	1.65	2.00	2.43	2.94	3.57	4.32	5.23	6.34	7.68	9.31
1.15	1.40	1.69	2.05	2.49	3.01	3.65	4.42	5.36	6.49	7.87	9.53
1.18	1.43	1.74	2.10	2.55	3.09	3.74	4.53	5.49	6.65	8.06	9.76

All decade multiples of the values shown on the chart above, within the catalog range for each resistor model, are TRW/IRC standard values for metal film resistors.

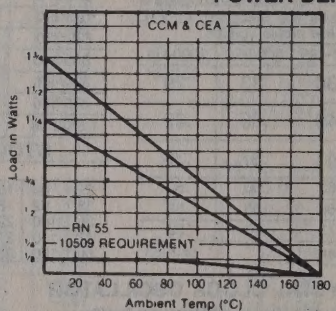
METAL FILM RESISTOR PRICE TABLE

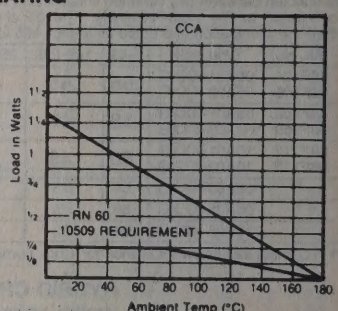
Stk. No.	MIL Type	50-99	100-499	500-999	1000-4999	5000-up
08F950	RN-55D	.24	.14	.13	.10	.08
08F951	RN-55C	.28	.18	.16	.12	.09
08F952	RN-60D	.25	.15	.14	.11	.08
08F953	RN-60C	.29	.20	.17	.14	.10

ENVIRONMENTAL EFFECTS

Environmental Condition	Char. D. MIL. Max.	Char. D. TRW Typ.	Char. C. MIL. Max.	Char. C. TRW Typ.
Temp. Cycling	0.5%	<.04%	0.25%	<.02%
Low Temp. Operation	0.5%	<.03%	0.25%	<.03%
Short Time Overload	0.5%	<.05%	0.25%	<.05%
Dielectric Withstanding Voltage	0.5%	<.05%	0.25%	<.05%
Effect of Soldering	0.5%	<.10%	0.1%	<.05%
Moisture Resistance	1.5%	<.25%	0.5%	<.15%
Load Life	1.0%	<.05%	0.5%	<.15%
Shock	0.5%	<.05%	0.25%	<.05%
Vibration, High Freq.	0.5%	<.02%	0.25%	<.02%

POWER DERATING

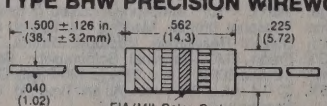




TYPE BHW PRECISION WIREWOUND RESISTORS – TOLERANCE 5%

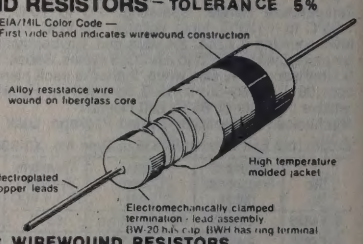
SPECIFICATIONS

TRW/IRC Type	BWH
EIA RS-344 Style	CRU2
MIL-R-11 Size Equiv.	RC32
Resistance, Stan.	0.1-2K ohms
Tolerance, Stan.	±5%
Power Rating	2 watts @ 70°C 1 watt @ 115°C ½ watt @ 137°C
Max. Continuous Working Voltage	√PR
Min. Insulation Resistance-Dry	10,000 Megohms
Min. Insulation Resistance—Wet	100 Megohms
Min. Dielectric Withstanding Volt.	
Atmospheric Press.	1000 Volts RMS
Reduced Pressure	625 Volts RMS
Hot Spot Temp. Rise at 1 watt	115°C



First band is double width to designate wirewound.

Bridges the cost-performance gap between composition resistors and premium wirewounds. Rated at 2 watts, in a 1 watt carbon composition size package.


EIA/MIL Color Code — First wide band indicates wirewound construction
Alloy resistance wire wound on fiberglass core
High temperature molded jacket
Electroplated copper leads
Electromechanically clamped termination - lead assembly
BW-20 has cup, BWH has ring terminal

RESISTANCE VALUE TABLE FOR WIREWOUND RESISTORS

0.10*	0.27*	0.68*	1.8*	4.7*	12*	33*	82*	220*	560*	1.5K*
0.11	0.30	0.75	2.0	5.1	13	36	91	240	620	1.6K
0.12*	0.33*	0.82*	2.2*	5.6*	15*	39*	100*	270*	680*	1.8K*
0.13	0.36	0.91	2.4	6.2	16	43	110	300	750	2.0K
0.15*	0.39*	1.0*	2.7*	6.8*	18*	47*	120*	330*	820*	
0.16	0.43	1.1	3.0	7.5	20	51	130	360	910	
0.18*	0.47*	1.2*	3.3*	8.2*	22*	56*	150*	390*	1K*	
0.20	0.51	1.3	3.6	9.1*	24	62	160	430	1.1K	
0.22*	0.56*	1.5*	3.9*	10*	27*	68*	180*	470*	1.2K*	
0.24	0.62	1.6	4.3	11	30	75	200	510	1.3K	

All values shown are 5% tolerance, (*) indicates available in 10% tol.

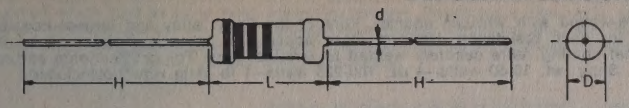
REFERENCE AND PRICE TABLE FOR TYPE BWH

Stk. No.	IRC Type	Watt @ 70°C	Volts	Resistance Range (Ohms)	Std. Pkg.	50-99	100-249	250-499	500-999	1000-up
08F1150	BWH	2	√PR	.10-2K .1Ω-.91Ω 1Ω-9.1Ω 10Ω-2400Ω	50	 .63 .61 .51	 .51 .49 .44	 .43 .41 .41	 .20 .20 .15	 .12 .11 .10

Resistor Kits

SPC technology

DEPOSITED CARBON FILM FIXED RESISTOR ASSORTMENTS



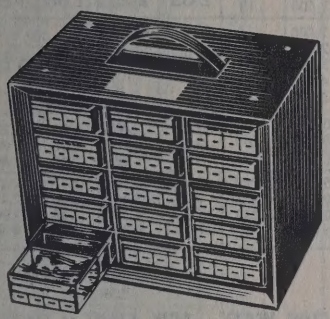
Specifications	AR25	AR50
Rated Wattage @ 70°C	0.25W	0.50W
Max. Working Voltage	250V	350V
Max. Overload Voltage	500V	700V
Body Length	.252±.012"	.346±.040"
Body Diameter	.095±.008"	.146±.008"
Lead Length	1.0" min.	1.0" min.
Lead Diameter	.024±.001"	.027±.001"

RESISTOR FEATURES:

- **±5% Resistance Tolerance**
- **Conformal Multi-Coating**
- **EIA Standard Color Coding**
- **Solder-Coated Leads**
- **−55°C to +155°C Temp. Range**

These ¼ and ½ watts have been designed for miniature circuits that require resistors with greater stability and reliability than carbon composition types, but the same small physical size. Carbon film resistors exceed performance characteristics of MIL-R-11F carbon composition types.

60 VALUE CABINET RESISTOR ASSORTMENT



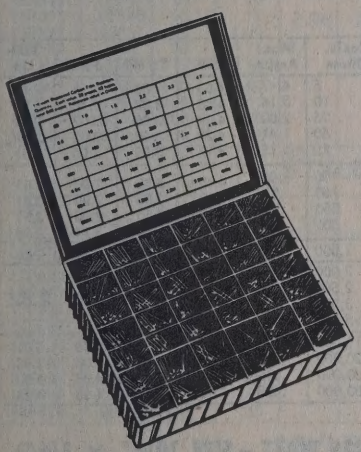
RESISTANCE VALUES IN OHMS INCLUDED:

2.2	47	560	5.6K	56K
2.7	68	680	6.8K	82K
3.9	75	820	8.2K	100K
4.7	100	1.0K	10K	120K
6.8	120	1.2K	12K	150K
8.2	150	1.5K	15K	220K
10	180	1.8K	18K	270K
18	220	2.2K	22K	390K
22	270	2.7K	27K	470K
27	330	3.3K	33K	560K
33	390	3.9K	39K	1.0M
39	470	4.7K	47K	2.2M

Top quality deposited carbon film resistors in the most commonly used values. Provides finger-tip convenience. Cabinet finished in metallic blue with 15 see-thru drawers each with four individual compartments. Can be stacked or wall mounted.

Stock No.	Type	Watt	Quan./Value	Tot. pieces	Each
37N1739	AR25-6025	¼	25	1500	112.95
37N1740	AR25-6050	¼	50	3000	149.95
37N1741	AR50-6025	½	25	1500	123.95

AR25-4220, 42 VALUE RESISTOR ASSORTMENT



VALUES INCLUDED, IN OHMS

.68	15	330	6.8K	150K	3.3M
1.0	22	470	10K	220K	4.7M
1.5	33	680	15K	330K	. . .
2.2	47	1K	22K	470K	. . .
3.3	68	1.5K	33K	680K	. . .
4.7	100	2.2K	47K	1M	. . .
6.8	150	3.3K	68K	1.5M	. . .
10	220	4.7K	100K	2.2M	. . .

- **.250" Body Length**
- **.095" Body Diameter**
- **±5% Resistance Tolerance**
- **Conformal Multi-Coating**
- **Special Solder-Coated Leadwire**

¼ watt resistors, designed for miniature circuits that require resistors with greater stability and reliability than carbon composition types. Exceeds performance characteristics of MIL-R-11F carbon composition types. Each resistor value is pre-packaged in a plastic case. Removable cover clearly indicates location of each resistor. 20 pieces of each value, 840 pieces total.

37N1742. NET 47.95

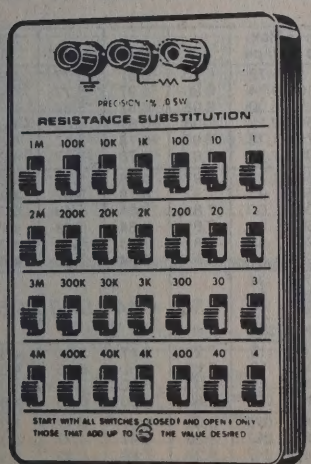
REPLACEMENT RESISTORS FOR ABOVE KITS

SPECIFY RESISTANCE VALUE WHEN ORDERING

RESISTANCE VALUE IN OHMS						PACKAGE OF 25
.68*	10	100	680	4.7K	33K	270K
1.0*	15*	120	820	5.6K	39K	330K*
1.5*	18	150	1K	6.8K	47K	390K
2.2	22	180	1.2K	8.2K	56K	470K
2.7	27	220	1.5K	10K	68K*	560K
3.3*	33	270	1.8K	12K	82K	680K*
3.9	39	330	2.2K	15K	100K	1.0M
4.7	47	390	2.7K	18K	120K	1.5M*
6.8	68	470	3.3K	22K	150K	2.2M
8.2	75	560	3.9K	27K	220K	3.3M*

*NOT AVAILABLE IN ½ WATT

Stock No.	Type	Packages of 25 1-3	4-9	10-19	20-Up
81N1258 ¼ watt	CFR-25 (68-8.2 Ohms)	5.75	4.75	4.00	3.50
	CFR-25 (10-3.3M Ohms)	5.00	3.75	3.25	2.75
81N1259 ½ watt	CFR-50 (68-8.2 Ohms)	5.75	4.75	4.00	3.50
	CFR-50 (10-3.3M Ohms)	5.25	4.25	3.75	3.25


PRECISION 1% .05W
RESISTANCE SUBSTITUTION
1M 100K 10K 1K 100 10 1
2M 200K 20K 2K 200 20 2
3M 300K 30K 3K 300 30 3
4M 400K 40K 4K 400 40 4
START WITH ALL SWITCHES CLOSED AND OPEN ONLY THOSE THAT ADD UP TO THE VALUE DESIRED

RSU-280 POCKET SIZED RESISTANCE SUBSTITUTION UNIT

- **Over 11 Million Step Range**
- **1% Accuracy Resistors**
- **Convenient Size**
- **Rugged Construction**

Seven decades of resistance provides a wide range of values in a compact unit. Aluminum case and slide switch selection provide a durable and easy-to-use unit. Excellent for repair, development and trouble-shooting. Ranges from 1 Ohm to over 11 Megohms. Internal resistance is less than 0.2 Ohms. Three binding posts permit isolated substitution. The case may be grounded separately.

37N1743. NET 88.95

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

OHMITE Fixed Power Resistors

Lug type, wire-wound with vitreous enamel. Wire of the finest alloy and largest possible size is used for each resistance. Uniform close spacing of turns is maintained by the vitreous enamel coating. Wire securely welded to terminal lugs. Tol. ±5% 1 ohm and up, ±10% below. Shpg. wt. 10-50 watts—4 oz. 100-225 watts—1 lb. (Mtg. Hdw. not included.)

5

STYLE 270-12 (12 WATT—Size 1¾" × 5/16")

Stock No.	Type	Resis. Ohms	Max. Amps	1-9	10-49	50-99	100-249
13F1200	3723	.51	4.86				
13F1201	3730	1.0	3.46				
13F1203	3738	2.2	2.34	1.91	1.62	1.34	1.16
13F1204	3742	3.3	1.91				
13F1205	3746	4.7	1.60				
13F1207	3754	10	1.10				
13F1208	3756	12	1.00				
13F1209	3758	15	.89	1.34	1.14	.92	.82
13F1211	3762	22	.74				
13F1212	3764	27	.67				
13F1215	3770	47	.53				
13F1218	3776	82	.38				
13F1219	3778	100	.35	1.34	1.14	.92	.82
13F1221	3782	150	.28				
13F1222	3784	180	.26				
13F1224	3786	270	.21				
13F1228	3796	560	.15	1.34	1.14	.92	.82
13F1231	3802	1,000	.11				
13F1232	3804	1,200	.10				
13F1233	3806	1,500	.089				
13F1235	3810	2,200	.074	1.42	1.20	.99	.86
13F1236	3812	2,700	.067				
13F1239	3818	4,700	.051				
13F1243	3826	10,000	.032	1.60	1.35	1.12	.94

STYLE 270-25 (25 WATT—SIZE 2" × 5/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F720	0200J	1	5.00				
13F721	0200K	2	3.54	2.20	1.87	1.55	1.33
13F722	0200L	3	2.88				
13F723	0200A	5	2.24				
13F724	0200B	10	1.58				
13F725	0200R	15	1.29				
13F726	0200C	25	1.00	1.82	1.55	1.27	1.09
13F727	0200D	50	.71				
13F728	0200E	75	.58				
13F729	0200F	100	.50				
13F730	0200G	150	.41				
13F731	0200H	200	.35	1.72	1.46	1.20	1.04
13F732	0201	250	.32				
13F733	0202	500	.22				
13F734	0203	750	.18				
13F735	0204	800	.17	1.72	1.46	1.20	1.04
13F736	0205	1,000	.16				
13F737	0206	1,500	.13				
13F738	0207	2,000	.12				
13F739	0208	2,500	.10				
13F740	0209	3,000	.091	1.82	1.55	1.27	1.09
13F742	0211	4,000	.079				
13F743	0212	5,000	.070				
13F744	0213	6,000	.064				
13F745	0214	7,500	.057	2.27	1.91	1.59	1.37
13F746	0215	10,000	.050				
13F747	0216	12,000	.045				
13F748	0217	15,000	.036	2.33	1.98	1.63	1.40
13F749	0218	20,000	.031				
13F750	0219	25,000	.028	2.49	2.12	1.75	1.49
13F751	0222	40,000	.022	2.49	2.12	1.75	1.49
13F752	0224	50,000	.019	3.01	2.57	2.11	1.81
13F753	0229	100,000	.009	3.99	3.39	2.80	2.40

STYLE 270-50 (50 WATT—SIZE 4" × 5/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F798	0400J	1	7.07	3.54	3.00	2.47	2.13
13F760	0400A	5	3.16				
13F761	0400B	10	2.23				
13F762	0400C	25	1.41	2.63	2.25	1.86	1.58
13F763	0400D	50	1.00				
13F764	0400E	75	.82				

STYLE 270-50 (50 WATT-SIZE 4" × 9/16") cont.

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F765	0400F	100	.71				
13F766	0400G	150	.58				
13F767	0400H	200	.50	2.63	2.25	1.86	1.58
13F768	0401	250	.45				
13F769	0402	500	.32				
13F771	0405	1,000	.22	2.63	2.25	1.86	1.58
13F772	0406	1,500	.18				
13F773	0407	2,000	.16				
13F774	0408	2,500	.14				
13F775	0409	3,000	.13	2.63	2.25	1.86	1.58
13F776	0410	4,000	.11				
13F777	0411	5,000	.10				
13F779	0413	8,000	.079	2.83	2.40	1.98	1.70
13F780	0414	10,000	.071	2.83	2.40	1.98	1.70
13F782	0416	15,000	.057	3.14	2.66	2.19	1.89
13F784	0418	25,000	.045	3.54	3.00	2.47	2.13
13F786	0420	50,000	.026	4.04	3.45	2.84	2.43
13F788	0422	100,000	.018	4.92	4.18	3.46	2.96
13F799	0428	250,000	.010	7.46	6.33	5.25	4.48

STYLE 270-100 (100 WATT—SIZE 6½" × ¾")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F800	0600A	5	4.47	4.53	3.83	3.16	2.71
13F801	0600B	10	3.16	4.53	3.83	3.16	2.71
13F802	0601	25	2.00	4.29	3.66	3.02	2.59
13F803	0602	50	1.41	4.29	3.66	3.02	2.59
13F804	0603	75	1.15	4.16	3.55	2.90	2.51
13F805	0604	100	1.00	4.16	3.55	2.90	2.51
13F806	0605	150	.82	4.16	3.55	2.90	2.51
13F807	0606	250	.63	4.16	3.55	2.90	2.51
13F808	0607	500	.45	4.47	3.78	3.14	2.68
13F810	0609	1,000	.32	4.47	3.78	3.14	2.68
13F812	0611	2,000	.22				
13F813	0612	2,500	.20	4.74	4.02	3.30	2.82
13F814	0613	3,000	.18				
13F815	0614	5,000	.14				
13F817	0616	10,000	.10	4.99	4.26	3.49	3.01
13F819	0618	20,000	.071	5.76	4.88	4.02	3.43
13F823	0622	50,000	.045	6.65	5.66	4.66	4.00
13F826	0625	100,000	.028	7.05	6.01	4.93	4.26

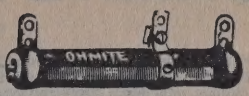
STYLE 270-225 (225 WATT—SIZE 10½" × 1⅛")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-Up
13F830	0900A	5	6.72	8.20	6.97	5.77	4.93
13F831	0900B	10	4.74	8.20	6.97	5.77	4.93
13F832	0901	25	3.00	8.06	6.87	5.64	4.85
13F833	0902	50	2.12	8.06	6.87	5.64	4.85
13F834	0903	75	1.73	7.97	6.78	5.57	4.81
13F835	0904	100	1.50	7.97	6.78	5.57	4.81
13F836	0905	150	1.25	7.97	6.78	5.57	4.81
13F837	0906	250	.95	7.97	6.78	5.57	4.81
13F838	0907	500	.67	7.81	6.64	5.48	4.70
13F839	0908	750	.55	7.81	6.64	5.48	4.70
13F840	0909	1,000	.47	7.81	6.64	5.48	4.70
13F841	0910	1,500	.39	7.58	6.44	5.08	4.54
13F842	0911	2,000	.34				
13F843	0912	2,500	.30	7.58	6.44	5.30	4.54
13F844	0913	3,000	.27				
13F845	0914	5,000	.21				
13F847	0916	10,000	.15	7.26	6.17	5.06	4.35
13F848	0917	15,000	.13	7.63	6.50	5.35	4.60
13F849	0918	20,000	.11	7.63	6.50	5.35	4.60
13F850	0919	25,000	.095	7.63	6.50	5.35	4.60
13F852	0921	40,000	.075	8.20	6.97	5.77	4.93
13F853	0922	50,000	.067	8.20	6.97	5.77	4.93
13F856	0925	100,000	.047	9.28	7.88	6.49	5.55

Adjustable Dividohm® Power Resistors

OHMITE

"Dividohm" Vitreous Enameled Resistors make ideal voltage dividers for original equipment and replacement in transmitters, rectifiers and other apparatus. Handy for obtaining odd resistance values, for adjusting circuits and for use on equipment which must be set to meet various line voltages. Resistance is changed by moving the adjustable lug. Contact can be made to any wire along the length of the resistor making voltages lower than rated voltage available. States wattage rating applies only when the entire resistance is in the circuit. Tolerance: 10%. Avg. Shipping wt. 12-50 Watts. 4.0 oz.: 100-255 Watts. 1 lb. Mtg. Hdw. not included.



Type 210

STYLE 210-12 (12 WATT — SIZE 1¾" × 5/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F500	1001	1	3.46	3.12	2.64	2.17	1.87
13F501	1002	2	2.45				
13F502	1003	3	2.00				
13F503	1004	5	1.54				
13F504	1005	7.5	1.26				
13F505	1006	10	1.09	2.69	2.29	1.90	1.62
13F506	1007	15	.89				
13F507	1008	20	.77				
13F508	1009	25	.69				
13F509	1010	50	.49				
13F510	1011	75	.40				
13F511	1012	100	.34				
13F512	1013	150	.28				
13F513	1014	200	.24				
13F514	1015	250	.22				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F515	1016	300	.20	2.69	2.29	1.90	1.62
13F517	1018	400	.17				
13F518	1019	500	.15				
13F520	1021	750	.13				
13F522	1023	1,000	.11				
13F524	1025	1,500	.089	2.80	2.40	1.95	1.69
13F525	1026	2,000	.077				
13F527	1028	2,500	.069				
13F528	1029	3,000	.063				
13F530	1031	4,000	.055				
13F532	1033	5,000	.049				
13F534	1035	7,000	.042	3.12	2.64	2.17	1.87
13F535	1036	7,500	.040				
13F539	1040	10,000	.035				

STYLE 210-25 (25 WATT — SIZE 2" × 9/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F550	0360	1	5.00	2.98	2.53	2.09	1.76
13F551	0360B	2	3.54				
13F552	0361	3	2.88				
13F553	0362	5	2.24				
13F554	0362B	7.5	1.82				
13F555	0363	10	1.58				
13F556	0364	15	1.29				
13F557	0364B	20	1.12				
13F558	0365	25	1.00				
13F559	0366	50	.71				
13F560	0367	75	.58				
13F561	0368	100	.50				
13F562	0369	150	.41				
13F563	0370	200	.35				
13F564	0371	250	.32				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F565	0371B	300	.29	2.98	2.53	2.09	1.76
13F566	0371C	400	.25				
13F567	0372	500	.22				
13F568	0373	750	.18				
13F570	0375	1,000	.16				
13F571	0375B	1,250	.14	3.12	2.64	2.17	1.87
13F572	0376	1,500	.13				
13F573	0377	2,000	.12				
13F575	0378	2,500	.10				
13F576	0379	3,000	.091				
13F580	0382	5,000	.070				
13F581	0383	6,000	.064	3.23	2.76	2.26	1.94
13F587	0385	10,000	.050				
13F590	0388	20,000	.031	3.42	2.93	2.41	2.05
13F591	0389	25,000	.028	3.69	3.14	2.59	2.23

STYLE 210-50 (50 WATT — SIZE 4" × 9/16")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F600	0560	5	3.16	3.81	3.23	2.66	2.28
13F601	0561	10	2.23				
13F602	0562	25	1.41				
13F603	0563	50	1.00				
13F604	0564	75	.82				
13F605	0565	100	.71				
13F606	0566	150	.58				
13F607	0567	200	.50				
13F608	0568	250	.45				
13F609	0568B	300	.41				
13F610	0568C	400	.35				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F611	0569	500	.32	3.81	3.23	2.66	2.28
13F612	0570	750	.26				
13F613	0572	1,000	.22				
13F615	0573	1,500	.18	3.90	3.33	2.70	2.34
13F616	0574	2,000	.16				
13F617	0575	2,500	.14				
13F622	0578	5,000	.10				
13F628	0581	10,000	.071	3.92	3.34	2.77	2.37
13F631	0584	20,000	.050	4.09	3.49	2.86	2.46
13F635	0588	50,000	.026	4.98	4.25	3.50	2.99
13F638	0591	100,000	.018	5.90	5.02	4.13	3.52

STYLE 210-100 (100 WATT — SIZE 6½" × ¾")

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F670	0956A	1	10.00	7.38	6.28	5.16	4.43
13F671	0956B	2	7.07				
13F672	0956C	3	5.77	6.91	5.89	482	4.16
13F673	0956D	4	5.00				
13F650	0956	5	4.47				
13F651	0957	10	3.16				
13F652	0958	25	2.00				
13F653	0959	50	1.41				

Stock No.	Type	Resis. Ohms	Max. Amps.	1-9	10-49	50-99	100-249
13F654	0960	100	1.00	5.62	4.77	3.91	3.38
13F655	0960B	250	.63				
13F656	0961	500	.45	5.69	4.82	4.00	3.43
13F657	0962	1,000	.32				
13F658	0962B	1,500	.26	5.76	4.90	4.04	3.48
13F659	0963	2,500	.20				
13F660	0964	5,000	.14				
13F661	0965	10,000	.10	6.14	5.19	4.27	3.67
13F669	0973	100,000	.028	7.76	6.59	5.43	4.67

STANDARD ADJUSTABLE LUGS

For Dividohms — Bakelite knob type

Stock No.	Type	Description	1-9	10-49	50-Up
13F710	2122	For 25, 50 Watt	3.91	3.32	2.74
13F711	2126	For 100 Watt	3.88	3.30	2.72

For Dividohms — Screw driver type

Stock No.	Type	Description	1-9	10-49	50-Up
13F714	2121	For 25, 50 Watt	.48	.40	.32
13F715	2125	For 100 Watt	.53	.46	.38
13F716	2133	For 225 Watt	.67	.56	.49

5

OHMITE Industrial Resistors

TYPE 200 "BROWN DEVIL" RESISTORS

High quality, compact wire-wound resistors for voltage-dropping, bias units, bleeders, etc. Extra-sturdy all-ceramic vitreous enameled. Protected against shock, vibration, heat and humidity. Have standard tolerance of ±5%, 8-watt units have 1×5/16" cores; 12 watts, 1¾"×5/16" cores; 20-watt units, 2×7/16" cores. All have 1½" leads. Average shipping weight, 3 oz.

13F150 8 WATT "BROWN DEVIL" RESISTORS STYLE 200-8

Type	Ohms	Price Key	Type	Ohms	Price Key	Type	Ohms	Price Key	Type	Ohms	Price Key
1500	1	A	1511	30	B	1526	500	B	1543	4,000	C
1500B	1.5	A	1513	40	B	1528	700	B	1545	5,000	C
1501	2	A	1514	50	B	1532	1,000	B	1546	6,000	D
1502	3	A	1515	75	B	1534	1,200	C	1547	7,000	D
1503	4	A	1516	100	B	1535	1,250	C	1548	7,500	D
1504	5	A	1517	125	B	1536	1,500	C	1549	8,000	D
1505	7.5	A	1518	150	B	1537	1,750	C	1551	10,000	D
1506	10	B	1519	200	B	1538	2,000	C	1552	12,500	E
1507	12	B	1521	250	B	1539	2,250	C	1553	15,500	E
1508	15	B	1522	300	B	1540	2,500	C	1555	20,000	E
1509	20	B	1523	350	B	1541	3,000	C	1557	25,000	F
1510	25	B	1524	400	B	1542	3,500	C			

Price Key	1-9	10-49	50-99	100-249
A	1.34	1.12	.91	.81
B	1.17	1.00	.83	.71
C	1.25	1.06	.87	.75
D	1.40	1.19	.99	.84
E	1.73	1.46	1.20	1.05
F	1.81	1.54	1.27	1.09

13F155 12 WATT "BROWN DEVIL" RESISTORS STYLE 200-12

Type	Ohms	Price Key	Type	Ohms	Price Key	Type	Ohms	Price Key	Type	Ohms	Price Key
1701	1	G	1717	40	H	1732	700	H	1748	4,500	I
1704	1.5	G	1718	50	H	1733	750	H	1749	5,000	I
1705	2	G	1719	75	H	1735	900	H	1750	6,000	K
1706	3	G	1720	100	H	1736	1,000	H	1751	7,000	K
1707	4	G	1721	125	H	1738	1,200	I	1752	7,500	K
1708	5	G	1722	150	H	1739	1,250	I	1753	8,000	K
1709	7.5	G	1723	200	H	1740	1,500	I	1755	10,000	K
1710	10	H	1724	225	H	1741	1,750	I	1761	15,000	K
1711	12	H	1725	250	H	1742	2,000	I	1765	20,000	K
1712	15	H	1726	300	H	1743	2,250	I	1767	25,000	M
1713	20	H	1727	350	H	1744	2,500	I	1768	30,000	M
1714	25	H	1728	400	H	1745	3,000	I	1770	40,000	M
1715	30	H	1730	500	H	1746	3,500	I	1772	50,000	N
1716	35	H	1731	600	H	1747	4,000	I			

Price Key	1-9	10-49	50-99	100-249
G	1.73	1.46	1.20	1.05
H	1.20	1.04	.86	.73
I	1.28	1.10	.89	.76
K	1.73	1.46	1.20	1.05
M	1.81	1.54	1.27	1.09
N	1.97	1.69	1.38	1.18

13F160 20 WATT "BROWN DEVIL" RESISTORS STYLE 200-20

Type	Ohms	Price Key	Type	Ohms	Price Key	Type	Ohms	Price Key	Type	Ohms	Price Key
1802A	1	AA	1807	75	B	1815	500	BB	1836	5,000	C
1802B	2	AA	1808	100	B	1816	650	BB	1841	10,000	D
1802C	3	AA	1809	150	B	1818	750	BB	1843	15,000	D
1802D	4	AA	1810	200	B	1821	1,000	BB	1844	20,000	D
1803	5	AA	1811	250	B	1822	1,200	CC	1845	25,000	E
1804	10	BB	1812	300	B	1824	1,500	CC	1850	50,000	F
1805	25	BB	1813	350	B	1827	2,000	CC	1860	100,000	G
1806	50	BB	1814	400	B	1832	3,000	CC			

Price Key	1-9	10-49	50-99	100-249
AA	1.97	1.69	1.38	1.18
BB	1.40	1.19	.99	.84
CC	1.44	1.23	1.02	.87
DD	1.90	1.61	1.34	1.14
EE	2.05	1.74	1.43	1.23
FF	2.39	2.00	1.67	1.42
GG	3.25	2.77	2.38	1.95

TYPE 995 MOLDED VITREOUS ENAMEL 5% TOLERANCE

3¼ WATT UNITS — STYLE 995-3A — .547×.203

Stk. No	Ohms	1-9	10-49	50-99	100-249
13F145	1.0 to 7.5	1.20	1.02	.83	.72
	10.0 to 1K	1.06	.91	.75	.63
	1.2K to 5K	1.13	.96	.80	.69
	5.6K to 10K	1.17	.98	.81	.70

5 WATT UNITS — STYLE 995-5B — .938×.203

Stk. No	Ohms	1-	10-49	50-99	100-249
13F146	1.0 to 7.5	1.29	1.09	.91	.78
	10.0 to 1K	1.13	.96	.80	.69
	1.2K to 5.0K	1.17	.98	.81	.70
	5.6K to 10K	1.29	1.09	.91	.78
	12K to 20K	1.38	1.19	.97	.83
	22K to 25K	1.62	1.37	1.13	.97

11 WATT UNITS — STYLE 995-10A — 1.781"×.312"

Stk. No	Ohms	1-9	10-49	50-99	100-249
13F147	1.0 to 7.5	1.62	1.37	1.13	.97
	10.0 to 1K	1.46	1.25	1.04	.86
	1.2K to 5.0K	1.54	1.31	1.08	.92
	5.6K to 10K	1.70	1.45	1.19	1.04
	12K to 20K	1.87	1.58	1.31	1.11
	22K to 25K	1.97	1.65	1.37	1.18
	43K to 50K	2.15	1.81	1.51	1.30

OHMITE

All welded Vitreous enamel resistor with 1000 VAC insulation. Protects against moisture, salt spray and salt immersion. Markings resist high temperatures, solvents and abrasions. Standard resistance tolerance: ±5%. Leads tinned, 1½"L. All sizes 20 gauge. Can be used with heat sinks to increase capability by 100%.

STOCK RESISTANCE — OHMS

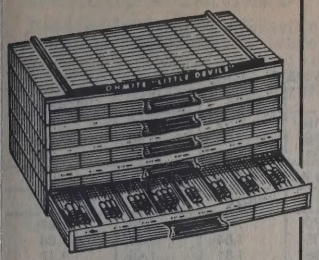
1.0	15	56	220	600	2200	6000	22000
1.5	20	68	250	680	2500	6800	25000
2.0	22	75	270	700	2700	7500	50000
3.0	25	82	300	750	3000	10000	
4.0	27	100	330	800	3300	12000	
5.0	30	120	390	1000	3900	15000	
7.5	33	150	400	1200	4000	18000	
10	39	180	470	1500	4700	20000	
12	40	200	500	1800	5000		
	47		560	2000	5600		
	50						

Resistor Assortments

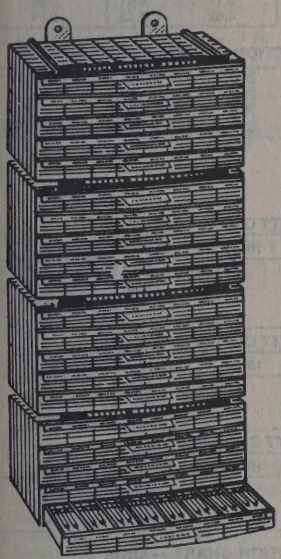
OHMITE

- **All Popular Values Included.**
- **Cabinet Units Can Be Stacked.**
- **Available in Different Ratings.**

Select the carbon composition, carbon film or metal film resistor you need from industrial and service resistor assortments. Each assortment comes in cabinet 9" long, 4¾" high, 5¼" deep. Cabinets have five drawers and each drawer has eight compartments. Dovetail tops and bottoms facilitate stacking. Assemblies of 2, 3 and 4 cabinets are riveted to metal strips for wall hanging.



Single Cabinet Unit



Industrial Assortments

CARBON FILM AND METAL FILM RESISTOR ASSORTMENTS

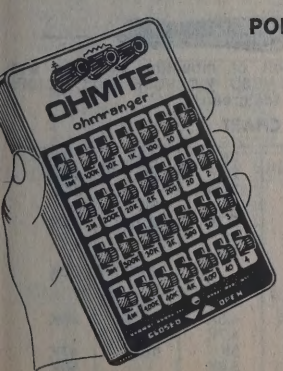
Type numbers ending with **M** are metal film and 1% tolerance. Those ending in **F** are carbon film with 5% tolerance.

Stk. No.	Type	Watt.	Qty.	No. of Cabs.	Range	No. of Values	Each
76F805	CAB-5F		150	1	10Ω-.22 M	31	42.87
76F806	CAB-22F	⅛	500	2	10Ω-.22 M	52	123.02
76F807	CAB-34F		1000	3	10Ω-.22 M	103	230.93
76F808	CAB-6F		150	1	1Ω-1.0 M	36	32.34
76F809	CAB-23F	¼	1000	2	1Ω-1.0 M	75	115.61
76F810	CAB-43F		1500	4	1Ω-1.0 M	136	190.13
76F811	CAB-7F		150	1	1Ω-1.0 M	36	35.95
76F812	CAB-24F	½	1000	2	1Ω-1.0 M	75	128.60
76F813	CAB-44F		1500	4	1Ω-1.0 M	136	213.29
76F814	CAB-8M		250	1	10Ω-301 K	40	82.06
76F815	CAB-28M	⅛	500	2	10Ω-301 K	80	164.12
76F816	CAB-31M		1000	3	10Ω-301 K	120	306.18
76F817	CAB-9M		250	1	10Ω-1.0 M	40	78.08
76F818	CAB-29M	¼	500	2	10Ω-1.0 M	80	156.16
76F819	CAB-32M		1000	3	10Ω-1.0 M	120	272.51

CARBON COMPOSITION ASSORTMENTS

Stk. No.	Type	Watt.	Tol.	Qty.	No. of Cabs.	Range	No. of Values	Each
76F804	CAB -21	⅛	5%	500	2	10Ω-1.0M	80	239.20
99F1203	CAB -45			1000	4	2.7Ω-22.0M	160	455.60
81F2722	CAB -54		5%	122	1	47Ω-10.0M	37	42.43
81F2723	CAB-525	¼		800	2	2.7Ω-22.0M	80	185.65
91F1204	CAB -46		5%	1500	4	2.7Ω-22.0M	160	385.79
81F2724	CAB-510		5%	122	1	10Ω-10.0M	40	42.45
81F2725	CAB-526	½		800	2	2.7Ω-22.0M	80	195.34
99F1205	CAB -47		5%	1500	4	2.7Ω-22.0M	160	431.72
81F2726	CAB -52		5%	100	1	10Ω-10.0M	40	54.47
81F2727	CAB-527	1		480	2	2.7Ω-22.0M	80	186.82
99F1206	CAB -48		5%	900	4	2.7Ω-22.0M	160	363.74
81F2728	CAB -53	2	5%	100	1	10Ω-10.0M	40	105.08

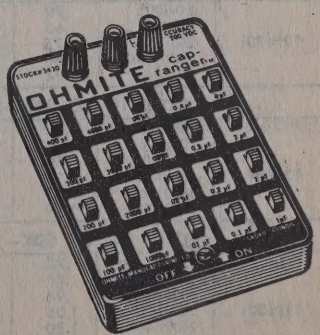
PORTABLE RESISTANCE AND CAPACITANCE SELECTORS



For use in labs, schools, and by service technicians. Feature positive slide switch operation. Light weight for easy in-hand use. Metal case, four rubber feet for non-slip bench use, and screw type binding posts. Compact size: 4"x6"x1 3/16" body approx. wt. 14 oz.

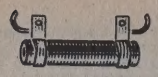
Ohm-Ranger™ 3420. Portable resistance selector. Wide range of resistance values, from 1 ohm to over 11 million ohms in one ohm increments. Assured accuracy of ±1% tolerance for 10 ohm and above settings. Rated to ½ W. max.
13F161 EACH **67.65**

Cap-Ranger™ 3430. Portable capacitance selector. Wide range of capacitances, from 100 pf to 11.111 mf in 100 pf steps with ±2% tolerance. Rated to 200 VDC max.
76F799 EACH **113.72**



Resistors

POWER RESISTORS - FIXED



Lug and Lead 8, 12 and 20 Watt — Series VPR

Lug Only. 25 to 225 Watt — Series VP and VK

Vitreous Enamel/Greenohm V™. Tolerance, ±5% except value under 1 ohm, ±10% VPR types (up to 20 watts) have wire lead and lug terminals VP and VK types (25 watts and up) have lug terminals and mounting bracket. Teal green enamel finish withstands over-heating without peeling or cracking. Designed for utmost reliability and stability under adverse conditions.

VPR-5-F 8 WATT, CORE 1x5/16"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F189	4-1.0K	.82	.72	.59	.49
	1.5K-5.0K	.89	.77	.62	.50
	7.5K-10K	.93	.80	.65	.56

VPR-10-F 12 WATT, Core 1¾x5/16"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F190	4-1.0K	.92	.80	.64	.53
	1.5K-5.0K	1.00	.85	.70	.56
	10K	1.02	.87	.79	.64
	25K	1.34	1.17	.81	.77
	50K	1.50	1.30	1.03	.84

VPR-20H 20 WATT, CORE 2x7/16"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F191	5-1.0K	1.04	.91	.72	.59
	10K	1.28	1.10	.89	.72
	100K	2.00	1.75	1.40	1.12

VP-25-K 25 WATT, CORE 2x9/16"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F192	1-1.0K	1.10	.99	.92	.62
	1.5K-2.5K	1.16	1.01	.80	.65
	10K	1.31	1.14	.91	.74

VP-50-K 50 WATT, CORE 4x9/16"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F193	1-1.0K	1.70	1.49	1.18	.97
	5K	1.89	1.64	1.31	1.08
	10K	2.08	1.81	1.45	1.17
	100K	3.77	2.95	2.63	2.12

VK-100N, 100 WATT, Core 6½x¾"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F194	1-2	3.33	2.84	2.52	2.16
	3-10	3.01	2.71	2.28	1.95
	25-500	2.69	2.28	2.04	1.74

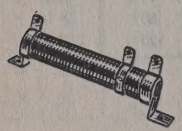
VK 200-W. 225 WATT, CORE 10½x1⅛"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F195	1-5	8.40	7.13	6.37	5.46
	10	6.08	5.17	4.61	3.95
	25-5.0K	5.44	4.62	4.13	3.54

RESISTANCE SELECTION CHART — OHM

1	5	50	200	750	2.5K
2	10	75	250	1.0K	5.0K
3	15	100	300	1.25K	10K
4	25	150	500	1.5K	100K

POWER RESISTORS - ADJUSTABLE



SERIES VP-VK ADJUSTABLE

Vitreous Enamel/Greenohm V™. Tolerance, ±10% Wirewound power resistors meet highest quality specifications. Teal green enamel finish withstands over-heating without peeling or cracking. Designed for utmost reliability and stability under adverse conditions.

VP-10-FA. 12 WATT, CORE 1¾"-½"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F196	1-1.0K	1.19	1.10	.93	.83
	1.5K-5.0K	1.28	1.14	1.00	.85
	10K	1.40	1.28	1.08	.93

VP-25-KA 25 WATT CORE 2"-¾"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F197	1-1.0K	1.35	1.22	1.02	.87
	1.5K-5.0K	1.40	1.25	1.04	.91
	10K	1.58	1.38	1.16	1.00
	25K	1.83	1.64	1.37	1.16

VP-50KA 50 WATT CORE 4"-¾"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F198	1-1.0K	2.05	1.81	1.50	1.29
	1.5K-5.0K	2.08	1.86	1.53	1.31
	10K	2.40	2.14	1.77	1.50
	50K	2.99	2.65	2.17	1.83

VK-100-NA 100 WATT CORE 6½"-29/32"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F199	1-2	5.74	4.86	4.36	3.73
	5-10	5.28	4.48	4.01	3.43
	15-1.5K	4.99	4.19	3.73	3.20

VK-200-WA 225 WATT CORE 10½"-1 3/16"

Stk. No.	Ohms	1-9	10-24	25-99	100-249
21F200	1-5	10.82	9.26	7.94	6.80
	10	8.42	7.14	6.38	5.47
	25-5.0K	7.95	6.74	6.03	5.18

RESISTANCE SELECTION CHART — OHM

1	4	10	25	100	500	2.5K
2	5	15	50	150	1K	5K
						10K
3	7.5	20	75	250	1.5K	*25K

* Not available in VP10FA.

VC3D 1Ω TO 10K—3 WATTS

Stock No.	Range Ohms	1-9	10-24	25-99	100-249
12F480	1.0-100	.72	.62	.50	.40
	101-2.5K	.65	.57	.45	.36
	2501-5.5K	.75	.64	.52	.42
	5501-7.5K	.80	.69	.55	.45
	7501-10K	.94	.81	.65	.53

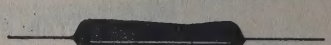
VC5E 1Ω TO 25K—5 WATTS

12F481	1.0-1K	.72	.62	.48	.40
	1001-5K	.75	.64	.52	.42
	5001-10K	.80	.69	.55	.45
	10001-15K	.92	.75	.58	.48
	15001-20K	.97	.84	.67	.55
	20001-25K	1.29	1.10	.88	.73

VC10F 1Ω TO 50K—10 WATTS

12F482	1.0-1K	.77	.67	.53	.44
	1001-5K	.85	.75	.58	.48
	5001-10K	.94	.81	.65	.53
	10001-20K	1.05	.92	.75	.61
	20001-40K	1.20	1.06	.84	.68
	40001-50K	1.42	1.22	.98	.70

AXIAL LEAD RESISTORS



- **Tolerance of ±5%**

Save space through elimination of mounting brackets and terminal lugs. Max. body length: VC3D: 9/16"; VC5E: 1 3/32"; VC10F: 1 15/16". Lead length 1½". Color tealgreen.

OHM CHART

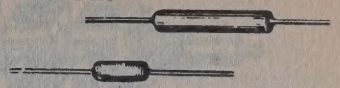
1	30	180	600	2K	6.8K	18K
1.5	33	200	680	2.2K	7K	20K
2	35	220	700	2.25K		22K
3	39		750	2.5K	8K	
4	40	250		2.7K	8.2K	25K
5	47	270	820	3K		
7.5	50	300		3.3K		
10	56	330	1K		10K	33K
12	68	350		3.9K		
15	75	390	1.2K	4K		
18	82	400	1.25K	4.5K	12.5K	40K
20	100	450		4.7K		
22	120	470	1.5K	5K	15K	47K
25	125	500		5.6K		50K
27	150	560	1.8K	6K		

Wirewound Axial Lead Resistors and Network

SPRAGUE
THE MARK OF RELIABILITY
a GK Technologies subsidiary

SPRAGUE AXIAL-LEAD "BLUE JACKET" POWER WIRE WOUND RESISTORS

Designed for industrial applications demanding utmost stability under extreme operating conditions. Well suited for printed circuits, terminal boards, and point-to-point wiring applications. Unique all-welded end-cap construction. Power rating is based on a max. temperature rise of 300°C above a 40° ambient at full rated wattage. Will meet performance characteristics of MIL-R-26C. Available only in values shown.



TYPE 242E—3 WATT ±5% TOLERANCE
Size: 13/64" dia. x 17/32"L.

Stk. No.	Range (ohms)	5-45	50-95	100-245	250-495
13F121	1 thru 7.5	1.11	.93	.73	.58
13F121	10 thru 1000 except 35, 350 450 and 750	.93	.77	.61	.48
13F122	1100 thru 5000 except 3.5K & 4.5K	1.04	.87	.68	.54
13F123	5600 thru 10K except 7K	1.19	.99	.78	.62

TYPE 243E—5 WATT ±5% TOLERANCE
Size: 13/64" dia. x 15/16" L.

Stk. No.	Range (ohms)	5-45	50-95	100-245	250-495
13F124	1 thru 7.5	1.15	.96	.75	.60
13F124	10 thru 1000 except 18 22, 27, 33, 39, 47, 56, 68, 82, 180, 270, 330, 390, 470, 560, 680, 820	.97	.80	.63	.50
13F126	1100 thru 5000 except 2700, 3300, 3900, 4700	1.15	.96	.75	.60
13F127	6000 thru 10K except 6800, 8200	1.30	1.08	.85	.68
13F128	12K thru 20K except 16K, 17K				

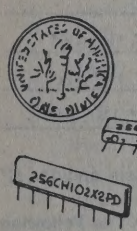
TYPE 247E—10 WATT ±5% TOLERANCE
Size: 5/16" dia. x 1¾" L.

Stk. No.	Range (above)	5-45	50-95	100-245	250-495
13F132	1 thru 7.5	1.52	1.27	1.00	.79
13F132	10 thru 1000 except 35, 350, 450 and 750	1.38	1.14	.90	.72
13F133	1100 thru 5000 except 3.5K and 4.5K	1.48	1.23	.97	.77
13F134	6000 thru 10K except 7K	1.56	1.30	1.02	.81
13F330	12K thru 20K	1.71	1.42	1.12	.89
13F331	22K thru 30K	1.97	1.63	1.29	1.02
13F332	40K	1.97	1.63	1.29	1.02

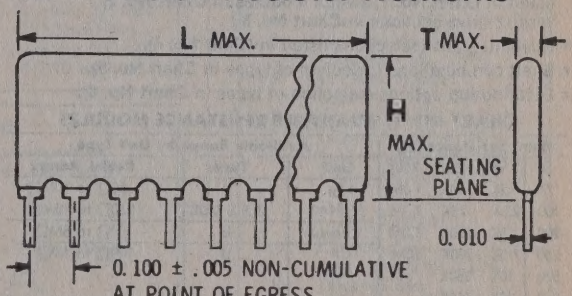
TABLE A—"BLUE JACKET" VALUES—OHMS

1	12	33	75	250	470	820	2000	4000	7500	15K	35K
1.5	15	35	82	270	500	900	2200	4500	8000	16K	40K
2	18	39	100	300	560	1000	2500	4700	8200	17K	45K
3	20	40	120	330	600	1100	2700	5000	9000	18K	50K
4	22	47	150	350	680	1200	3000	5600	10K	20K	
5	25	50	180	390	700	1400	3300	6000	11K	22K	
7.5	27	56	200	400	750	1500	3500	6800	12K	25K	
10	30	68	220	450	800	1800	3900	7000	14K	30K	

Type 256C Single In-Line Resin-Coated Precision Resistor Networks



- Made to high standards. Type 256C are low profile units.
- Ideal for use in signal and data processing applications where repetitive values and patters are required.
- For use where circuit configuration, size, power requirements, and assembly costs are important.
- Cut component count, reduce board space requirements. Reduce equipment size.
- Designed for individual terminating, dual terminating, pull-up/pull down, and interface.
- For complete technical data, refer to latest issue of Engineering Bulletin 7041.



DIMENSIONS (in inches)*

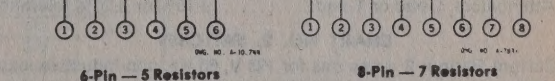
Type	H	T	Length (L) For Size Code F 6-Pins	H 8-Pins	K 10-Pins
256C	.25	.10	.60	.80	1.05

SELECTION GUIDELINE

For .200" maximum package height, use Series 420C. If power requirement is .15 watts/resistor or less, use: Series 420C for lowest package height. Series 256C for lowest cost. If power requirement is more than .15 watts/resistor, use Series 216C. PERFORMANCE CHARACTERISTICS: Operating Temperature Range: −55°C to +125°C. Package Power Rating: (At +25°C) Type 256C (216C) 6-Pin units, .90W (1.70W); 8-Pin, 1.25W (2.8W); 10-Pin, 1.5W (3.0W). Resistance Tolerance: ±2%. TCR Tracking: ±50 ppm/°C. Temperature Coefficient of Resistance: ±200 ppm/°C. Overload Test: A d-c potential of 2.5 times the rated continuous working voltage, but not to exceed 100 volts, shall be applied to each resistor in the network for 5±1 seconds at 25°C. After test, there shall be no evidence of mechanical failure and the resistance value shall not change by more than 0.5%. Load-Life Test: Networks shall be operated for 1000 hours with rated voltage applied in continuous cycles of 1.5 hours On and 0.5 hours Off, at +70°C. After test, there shall be no mechanical damage and resistance value shall not have changed by more than ±1%.

Stock No.	Type	1-9	10-49	50-99	100-249
81F4887	256CH—X2SR	1.38	.92	.46	4.2
81F4888	256CH X2PD	1.38	.92	.46	.42
81F4889	256CF—X2PD	1.32	.88	.44	.40
81F4890	256CF—X2SR	1.32	.88	.44	.44

CIRCUIT PD—PULL UP, PULL DOWN & INTERFACE

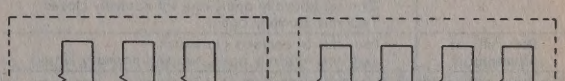


6-Pin — 5 Resistors **8-Pin — 7 Resistors**

Standard Resistance Values, Series SR

33	120	270	680	3,300	15,000
47	150	330	1,000	4,700	22,000
50	180	390	1,500	6,800	33,000
56	220	470	2,200	10,000	47,000
68					68,000
100					100,000

CIRCUIT SR MULTIPLE-ISOLATED RESISTORS



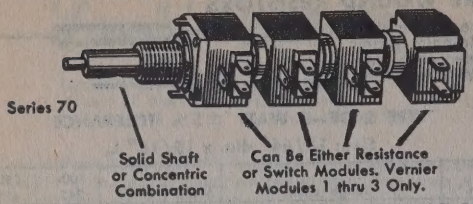
6-Pin — 3 Resistors **8-Pin — 4 Resistors**

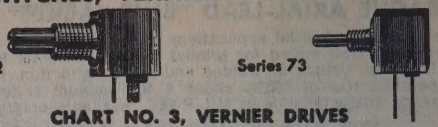
Standard Resistance Values, Series PD

33	120	470	1,200	3,300	12,000	47,000
47	150	500	1,500	3,900	15,000	56,000
50	180	510	1,800	4,700	18,000	68,000
56	220	560	2,000	5,600	22,000	82,000
68	270	680	2,200	6,000	27,000	100,000
82	330	820	2,700	6,800	33,000	
100	390	1,000	3,000	10,000	39,000	

Allen-Bradley Mod Pot®

SERIES 70, 72, and 73 POTENTIOMETERS, SWITCHES, VERNIER DRIVE CONTROLS


Series 70
Solid Shaft or Concentric Combination
Can Be Either Resistance or Switch Modules. Vernier Modules 1 thru 3 Only.



Now you can obtain rapid delivery or make A-B MOD POT potentiometers, switches and vernier drive controls. Available in single, dual, triple or four section controls. The controls can be put together in almost any order. We can quickly supply you with special quantities or just an initial quote from our A-B specialist.

5

Power Rating

Composition	Single Section	Multi-Section
†*Carbon	1 Watt	½ Watt/Section
††**Cermet	2 Watts	1 Watt/Section
†††***Cond. plstc.	.5 Watts	.25 Watts/Section

* Series 72 rated .5 watt on single or dual.
† Series 73 rated .75 watt on single, .5 watt on dual
** Series 72 rated 1 watt on single, 5 watt on dual
†† Series 73 rated 2 watt on single, 1 watt on dual
*** Series 72 rated .25 watt on single or dual.
††† Series 73 rated .5 watt on single, .25 watt on dual.

To Order a Custom MOD POT Control, Submit the Following Information:

- Number and type of sections required (resistance modules listed in **Chart No. 1**, switch modules in **Chart No. 2**, vernier drive sections in **Chart No. 3.**)
- Bushing types (selections listed in **Chart No. 4**).
- Shaft combinations (selection of types in **Chart No. 5**).
- Locating lug options (selection of types in **Chart No. 6**).

CHART NO. 1, AVAILABLE RESISTANCE MODULES

Nom. Resistance (Ω)				Available Range by Unit Type		
50	1K	25K	750K	**Unit**	**Taper**	**Resist. Range**
75	2K	50K	1.0M	Hot-Molded	U	50Ω to 10MΩ
100	2.5K	75K	2.5M		A,B,S & DB	250Ω to 10MΩ
200	5K	100K	5.0M	Cermet	U	100Ω to 5MΩ
250	7.5K	200K	10M	CP	U	100Ω to 1MΩ
500	10K	250K	..			
750	20K	500K	..			

To Order Resistance Modules, Specify The Following For Each:

- Nominal resistance value in ohms, **from Chart No. 1.**
- Cermet, carbon composition or conductive plastic.
- Tol.: Carbon composition, 10% or 20%; Conductive plastic, 10% or 20%; Cermet, 10%.
- Solder lug or square terminals.
- Type of taper: Linear taper. Other tapers available in values of 250 ohms thru 10.0 megohms, carbon composition only, as follows:

Clockwise and counterclockwise
modified logarithmic taper.....±10% or ±20% tolerance
Clockwise exact logarithmic taper.....±10% or ±20% tolerance
Modified linear taper.....±10% or ±20% tolerance
Attenuators, L-pad or T-pad.....±15% or ±20% tolerance

CHART NO. 2, SWITCHES

Current Rating: 2 amps rms for 125 V, 60 Hz, non-inductive load.

Switch Type	Contact Arrangement
Rotary	Two sets of contacts per switch*— One set normally open, one set normally closed. Two sets normally open.
Push-Pull† or Momentary†	Four sets of contacts per switch— Two sets normally open, two sets normally closed.

*Switches are described in the detent position.
(†) Not available on Series 72.

To Order Switches, Specify The Following For Each:

- Type of Switch
- Contact Arrangement
- Location of detent required if rotary switch is ordered—either clockwise or counterclockwise end of rotation.

CHART NO. 3, VERNIER DRIVES

Drive	Type of Shaft and Shaft Combination
4-Turn	Fine adjust shaft only.
16-Turn	Fine and coarse adjust shaft.
Vernier	Fine and coarse adjust shaft.

- To Order Vernier Drive Control, Specify Type of Shaft Or Shaft Combination Required. See Chart No. 5.

CHART NO. 4, MOUNTING BUSHINGS

BUSHING TYPE	DIAMETER	LENGTH		
		¼"	⅜"	½"
PLAIN	¼"	PA	PC	..
LOCKING†	¼"	..	LC	LH
PLAIN	⅜"	PG†	PK	PN†
LOCKING†	⅜"	..	BK	BN

† Not available on Series 72. Series 72 bushing is all plastic. Series 73 bushing is a metal insert on plastic faceplate.

To Order Mounting Bushings, Specify Type, Diameter and Length by Choosing Two Letters Listed Under Length Columns, e.g., PA = Plain Mounting Bushing, ¼" dia. x ¼" lg.

CHART NO. 5, SHAFT COMBINATIONS AND LENGTHS

Shaft Operating Combinations	Lengths*
**⅛" Dia. Solid	†5/16", ⅜", 7/16", ½", ⅝", ¾", ⅞"
**¼" Dia. Solid	†⅜", ½", ⅝", ¾", ⅞", 1", †1⅛", 1½", 2"
†¼" Dia. Outer Concentric †⅛" Dia. Inner Concentric	¾", ⅞", 1" 1", 1⅛", 1¼", 1⅜", 1½"
†⅛" Dia. Outer Concentric †.078" Dia. Inner Concentric	¾", ⅞", 1" 1", 1⅛", 1¼", 1⅜", 1½"
†¼" Dia. Outer Concentric †.078" Dia. Inner Concentric	¾", ⅞", 1" 1", 1⅛", 1¼", 1⅜", 1½"

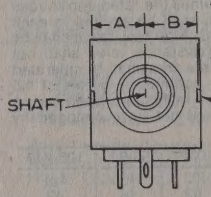
*Lengths are measured from the bushing mounting surface.
† Not available on Series 72
** On Series 72, shaft is plastic. ⅛" dia. have plain ending. ¼" dia. have slotted ending.

To Order Shaft Combination and Length, Specify The Following Information.

- Shaft combination desired
- For dual shaft combinations, specify which sections are to be operated by each shaft.
- Shaft lengths.

Shaft endings. Standard plain round, screw driver slot and flatted shaft endings available on ¼" and ⅛" dia. shafts. .078" dia. shafts available with only plain round endings.

CHART NO. 6 LOCATING LUGS



Dimension A or B, or both, specify distance from shaft center to lug center

Locating Lug Option No. or Letter	A	B
4	No lug	No lug
1	.305"	No Lug
*3	.375"	No Lug
*6	.437"	No Lug
*8	.531"	No Lug
*2	.305"	.305"
*5	.375"	.375"
*7	.437"	.437"
*9	.531"	.531"
A	No Lug	.305"
*B	No Lug	.375"
*C	No Lug	.437"
*D	No Lug	.531"

To Order Locating Lugs, Specify Lug Option No. or Letter.
* Not available on Series 72 or Series 73.

All controls include standard A-B mounting hardware and markings. Extra hardware is available on request. Special markings can be provided on each control, if desired. For additional information, request Allen-Bradley Publication EC 5670-2.1 and Mod Pot Order Form 898.

Because of the wide range of standard combinations available, pricing is quoted on an individual specification basis.

Mod Pot® Variable Resistors

EXPLANATION OF TYPE NUMBERS

Locating Lug Option

1	6	A
2	7	B
3	8	C
4	9	D
5		

Shaft Type and Bushing Diameter

Code Letter	Shaft Type: Diameter Inch	Shaft Type: Diameter Millimeters	Shaft Type: Ending	Bushing Diameter Inch	Bushing Diameter Millimeters
S	250	(6.35)	Standard Slot	.375	(9.52)
P	250	(6.35)	Plain Round	.375	(9.52)
F	250	(6.35)	Standard Flat	.375	(9.52)
L	125	(3.18)	Standard Slot	250	(6.35)
R	125	(3.18)	Plain Round	250	(6.35)
K	125	(3.18)	Standard Flat	250	(6.35)
X	250	(6.35)	Cross Slot	–	–

Total Resistance Value

First two digits are significant figures and the third indicates the number of zeros following the first two digits –

Examples: 500 50 Ohms
501 500 Ohms
255 2.5 Megohms

Basic Type MOD POT®

Series 70
Series 72
Series 73

70A1G056L501U

Taper Type and Total Resistance Tolerance

CERMET

W – Linear (U), ±10%

HOT MOLDED OR CONDUCTIVE PLASTIC

U – Linear (U), ±10%
M – Linear (U), ±20%
A – Clockwise Modified Logarithmic (A), ±10%
R – Clockwise Modified Logarithmic (A), ±20%
B – Counterclockwise Modified Logarithmic (B), ±10%
T – Counterclockwise Modified Logarithmic (B), ±20%

HOT MOLDED

D – Clockwise Exact Logarithmic (DB), ±10%
K – Clockwise Exact Logarithmic (DB), ±20%
S – Modified Linear (S), ±10%
Y – Modified Linear (S), ±20%
C – Linear (U), ±10% with 50% (center) Tap
F – Linear (U), ±20% with 50% (center) Tap

Bushing Type and Length

F – Face Plate
G – Plain .250 Inch (6.35 mm) long
N – Plain .375 Inch (9.52 mm) long
H – Plain .500 inch (12.70 mm) long
M – Locking .375 inch (9.52 mm) long
L – Locking .500 inch (12.70 mm) long

Configuration Lug Terminals

A – Single (Hot Molded)
B – Single (Cermet)
J – Single (Conductive Plastic)
C – Dual (Hot Molded) [1]
D – Dual (Cermet) [1]
T – Dual (Conductive Plastic) [1]
E – Triple (Hot Molded) [1]
F – Triple (Cermet) [1]
G – Quad (Hot Molded) [1]
H – Quad (Cermet) [1]
K – Single (Hot Molded) with Switch 1001
L – Single (Cermet) with Switch 1001

Square Terminals

M – Single (Hot Molded)
N – Single (Cermet)
U – Single (Conductive Plastic)
P – Dual (Hot Molded) [1]
R – Dual (Cermet) [1]
W – Dual (Conductive Plastic) [1]

[1] If the electrical specifications are not identical for each section, a special number will be assigned.

Shaft Length

Measured from mounting surface of the potentiometer in inches and sixty-fourths.

Use a three digit code

Examples:

7/8" shaft length: 056 (inches: 0; sixty-fourths: 56/64 7/8")

1-1/4 shaft length: 116 (one inch; 16/64 or 1/4 inch)

Some Common Shaft Lengths

Inches: Fraction	Inches: Decimal	Three Digit Part Number Code
1/4	.250	016
3/8	.375	024
7/16	.437	028
1/2	.500	032
5/8	.625	040
3/4	.750	048
7/8	.875	056
1	1.000	100
1-1/8	1.125	108
1-1/4	1.250	116
1-1/2	1.500	132
2	2.000	200

NOTE 1: The above part number format allows for the development of some part numbers which cannot be manufactured. Check parameter limits in preceding text.

NOTE 2: The above part number structure **does not** allow for the following "Mod Pot" configurations:

- Assemblies with resistance modules of different resistance values.
- Assemblies containing a vernier drive.
- Assemblies containing a switch (except for the 1001 type switch).
- Assemblies with concentric shaft arrangements.

To order any of these configurations, a special part number must be assigned through the factory. An Allen-Bradley #898 order form is recommended to insure all necessary specification information is obtained. Consult your Newark salesperson for forms and ordering details.

Allen-Bradley Trimmers

TYPE S-SINGLE TURN CERMET TRIMMERS—½ WATT

TYPE SH
¼ WATT

TYPE SV

Code Letter	Price Code 1-9	10-24	25-49	50-99
A	4.95	3.63	2.64	2.31
B	4.28	2.96	2.11	1.99

Type S. For applications where severe environmental conditions exist. Have pin terminals for mounting on 0.1" grid circuit boards. Resistance Range: 50 ohm to 1 Megohm. Voltage: 300 V. Moisture Resist: less than 2% total resistance change. Temp. Coeff: less than 100ppm/°C. LLoad Life: less than 3% change in total resistance. Enclosure: immersion sealed. Marking: AB part number and nominal resistance value.

	Type S
TEMP RANGE	−65°C to +150°C
POWER	½ Watt @ 85°C
DERATE TO	0 Watt @ 150°C
ROTATION	280° ± 10°

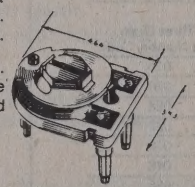
10% TOLERANCE

Stk. No.	Type	Ohms	Price	Stk. No.	Type	Ohms	Price
10F870	SV5001	50	B	**10F840**	SH5001	50	A
10F871	SV7501	75	B	**10F841**	SH7501	75	A
10F872	SV1011	100	B	**10F842**	SH1011	100	A
10F873	SV2011	200	B	**10F843**	SH2011	200	A
10F874	SV2511	250	B	**10F844**	SH2511	250	A
10F875	SV5011	500	B	**10F845**	SH5011	500	A
10F876	SV7511	750	B	**10F846**	SH7511	750	A
10F877	SV1021	1.0K	B	**10F847**	SH1021	1.0K	A
10F878	SV2021	2.0K	B	**10F848**	SH2021	2.0K	A
10F879	SV2521	2.5K	B	**10F849**	SH2521	2.5K	A
10F880	SV5021	5.0K	B	**10F850**	SH5021	5.0K	A
10F881	SV7521	7.5K	B	**10F851**	SH7521	7.5K	A
10F882	SV1031	10K	B	**10F852**	SH1031	10K	A
10F883	SV2031	20K	B	**10F853**	SH2031	20K	A
10F884	SV2531	25K	B	**10F854**	SH2531	25K	A
10F885	SV5031	50K	B	**10F855**	SH5031	50K	A
10F886	SV7531	75K	B	**10F856**	SH7531	75K	A
10F887	SV1041	100K	B	**10F857**	SH1041	100K	A
10F888	SV2041	200K	B	**10F858**	SH2041	200K	A
10F889	SV2541	250K	B	**10F859**	SH2541	250K	A
10F890	SV5041	500K	B	**10F860**	SH5041	500K	A
10F891	SV7541	750K	B	**10F861**	SH7541	750K	A
10F892	SV1051	1.0M	B	**10F862**	SH1051	1.0M	A

SERIES 90 SINGLE-TURN TRIMMERS

Standard "U" linear taper single-turn pot. 20% tot. res. tol. Power: 0.5 watts max. at 70°C provided volt. rating is not exceeded. Voltage: 200 volts max. working voltage.

Explanation of **Type** numbers: Horiz. mtg. top adjust. is indicated by an 'H' in the number. Vert. mtg. side adj. is indicated by a 'V' in the number.



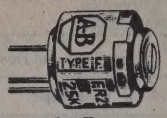
PRICES

Type	1-49	50-99	100-249	250-499
90	.96	.90	.81	.76

Ohms	Stock No.	Horiz. Mtg.	Stock No.	Vert. Mtg.
100	**10F4586**	90H1012	**10F4600**	90V1012
200	**10F4587**	90H2012	**10F4601**	90V2012
500	**10F4588**	90H5012	**10F4602**	90V5012
1K	**10F4589**	90H1022	**10F4603**	90V1022
2K	**10F4590**	90H2022	**10F4604**	90V2022
5K	**10F4591**	90H5022	**10F4605**	90V5022
10K	**10F4592**	90H1032	**10F4606**	90V1032
20K	**10F4593**	90H2032	**10F4607**	90V2032
50K	**10F4594**	90H5032	**10F4608**	90V5032
100K	**10F4595**	90H1042	**10F4609**	90V1042
200K	**10F4596**	90H2042	**10F4610**	90V2042
500K	**10F4597**	90H5042	**10F4611**	90V5042
1M	**10F4598**	90H1052	**10F4612**	90V1052
2M	**10F4599**	90H2052	**10F4613**	90V2052

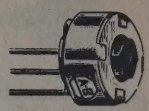
D2E and D4F Series are available on special order. Minimum order 25 pieces per value. Sold only in multiples of 25.

TYPE F AND Y SINGLE TURN TRIMMERS—¼ WATT



Type FR

Type YC



Type YR

½ WATT

- Type FR for demanding rheostat or potentiometer applications.
- Type YR and YC for trimmer appl. Low profile.
- Type YR has pin type term. Type YC, slotted and notched actuator.

Type FR. Hot molded carbon composition single turn trimmers. Designed for demanding rheostat or potentiometer applications in electronic equipment. Small ½" dia. size make them ideal for subminiature assemblies and PC applications. Pin type terminals fit 0.1 printed wiring board standard layout. Enclosure: immersion sealed. Pin type terminals and plastic slotted actuator. Shpg. wt. 4 oz.

Type YR and YC. Hot molded carbon composition single turn adjustable resistor for trimmer application. The low profile design fits into commonly used ⅜" PC board stacking. Enclosure: dust and splash resistant.

Type YR pin-type terminals. Type YC—slotted and notched actuator. Shpg. wt. 4 oz.

	TYPE "FR"	TYPE "YR" AND "YC"
Temp. Range	−55°C to +120°C	−55°C to +100°C
Power Rating	¼ Watt @ 70°C	¼ Watt @ 50°C
Derate to O Watt	@ 120°C	@ 100°C
Rotation	295° ± 5°	
Resistance Range	100 ohms to 5 megohms	
Voltage	350 max.	
Shock/Vibration	Less than 3% in total resistance	
Load Life	10% max. change after 1000 hrs. operation	
Torque	¼ to 3 in. oz.	
Marking	A-B part # and nom. resistance value	

PRICE CODE

Code Letter	1-9	10-24	25-49	50-99
A	4.95	3.63	2.64	2.31
B	4.28	2.96	2.11	1.99
C	4.90	3.43	2.71	2.55
D				
E	4.54	3.07	2.34	2.19
F	4.24	2.77	2.05	1.91
G	4.75	3.27	2.54	2.39
H	4.47	2.98	2.24	2.08

10% TOLERANCE **20% TOLERANCE**

Stk. No.	Type FR	Ohms	Price	Stk. No.	Type FR	Ohms	Price
10F1045	101U	100	G	**10F1065**	101M	100	H
10F1046	201U	200	G	**10F1066**	201M	200	H
10F1047	251U	250	G	**10F1067**	251M	250	H
10F1048	501U	500	G	**10F1068**	501M	500	H
10F1049	102U	1.0K	G	**10F1069**	102M	1.0K	H
10F1050	202U	2.0K	G	**10F1070**	202M	2.0K	H
10F1051	252U	2.5K	G	**10F1071**	252M	2.5K	H
10F1052	502U	5.0K	G	**10F1072**	502M	5.0K	H
10F1053	103U	10K	G	**10F1073**	103M	10K	H
10F1054	203U	20K	G	**10F1074**	203M	20K	H
10F1055	253U	25K	G	**10F1075**	253M	25K	H
10F1056	503U	50K	G	**10F1076**	503M	50K	H
10F1057	104U	100K	G	**10F1077**	104M	100K	H
10F1058	204U	200K	G	**10F1078**	204M	200K	H
10F1059	254U	250K	G	**10F1079**	254M	250K	H
10F1060	504U	500K	G	**10F1080**	504M	500K	H
10F1061	105U	1.0M	G	**10F1081**	105M	1.0M	H
10F1062	205U	2.0M	G	**10F1082**	205M	2.0M	H
10F1063	255U	2.5M	G	**10F1083**	255M	2.5M	H
10F1064	505U	5.0M	G	**10F1084**	505M	5.0M	H

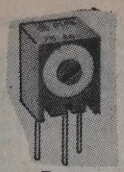
10% TOLERANCE **10% TOLERANCE**

Stk. No.	Type YC	Ohms	Price	Stk. No.	Type YR	Ohms	Price
10F750	101U	100	C	**10F795**	101U	100	E
10F751	201U	200	C	**10F796**	201U	200	E
10F752	251U	250	C	**10F797**	251U	250	E
10F753	501U	500	C	**10F798**	501U	500	E
10F754	102U	1.0K	C	**10F799**	102U	1.0K	E
10F755	202U	2.0K	C	**10F800**	202U	2.0K	E
10F756	252U	2.5K	C	**10F801**	252U	2.5K	E
10F757	502U	5.0K	C	**10F802**	502U	5.0K	E
10F758	103U	10K	C	**10F803**	103U	10K	E
10F759	203U	20K	C	**10F804**	203U	20K	E
10F760	253U	25K	C	**10F805**	253U	25K	E
10F761	503U	50K	C	**10F806**	503U	50K	E
10F762	104U	100K	C	**10F807**	104U	100K	E
10F763	204U	200K	C	**10F808**	204U	200K	E
10F764	254U	250K	C	**10F809**	254U	250K	E
10F765	504U	500K	C	**10F810**	504U	500K	E
10F766	105U	1.0M	C	**10F811**	105U	1.0M	E
10F767	205U	2.0M	C	**10F812**	205U	2.0M	E
10F768	255U	2.5M	C	**10F813**	255U	2.5M	E
10F769	505U	5.0M	C	**10F814**	505U	5.0M	E

Cermet Single and Multiturn Trimmers

Cermat Type 81 1/2 watt

- Cermet Single Turn
- 0.5 Watt @ 70°C
- Top or side adjust
- Immersion Sealed



Type AE

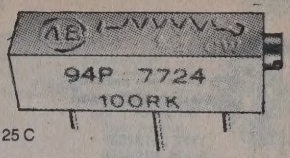
Type E

Industrial type Cermet single turn trimmer meets MIL-R-22097. T.C.; 10,20 OHMS: 0 to + 150PPM/°C; 50 OHMS up, ± 100 PPM/°C. Positive sealing—Board washing and potting 20W viscosity material. Oper. temp. —55°C + 125°C. Contact Res. 3% or 30 OHMS. Rotation; 270° ± 30° Size (AE) .39"H x .3"W x .27"L; (E) .025" Dia. x .25"H Dia. Space; .10 in. Grid ± .010 in: Pin dia.; .024 in nominal. Tol. ± 10%*, ± 20%.

Part No.	1-49	50-99	100-499	500-999	1000-2499	2500-4999	5000 & up
81E	2.40	1.68	1.40	1.26	1.14	1.08	1.05
8AE	3.58	2.47	2.04	1.85	1.70	1.61	1.56

Stock No.	Type E	OHMS	Stock No.	Type AE	OHMS
81F034	81E500	50	81F035	81AE101	100
	81E101	100		81AE201	200
	81E201	200		81AE501	500
	81E501	500		81AE102	1K
	81E102	1K		81AE202	2K
	81E202	2K		81AE502	5K
	81E502	5K		81AE103	10K
	81E103	10K		81AE503	50K
	81E203	20K			
	81E503	50K			
	81E104	100K			
	81E105	1 meg.			

Cermet Type 94
1/2 watt-20 turn



- Cermet multi-turn
- 0.5 watt @ 70 C or .75 Watt @ 25 C
- Solid Phase Bonded Term.

Industrial 20 turn trimmer. Meets Mil-R-22097 T.C.;10,20 Ohms; ± 150 PPM/C;50 ohms up; ± 100 PP/C. Operating temperature—55 + 125 C. Contact res. 3% ohms. Size: (P.).2"Wx25"Hx.76" L.; (PS) .350" H. Pin space: .10" grod ± .010 in. Pin diameter. .024 in. nominal. Total ± .024 in. nominal, total ± 10%*, ±20%.

Part No.	1-49	50-99	100-499	500-999	1000 2499	2500 4999	5000 & up
94P	1.60	1.11	0.92	0.83	0.76	0.72	0.70
949S	2.35	1.65	1.37	1.24	1.11	1.06	1.03

Stock No.	Type P	OHMS	Stock No.	Type PS	OHMS
81F036	94P500	50	81F037	94PS102	1K
	94P101	100		94PS502	5K
	94P201	200		94PS103	10K
	94P501	500		94PS104	100K
	94P102	1K			
	94P202	2K			
	94P502	5K			
	94P103	10K			
	94P203	20K			
	94P503	50K			
	94P104	100K			
	94P204	200K			
	94P504	500K			
	94P105	1 meg.			
	94P205	2 meg.			

TYPES N AND R COMPOSITION MULTI-TURN TRIMMERS

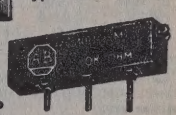
CHARACTERISTIC	TYPE "R"	TYPE "N"
TEMP. RANGE	−55°C to +125°	−55°C to +100°C
POWER RATING	¼ watt @ 70°C	⅓ watt @ 50°C
TOLERANCE	±10% only	±10% or ±20%
DERATE TO 0 WATT	@ 125°C	@ 100°C
VIBRATION	2% change in tot. res.	3% change in tot. res.
SHOCK	2% change in tot. res.	—Not tested—

TAPER	Standard "U" linear taper
ROTATION-MECH.	25 ±3 turns-5% max. res. change/500 cycles
TORQUE	0.10 to 8 in. oz. +25°C
RESISTANCE RANGE	100 ohms to 2.5 megohms
VOLTAGE	300 volts max. working voltage (RMS or DC)
MOISTURE RESISTANCE	Less than 10% temporary change
LOAD LIFE	Less than 10% change in tot. res. after 1000 hrs.
ENCLOSURE	Immersion sealed

¼ watt—25 turn

Type RP

Type RS



Type NP

- Style "RS" with lug terminals (Many available as style "RJII" of MIL-R-22097)
- Style "RP" with pin terminals
- Style "NP" industrial grade (Pin terminals only)

Hot-molded composition, continuously adjustable 25-turn variable resistors intended primarily for trimmer applications. Immersion sealed enclosure. Corrosion resistant, non-magnetic materials. Sealed; molded, insulating enclosures with "O" ring equipped adjustment screw.
Type "RS." MIL approved. Pin or lug terminals spaced on 0.1" grid system for PC boards. Type RJ11. Mil-R-22097. Marked with MIL designation and circuit diagrams if applicable. Type "N". Performance similar to Type RP except industrial grade.

TYPE R

10% TOLERANCE					**10% TOLERANCE**			
Stk. No.	Type	MIL-R 22097 RJ11AS	Ohms	Pr.	Stk. No.	Type	Ohms	Pr.
10F1135	RS101U	101	100	A	10F1090	RP101U	100	A
10F1136	RS201U	201	200	A	10F1091	RP201U	200	A
10F1137	RS251U	. . .	250	A	10F1092	RP251U	250	A
10F1138	RS501U	501	500	A	10F1093	RP501U	500	A
10F1139	RS102U	102	1.0K	A	10F1094	RP102U	1.0K	A
10F1140	RS202U	202	2.0K	A	10F1095	RP202U	2.0K	A
10F1141	RS252U	. . .	2.5K	A	10F1096	RP252U	2.5K	A
10F1142	RS502U	502	5.0K	A	10F1097	RP502U	5.0K	A
10F1143	RS103U	103	10K	A	10F1098	RP103U	10K	A
10F1144	RS203U	203	20K	A	10F1099	RP203U	20K	A
10F1145	RS253U	253	25K	A	10F1100	RP253U	25K	A
10F1146	RS503U	503	50K	A	10F1101	RP503U	50K	A
10F1147	RS104U	104	100K	A	10F1102	RP104U	100K	A
10F1148	RS204U	. . .	200K	A	10F1103	RP204U	200K	A
10F1149	RS254U	254	250K	A	10F1104	RP254U	250K	A
10F1150	RS504U	504	500K	A	10F1105	RP504U	500K	A
10F1151	RS105U	105	1.0M	A	10F1106	RP105U	1.0M	A
10F1152	RS205U	. . .	2.0M	A	10F1107	RP205U	2.0M	A
10F1153	RS255U	. . .	2.5M	A	10F1108	RP275U	2.5M	A

PRICE CODE

Code Letter	1-9	10-24	25-49	50-99
A	8.57	6.76	6.42	6.08
B	7.30	5.89	5.58	5.29
C	6.95	5.58	5.29	4.98

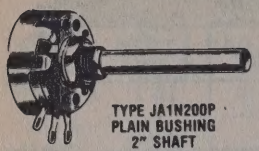
TYPE N

10% TOLERANCE					**20% TOLERANCE**			
Stk. No.	Type	Ohms	Pr.	Stk. No.	Type	Ohms	Pr.
10F1173	NP101U	100	B	10F1020	NP101M	100	C
10F1174	NP201U	200	B	10F1021	NP201M	200	C
10F1175	NP251U	250	B	10F1022	NP251M	250	C
10F1176	NP501U	500	B	10F1023	NP501M	500	C
10F1177	NP102U	1.0K	B	10F1024	NP102M	1.0K	C
10F1178	NP202U	2.0K	B	10F1025	NP202M	2.0K	C
10F1179	NP252U	2.5K	B	10F1026	NP252M	2.5K	C
10F1180	NP502U	5.0K	B	10F1027	NP502M	5.0K	C
10F1181	NP103U	10K	B	10F1028	NP103M	10K	C
10F1182	NP203U	20K	B	10F1029	NP203M	20K	C
10F1183	NP253U	25K	B	10F1030	NP253M	25K	C
10F1184	NP503U	50K	B	10F1031	NP503M	50K	C
10F1185	NP104U	100K	B	10F1032	NP104M	100K	C
10F1186	NP204U	200K	B	10F1033	NP204M	200K	C
10F1187	NP254U	250K	B	10F1034	NP254M	250K	C
10F1188	NP504U	500K	B	10F1035	NP504M	500K	C
10F1189	NP105U	1.0M	B	10F1036	NP105M	1.0M	C
10F1190	NP205U	2.0M	B	10F1037	NP205M	2.0M	C
10F1191	NP255U	2.5M	B	10F1038	NP255M	2.5M	C

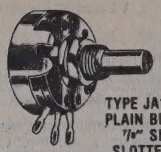
The Type N dimensions are similar to the RP except the Type N has no holes for stack mounting and N slot depth is .035" x .010-.005 instead of .031". Minimum order 10 pcs. Order in multiples of 10.

ALLEN-BRADLEY POTENTIOMETERS

TYPE J-STYLE RV4N VARIABLE POTENTIOMETERS



TYPE JA1N200P
PLAIN BUSHING
2" SHAFT
PLAIN END
2 WATT



TYPE JA1N0565
PLAIN BUSHING
⅜" SHAFT
SLOTTED END
2 WATT

TYPE "J". Hot-molded composition variable resistors for use as rheostats and potentiometers in military and industrial applications where superior performance is desired. Many available as Style RV4N of MIL-R-94. Corrosion resistant, nonmagnetic materials. Dust and splash resistant. Terminals treated for easy soldering. Linear Taper "U". Locating lug provided. Supplied with mounting nut M-2786 and internal tooth lock washer M-2898. Additional hardware and SPST switch also available. (See below).

TEMP. RANGE	−55°C to +120°C
POWER RATING	2.25 watt maximum @ +70°C
POWER DERATING	Linearly to 0 watt @ +120°C for linear taper Log taper: derate by .05.
RESISTANCE RANGE	Nominal values from 50 ohms to 5 megohms
VOLTAGE	500 V. max. working voltage (RMS or DC)
LOAD LIFE	Less than 10% change of total res. (1000 hrs)
ROTATIONAL LIFE	Less than 10% change (100,000 cycle life test)
MARKING	Type "J", A-B trade and part number, nom. res. value. Mil spec where applicable.

ADDITIONAL HARDWARE

Stk. No.	Type	Description	Price
10F1953	M-2786	Mounting Nut	.09
10F1954	M-2898	Lock Washer	.09
10F1955	B-13750	Hex Locking Nut	.35
10F1956	M-3236	Acorn Locking Nut	.87
10F1957	M-3318	Knurled Locking Nut	1.00
10F605	JS-1	SPST Switch*	Price code C

(*) SPST SWITCH. Single Pole, single throw snap switch available only for "turns on at start of clockwise rotation." 2 amperes, 125 volts RMS, 60 Hertz. Also rated 10 amperes, 10 volts DC, non-inductive. **Use with single section only.**

10% TOLERANCE-LINEAR TAPER

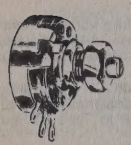
⅜" SHAFT Stk. No.	⅜" SHAFT Type JA1N0565	⅜" SHAFT Mil. No. RV4NAYSD	2" SHAFT Stk. No.	2" SHAFT Type JA1N200P	Ohms	Price
10F453	500UA	500A	10F506	500UA	50	A
10F454	101UA	101A	10F507	101UA	100	A
10F455	151UA	151A	10F508	151UA	150	A
10F456	201UA	201A	10F509	201UA	200	A
10F457	251UA	251A	10F510	251UA	250	A
10F458	351UA	351A	10F511	351UA	350	A
10F459	501UA	501A	10F512	501UA	500	A
10F460	751UA	751A	10F513	751UA	750	A
10F461	102UA	102A	10F514	102UA	1.0K	A
10F462	152UA	152A	10F515	152UA	1.5K	A
10F463	202UA	202A	10F516	202UA	2.0K	A
10F464	252UA	252A	10F517	252UA	2.5K	A
10F465	352UA	352A	10F518	352UA	3.5K	A
10F466	502UA	502A	10F519	502UA	5.0K	A
10F467	752UA	752A	10F520	752UA	7.5K	A
10F468	103UA	103A	10F521	103UA	10K	A
10F469	153UA	153A	10F522	153UA	15K	A
10F470	203UA	203A	10F523	203UA	20K	A
10F471	253UA	253A	10F524	253UA	25K	A
10F472	353UA	353A	10F525	353UA	35K	A
10F473	503UA	503A	10F526	503UA	50K	A
10F474	753UA	753A	10F527	753UA	75K	A
10F475	104UA	104A	10F528	104UA	100K	A
10F476	154UA	154A	10F529	154UA	150K	A
10F477	204UA	204A	10F530	204UA	200K	A
10F478	254UA	254A	10F531	254UA	250K	A
10F479	354UA	354A	10F532	354UA	350K	A
10F480	504UA	504A	10F533	504UA	500K	A

Above units are stocked in various values to 5 megohms. Call for values and prices.

10% TOLERANCE— LOG TAPER

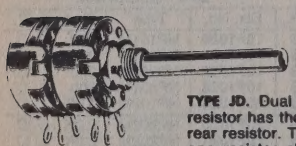
Stk. No.	JA1N200P CW	Stk. No.	JA1N200P CCW	Ohms	Price
10F554	501AA	10F567	501BA	500	A
10F555	102AA	10F568	102BA	1.0K	A
10F556	252AA	10F569	252BA	2.5K	A
10F557	502AA	10F570	502BA	5.0K	A
10F558	103AA	10F571	103BA	10K	A
10F559	253AA	10F572	253BA	25K	A
10F560	503AA	10F573	503BA	50K	A
10F561	104AA	10F574	104BA	100K	A
10F562	254AA	10F575	254BA	250K	A
10F563	504AA	10F576	504BA	500K	A

TYPE J-STYLE RV4L AND DUAL POTENTIOMETERS



TYPE JA1L0405
LOCKING BUSHING
¼" SLOTTED SHAFT
2 WATT

TYPE JA1L. Hot molded comp. pot. with locking bushing. Linear taper, low noise, infinite resolution. Includes one mtg. nut M-2786, one lock washer M-2898 and one lock nut B-13750. Shpg. Wt. 4 oz.



TYPE JD1N200P
DUAL POTENTIOMETER
2" PLAIN SHAFT
2 WATT

TYPE JD. Dual controls with linear tapers. Panel resistor has the same resistance and taper as the rear resistor. The permissible power dissipation in one resistor element is a function of the power dissipation of the other resistor element. Includes one mounting nut M-2786 and one lock washer M-2898. Max. torque for dual controls is 9 in. oz.; min. 1 in. oz. at 25°C.

DUAL LINEAR-10% TOLERANCE

Stk. No.	Type	Ohms	Price
10F585	JD1N200P500UA	50	BB
10F586	JD1N200P101UA	100	BB
10F587	JD1N200P251UA	250	BB
10F588	JD1N200P501UA	500	BB
10F589	JD1N200P102UA	1.0K	BB
10F590	JD1N200P252UA	2.5K	BB
10F591	JD1N200P502UA	5.0K	BB
10F592	JD1N200P103UA	10K	BB
10F593	JD1N200P253UA	25K	BB
10F594	JD1N200P503UA	50K	BB
10F595	JD1N200P104UA	100K	BB
10F596	JD1N200P254UA	250K	BB
10F597	JD1N200P504UA	500K	BB

LINEAR TAPER 10% TOLERANCE

Stk. No.	Type	Mil. No.	Ohms	Price
10F400	JA1L040S500UC	RV4LAYSA500A	50	AA
10F401	JA1L040S101UC	RV4LAYSA101A	100	AA
10F402	JA1L040S151UC	RV4LAYSA151A	150	AA
10F403	JA1L040S201UC	RV4LAYSA201A	200	AA
10F404	JA1L040S251UC	RV4LAYSA251A	250	AA
10F405	JA1L040S351UC	RV4LAYSA351A	350	AA
10F406	JA1L040S501UC	RV4LAYSA501A	500	AA
10F407	JA1L040S751UC	RV4LAYSA751A	750	AA
10F408	JA1L040S102UC	RV4LAYSA102A	1.0K	AA
10F409	JA1L040S152UC	RV4LAYSA152A	1.5K	AA
10F410	JA1L040S202UC	RV4LAYSA202A	2.0K	AA
10F411	JA1L040S252UC	RV4LAYSA252A	2.5K	AA
10F412	JA1L040S352UC	RV4LAYSA352A	3.5K	AA
10F413	JA1L040S502UC	RV4LAYSA502A	5.0K	AA
10F414	JA1L040S752UC	RV4LAYSA752A	7.5K	AA
10F415	JA1L040S103UC	RV4LAYSA103A	10K	AA
10F416	JA1L040S153UC	RV4LAYSA153A	15K	AA
10F417	JA1L040S203UC	RV4LAYSA203A	20K	AA
10F418	JA1L040S253UC	RV4LAYSA253A	25K	AA
10F419	JA1L040S353UC	RV4LAYSA353A	35K	AA
10F420	JA1L040S503UC	RV4LAYSA503A	50K	AA
10F421	JA1L040S753UC	RV4LAYSA753A	75K	AA
10F422	JA1L040S104UC	RV4LAYSA104A	100K	AA
10F423	JA1L040S154UC	RV4LAYSA154A	150K	AA
10F424	JA1L040S204UC	RV4LAYSA204A	200K	AA
10F425	JA1L040S254UC	RV4LAYSA254A	250K	AA
10F426	JA1L040S354UC	RV4LAYSA354A	350K	AA
10F427	JA1L040S504UC	RV4LAYSA504A	500K	AA

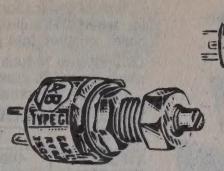
PRICE CODE

CODE LETTER	1-9	10-24	25-49	50-99
A	4.01	3.34	3.20	3.06
AA	4.97	4.11	3.82	3.57
BB	8.06	7.33	7.14	6.98
C	4.28	3.78	3.54	3.39

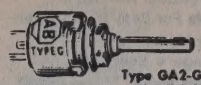
Carbon Variable Potentiometer
TYPES G, GD, W

TYPE G, GD and W. High quality hot molded carbon composition type. TYPE GW approved under MIL-R-94 style RV6. TYPE W similar to TYPE G but is industrial grade. TYPE GD is dual miniature type. Plain bushing resistors are supplied with one monting nut M-4721 and one lock washer M-4748. Shaft lock bushings furnished with one locknut M-4761, M-4721 and EM-4748. Shpq. wt. 4 oz.

Type G Type W	Type GD
Torque: .5 to 3 in. @ 25°C 13 in. oz. @ –55°C	0.5 to 4.5 in oz. @ 25°C 13 in. oz. @ –55°C
Temp. Range	–55°C to 120°C
Power Rating	½ watt 70°C
Derate to 0 Watt	@ 120°C
Rotation	295° ± 5°
Voltage	350 Volts maximum
Moisture Resis.	Less than 10% of total resistance
Shock & Vibration	Less than 5%
Load Life	Less than 10% after 1000 hrs. of operation
Enclosure	Immersion sealed
Diameter	½ in. ½ in.
Shaft length	⅞ in. ⅞ in.
Panel Depth	35/64 in. 35/32 in.



Type GA2-L040S and WA2-L040S Locking Bushing ⅝" shaft



Type GA2-G056S and WA2-G056S Plain Bushing

Type GD1-G056S Dual Variable Resistors

PRICE CODE

Code Letter	1-9	10-24	25-49	50-99
A	7.97	6.50	5.73	3.85
C	6.30	5.46	4.52	3.19
E	7.21	5.88	5.18	3.48
gg	5.37	4.54	3.89	2.97
I	14.39	10.56	9.60	7.95

10% TOLERANCE

PLAIN

Stk. No.	Type WA2-L040S	Mil, R-94 RV6 LAYSA	Ohms	Price
10F680	101UC	101A	100	C
10F681	201UC	201A	200	C
10F682	251UC	251A	250	C
10F683	501UC	501A	500	C
10F684	102UC	102A	1.0K	C
10F685	202UC	202A	2.0K	C
10F686	252UC	252A	2.5K	C
10F687	502UC	502A	50K	C
10F688	103UC	103A	10K	C
10F689	203UC	203A	20K	C
10F690	253UC	253A	25K	C
10F691	503UC	503A	50K	C
10F692	104UC	104A	100K	C
10F693	204UC	204A	200K	C
10F694	254UC	254A	250K	C
10F695	504UC	504A	500K	C
10F696	105UC	105A	1.0M	C
10F697	205UC	205A	2.0M	C
10F699	505UC	505A	5.0M	C

LOCKING

Stk. No.	Type WA2-G056S	Mil, R-94 RV6 LAYSA	Ohms	Price
10F705	101UA	101A	100	G
10F706	201UA	201A	200	G
10F707	251UA	251A	250	G
10F708	501UA	501A	500	G
10F709	102UA	102A	1.0K	G
10F710	202UA	202A	2.0K	G
10F711	252UA	252A	2.5K	G
10F712	502UA	502A	5.0K	G
10F713	103UA	103A	10K	G
10F714	203UA	203A	20K	G
10F715	253UA	253A	25K	G
10F716	503UA	503A	50K	G
10F717	104UA	104A	100K	G
10F718	204UA	204A	200K	G
10F719	254UA	254A	250K	G
10F720	504UA	504A	500K	G
10F721	105UA	105A	1.0M	G
10F722	205UA	205A	2.0M	G
10F723	255UA	505A	5.0M	G
10F724	505UA	505A	5.0M	G

ADDITIONAL HARDWARE

Stk. No.	Type	Description	Each
10F1920	M4721	Mounting Nut	.18
10F1921	M4748	Lock Washer	.18
10F1922	M4761	Hex Lock Nut	.18

Sold only in multiples of 5

10% TOLERANCE — DUAL PLAIN

Stk. No.	Type GD1-G056S	Ohms	Price
10F610	101UA	100	I
10F611	201UA	200	I
10F612	251UA	250	I
10F613	501UA	500	I
10F614	102UA	1.0K	I
10F615	202UA	2.0K	I
10F616	252UA	2.5K	I
10F617	502UA	5.0K	I
10F618	103UA	10K	I
10F619	203UA	20K	I

Stk. No.	Type GD1-G056S	Ohms	Price
10F620	253UA	25K	I
10F621	503UA	50K	I
10F622	104UA	.10M	I
10F623	204UA	.20M	I
10F624	254UA	.25M	I
10F625	504UA	.50M	I
10F626	105UA	1.0M	I
10F627	205UA	2.0M	I
10F628	255UA	2.5M	I
10F629	505UA	5.0M	I

10% TOLERANCE

PLAIN

Stk. No.	Type GA2-L040S	Mil, R-94 RV6 LAYSA	Ohms	Price
10F660	101UC	101A	100	A
10F661	251UC	251A	250	A
10F662	501UC	501A	500	A
10F663	102UC	102A	1K	A
10F664	252UC	252A	2.5K	A
10F665	502UC	502A	.5K	A
10F666	103UC	103A	10K	A
10F667	253UC	253A	25K	A
10F668	503UC	503A	50K	A
10F669	104UC	104A	100K	A
10F670	254UC	254A	250K	A
10F671	504UC	504A	500K	A
81F4515	105UC	105A	1.0M	A
81F4516	205UC	....	2.0M	A
81F4517	255UC	255A	2.5M	A
81F4518	505UC	505A	5.0M	A

LOCKING

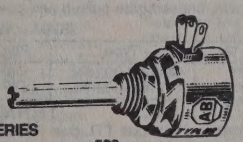
Stk. No.	Type GA2-G056S	Mil, R-94 RV6 LAYSA	Ohms	Price
10F636	101UA	101A	100	E
10F637	251UA	251A	250	E
10F638	501UA	501A	500	E
10F639	102UA	102A	1.0K	E
10F640	252UA	252A	2.5K	E
10F641	502UA	502A	5.0K	E
10F642	103UA	103A	10K	E
10F643	253UA	253A	25K	E
10F644	503UA	503A	50K	E
10F645	104UA	104A	100K	E
10F646	254UA	254A	250K	E
10F647	504UA	504A	500K	E
10F648	105UA	105A	1.0M	E
10F649	205UA	205A	2.0M	E
10F650	255UA	255A	2.5M	E
10F651	505UA	505A	5.0M	E

TYPES WRA AND WRS HOT-MOLDED VARIABLE POTENTIOMETER — ½ WATT

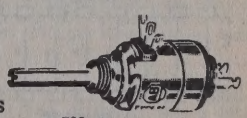
Carbon comp. pots. offer behind panel depth of less than ½". Type WRS has 1A line switch actuated at beginning of clockwise rotation. Tol.: ± 10%. Linear "U" taper. Power: ½ watt max. at + 70°C, at rated voltage. Volt: 350V RMS or DC max. working. Temp: Range: Resistor, –55°C to + 120°C; switch, –55°C to + 100°C Switch: 1A, 125V, 60 Hz.

PRICES

Type	1-9	10-24	25-49	50-99
WRA	7.79	5.58	4.73	3.70
WRS	21.01	18.63	15.30	11.50



DIMENSIONS (In.)



WRA SERIES
Diameter: .500
Shaft Length: .125 min., 2.38 max.
Panel Depth: .422 max.

WRS SERIES
Diameter: .500
Shaft Length: .125 min., 2.5 max.
Panel Depth: 1.046 max. including terminals

TYPE WRA-LESS SWITCH/TYPE WRS-WITH SWITCH

Stock No.	Type	Ohms	Stock No.	Type	Ohms	Stock No.	Type	Ohms	Stock No.	Type	Ohms
10F2300	WRA1G056S101U	100	10F2310	WRA1G056S253U	25K	10F2320	WRS1G056S101U	100	10F2330	WRS1G056S253U	25K
10F2301	WRA1G056S201U	200	10F2311	WRA1G056S503U	50K	10F2321	WRS1G056S201U	200	10F2331	WRS1G056S503U	50K
10F2302	WRA1G056S251U	250	10F2312	WRA1G056S104U	100K	10F2322	WRS1G056S251U	250	10F2332	WRS1G056S104U	100K
10F2303	WRA1G056S501U	500	10F2313	WRA1G056S204U	200K	10F2323	WRS1G056S501U	500	10F2333	WRS1G056S204U	200K
10F2304	WRA1G056S102U	1K	10F2314	WRA1G056S254U	250K	10F2324	WRS1G056S102U	1K	10F2334	WRS1G056S254U	250K
10F2305	WRA1G056S202U	2K	10F2315	WRA1G056S504U	500K	10F2325	WRS1G056S202U	2K	10F2335	WRS1G056S504U	500K
10F2306	WRA1G056S252U	2.5K	10F2316	WRA1G056S105U	1 meg	10F2326	WRS1G056S252U	2.5K	10F2336	WRS1G056S105U	1 meg
10F2307	WRA1G056S502U	5.0K	10F2317	WRA1G056S205U	2 meg	10F2327	WRS1G056S502U	5K	10F2337	WRS1G056S205U	2 meg
10F2308	WRA1G056S103U	10K	10F2318	WRA1G056S255U	2.5 meg	10F2328	WRS1G056S103U	10K	10F2338	WRS1G056S255U	2.5 meg
10F2309	WRA1G056S203U	20K	10F2319	WRA1G056S505U	5 meg	10F2329	WRS1G056S203U	20K	10F2339	WRS1G056S505U	5 meg

SIP and DIP Resistor Networks

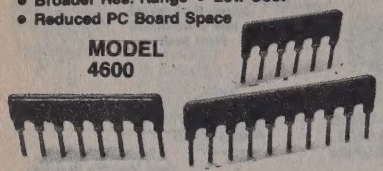
SIP Conformal Coated Resistor Networks

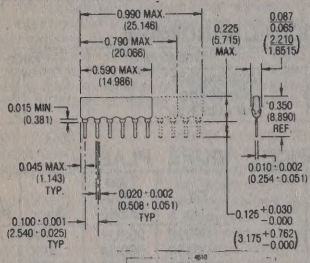
BOURNS INC

MULTI EQUAL-VALUE

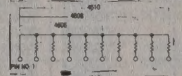
- Low Profile, Compatible With DIPs
- Built-in Stand Offs For Easy Board Wash
- Permanent Laser Marketing
- Broader Res. Range • Low Cost
- Reduced PC Board Space

MODEL 4600





4606X-101
4608X-101
4610X-101



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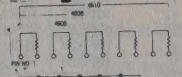

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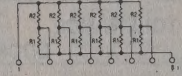
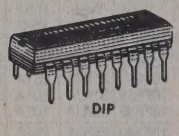
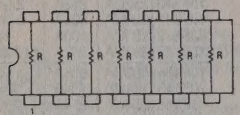
4610X-104

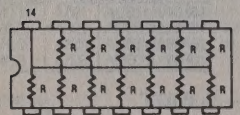




DIP



4114R-001-RC



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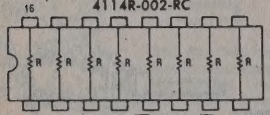
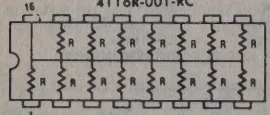


4116R-001-RC



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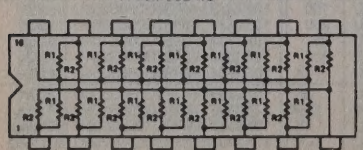


4116R-103-RC/RC

These models incorporate 5, 7 or 9 thick-film resistors of equal value, each connected between a common bus (pin 1) and a discrete PC board pin.

Typical applications include open collector pull-up, wired OR pull-up, MOS memory pull-up and down, unused gate pull-up, power driver pull-up.

Designed to reduce total assembly costs and to minimize board space requirements.

Product performance is maximized with improved temperature coefficient of resistance (TCR) and resistance tracking. Less than ±100 PPM/°C TCR and 25 PPM/°C typical TCR tracking insures that each resistor is closer in value to other resistors within the same package.

Compatible with DIPs, these low-profile SIPs are available in standard values from 22 ohms to 2.7 megohms, at ±2% tolerance. Tolerances of ±1% and values of 10 ohms to 10 megohms are also available on special request.

EQUAL VALUE SIP ISOLATED RESISTORS

When ordering specify ohms

Stk. No.	Type	No. Pins	1-34	35-104	105-489	490-979
81F9203	4606X-101	6	.52	.44	.40	.33
81F9204	4608X-101	8	.54	.46	.42	.35
81F9205	4610X-101	10	.57	.49	.47	.37

These models incorporate 3, 4, or 5 isolated thick-film resistors of equal value, each connected between two discrete PC board pins.

Typical applications include power gate pull-up, impedance balancing, current limiting, line termination and ECL output pull-down.

EQUAL VALUE SIP ISOLATED RESISTOR

When ordering specify ohms

Stk. No.	Type	No. Pins	1-34	35-104	105-489	490-979
81F9206	4606X-102	6	.52	.44	.40	.33
81F9207	4608X-102	8	.54	.46	.42	.35
81F9208	4610X-102	10	.57	.49	.47	.37

The Dual Terminator Resistor Network provides TTL dual line termination in a low-cost conformal coated SIP package. Dual terminators improve noise immunity where capacitive effects are excessive.

The 4608X-104 is an 8 pin configuration and terminates 6 lines. Pins 1 and 8 are common for ground and power, respectively. Twelve, thick-film resistors are paired in series between the common lines (pin 1 and 8). The center points of these resistor pairs are connected to input terminals (pins 2 through 7). Dual terminators are also available in standard 6 and 10 Pin SIP models.

Stk. No.	Type	No. Pins	1-34	35-104	105-489	490-979
81F9212	4606X-104-180/390	6	1.10	.75	.65	.62
81F9213	4606X-104-220/270	6	1.10	.75	.65	.62
81F9214	4606X-104-220/330	6	1.10	.75	.65	.62
81F9215	4608X-104-180/390	8	1.16	.98	.90	.75
81F9216	4608X-104-220/270	8	1.16	.98	.90	.75
81F9217	4608X-104-220/330	8	1.16	.98	.90	.75
81F9209	4610X-104-180/390	10	1.29	.89	.80	.71
81F9210	4610X-104-220/270	10	1.29	.89	.80	.71
81F9211	4610X-104-220/330	10	1.29	.89	.80	.71

DIP Thick Film Resistor Networks

Features reduced PC board space; compatible with automatic insertion equipment; uniform performance characteristics, compatibility with IC logic circuit environments. Constructed on high purity alumina base, an excellent thermal conductor but poor electrical conductor. Insulation resistance, pin to case, is 10,000 megohms or greater. The mold epoxy case with plated copper alloy leads insures long term integrity of the entire assembly. Lead solderability meets requirements of MIL-STD-883, Method 2003 and MIL-R-83401. Resistance tolerance: ±2%. Operating temperature range: −55°C to +125°C. The low profile SIP Networks have an installed height equal to the installed height of the DIP.

MULTIPLE EQUAL-VALUE RESISTOR NETWORK

Circuitry and application: Type 4114R, 7 isolated resistors; Type 4116R, 8 isolated resistors. Intended for power gate pull-up, impedance balancing, current limiting, line termination, and ECL output pull-down. **When ordering specify ohms.**

EQUAL VALUE DIP ISOLATED RESISTORS

Stock No.	Type	Pkg.	No. Pins	1-99	100-249	250-499	500-999
13F170	4114R-001-RC	DIP	14	1.15	.93	.75	.66
13F172	4116R-001-RC	DIP	16	1.20	.95	.77	.68

Circuitry and applications: Type 4114R, 13 resistors with pin 14 common; Type 4116R, 15 resistors with pin 16 common. Intended for open collector pull-up, TTL input pull-down, MOS memory pull-up and pull-down, unused gate pull-up and power driver pull-up. **When ordering specify ohms.**

EQUAL VALUE DIP BUSSED RESISTORS

Stock No.	Type	Pkg.	No. Pins	1-99	100-249	250-499	500-999
13F171	4114R-002-RC	DIP	14	1.20	.95	.77	.68
13F173	4116R-002-RC	DIP	16	1.25	.98	.79	.70

TERMINATING NETWORKS

Application: Provides TTL dual line termination. ±5%

TERMINATING DIP

Stock No.	Type	Pkg.	No. Pins	1-24	25-99	100-249	250-499
13F9605	4116R-003-181/391	DIP	16	2.30	2.14	1.88	1.50
13F9603	4116R-003-221/271	DIP	16				
13F9604	4116R-003-221/331	DIP	16				

STANDARD AVAILABLE RESISTANCE VALUES
For SIP and DIP Packages

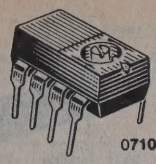
Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
33	150	680	2700	12K	56K	270K	1.0M
39	180	820	3300	15K	68K	330K	2.2M
47	220	1000	3900	18K	82K	390K	2.7M
56	270	1200	4700	22K	100K	470K	
68	330	1500	5600	27K	120K	560K	
82	390	1800	6800	33K	150K	680K	
100	470	2000	8200	39K	180K	820K	
120	560	2200	10K	47K	220K		

Trimming Potentiometers

BOURNS INC

MFT™

MULTI FUNCTION TRIMMERS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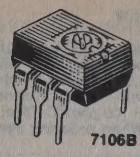
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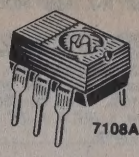
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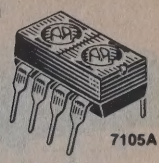
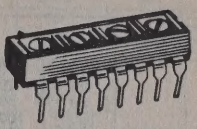
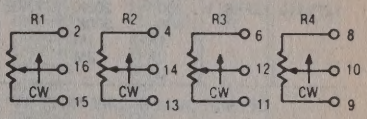

7105A

Bourns has combined technologies used in producing cermet trimmers and cermet fixed resistor networks. The results is MFT™ multiple trimmer and resistor network combinations packaged in the Dual In-Line (DIP) configuration. Manufacturing costs, PC board space, circuit design time are all reduced. Compatible with auto-insertion and auto-test equipment. Improves reliability, circuit performance. Provides temperature tracking better than discretes.

Stock Number	Type	Resistance Detail R1	R2	R3	R4	EACH 1-99	100-499	500-999	1000-4999
13F9650	7102B-210-101	101	101	—	—	2.60	2.00	1.77	1.63
13F9651	7102B-210-102	102	102	—	—				
13F9652	7102B-210-103	103	103	—	—				
13F9653	7102B-210-104	104	104	—	—				
13F9654	7102B-210-504	504	504	—	—				
13F9660	7103C-310-101	101	101	101	—	3.60	2.77	2.45	2.25
13F9661	7103C-310-102	102	102	102	—				
13F9662	7103C-310-103	103	103	103	—				
13F9663	7103C-310-104	104	104	104	—				
13F9670	7104D-410-101	101	101	101	101	4.40	3.39	3.00	2.75
13F9671	7104D-410-102	102	102	102	102				
13F9672	7104D-410-103	103	103	103	103				
13F9673	7104D-410-104	104	104	104	104				
13F9674	7104D-410-504	504	504	504	504				



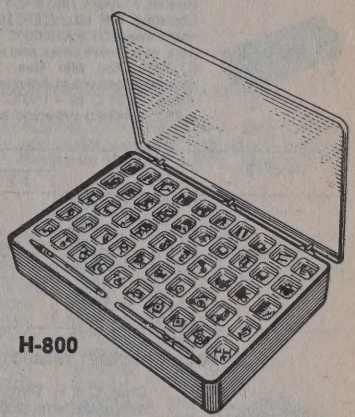


MODEL H-800 TRIM BIN KIT

- **Contains 15 of the most popular trimmer & MFT trimmer/resistor models**
- **50 varieties of resistances and pin styles for total of 127 units.**

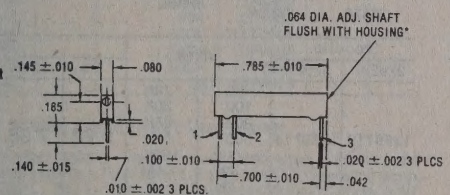
Complete assortment of the most popular trimmers and MFT trimmer/resistors. All in a functional, convenient, attractive package. Also contains an H-90 and H-91 screwdriver, and design aids for models 20, 3005, 3008, 3099, 3386, 3339, and 3359. Designed for use in customer's engineering, or research and development labs. Sold separately these trimmers and trimmer/resistors would cost twice as much.

10F8245 NET.....99.95


H-800

MODEL 20 TRIMPOT® POTENTIOMETER CERMET ELEMENT

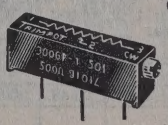
- **0.5 Watt**
- **Stable Cermet Element**
- **High Power**
- **Cost Savings**
- **Lower Board Profile**
- **Continuous Resolution**



Model 20 sealed SIP potentiometer offers thin package width and machine insertability together with outstanding performance and quality. Lower PC board profile. .185" off board. High density board spacing, fits standard .100" grid. High power rating: 0.50 watt at 70°C. Low temp. coefficient: 100 ppm/°C over −55°C to +125°C temperature range. Sealed to MIL-R-22097 standard; withstands industrial cleaning processes. Weight: 0.40g max.

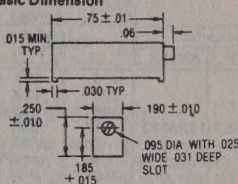
Stock No.	Type	Ohms	1-99	100-499	500-999	1000-4999
13F3410	20P-1-100	10	2.50	2.08	1.88	1.70
13F3411	20P-1-200	20				
13F3412	20P-1-500	50				
13F3413	20P-1-101	100				
13F3414	20P-1-201	200				
13F3415	20P-1-501	500				
13F3416	20P-1-102	1K				
13F3417	20P-1-202	2K				
13F3418	20P-1-502	5K				
13F3419	20P-1-103	10K				
13F3420	20P-1-203	20K				
13F3421	20P-1-503	50K				
13F3422	20P-1-104	100K				
13F3423	20P-1-204	200K				
13F3424	20P-1-504	500K				
13F3425	20P-1-105	1M				

MODEL 3006 TRIMPOT® POTENTIOMETER CERMET ELEMENT



- **.75 Watt**
- **Cost Efficient**
- **High Power Rating**
- **Easy Assembly**

3006 Basic Dimension



Low cost, low profile with high power rating; 0.75 watt at 70°C. 15 turns. Sealed to MIL-R-22097, withstands industrial cleaning process. Maximum operating temperature: 125°C. Tolerance: ±10%. Temperature coefficient: ±100 ppm/°C. Size: 0.190"W. x .250"H x .75" Lgth. When ordering specify ohms.

Stk. No. 3006P	3006W	3006Y	Ohms	EACH 1-99	100-499	500-999	1000-4999
			10	1.20	1.00	.90	.82
			20				
			50				
			100				
			200				
			500				
			1K				
			2K				
			5K				
12F9805	12F9806	12F9450	10K				
			20K				
			50K				
			100K				
			200K				
			500K				
			1M				
			2M				

Cermet Trimming Potentiometers

CERMET E-Z TRIM® MODEL 3009

Wiper assembly idles at both ends of trave. 20 turns nominal adjustment. Power rating; 0.75 watt at 25°C. Absolute min. res.; 2.0% or 1 ohm, whichever is greater. Max. oper. temp.: 125°C. Tolerance: 10%, Temp. co-efficient: ±100 ppm/°C. Size; .19" w. x .35" h. x .75" lgth. **When ordering specify ohms.**

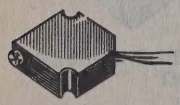
Stock No.		Ohms		Price			
3009P	3009Y			1-49	50-99	100-499	500-999
12F9610	12F9611	10 20 50 100 200 500 1K 2K 5K	10K 20K 50K 100K 200K 500K 1M 2M	1.72	1.43	1.29	1.17

CERMET DUAL IN-LINE TRIMPOT® MODEL 3099P

Sealed to meet MIL-R-22097 immersion requirements. Standard DIP size (TO-116) compatible with DIP automatic insertion equipment. Temp. Coeff.: ±100 ppm/°C. max. over entire temp. and resist. range. Power: 1.0 watts @ 70°C. Abs. Min. Res.: 2% or 1 ohm, whichever is greater. Mechanical Adjustment: 20 turns nominal. Oper. Temp.: −55°C to +150°C. Size: 0.250"w. x 0.190"h. x 0.750"lg. **When ordering specify ohms.**

Stock No.	Ohms		Price			
			1-9	10-24	25-49	50-99
12F9626	20 50 100 200 500 1K 2K 5K	10K 20K 50K 100K 200K 500 1M 2M	4.60	3.54	3.13	2.88

½" SQUARE CERMET TRIMPOT® MODEL 3252



Char. C & F. Temp. Coeff.: ±100 ppm/°C max., over entire temp. and resist. range. Power: 1.0 watt or 400 volts max. at 70°C. Abs. Min. Resist.: 1 ohm, all values. Mechanical Adjustment: 22 turns nominal. Oper. Temp Range: −65°C to + 150°C. Size: ½" sq. x 3/16" t. (L): 7/32" t. (P, W and X). **When ordering specify ohms.**

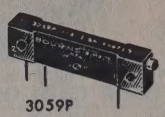
Stock No.		Ohms		Price			
3252P	3252W			1-9	10-24	25-49	50-99
12F9692	12F9693	100 200 500 1K 2K 5K 10K	20K 25K 50K 100K 500K 1M	8.06	6.71	6.05	5.49

⅜" SQUARE CERMET TRIMPOT® MODEL 3292 (RJ24)

Meets MIL-R-22097. Temp. Coeff.: ±100 ppm/°C over entire temp. and resist. range. Power: 0.5 watt or 400 volts max. at 85°C. Abs. Min. Resist: 1 ohm, all values. Mechanical Adjustment: 22 turns nominal. Oper. Temp. Range: −65° to +150°C. Size: 0.375" sq. x 0.150" thk. **When ordering specify ohms.** Replaces Model 3282.

Stock No.			Ohms	Price			
3292P	3292W	3292X		1-9	10-24	25-49	50-99
12F9708	12F9709	12F9710	200 500 1K 2K 5K 10K 20K 50K 100K 1M	9.84	8.20	7.38	6.70

CERMET MODEL 3059 (RJ12)

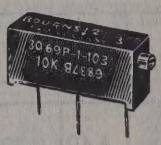


3059P

Meets or exceeds MIL 22097 characteristic C & F, Style RJ12. Solderable pins for compatibility with automated and hand soldering methods. Replacement for 3012, 3052, 272, 274 & 276. Temperature Coefficient: ±100 ppm/°C max. over entire resistance and temperature range. Power Rating: 1.0 watt or 400 volts max. at 70°C. Abs. Min. Res.: 2 ohms, max. Mechanical Adjustment: 22±5 turns. Oper. Temp.: −55°C to +150°C. Size: 3/16" w x 5/16" h x 1¼" lg. **When ordering specify ohms.**

Stock No.		Ohms		Price			
3059P	3059Y			1-49	50-99	100-499	500-999
12F9635	12F9636	100 200 500 1K 2K 5K 10K	20K 50K 100K 200K 500K 1M	3.88	3.23	2.91	2.64

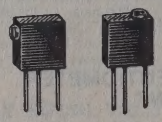
CERMET E-Z TRIM® MODEL 3069P



MIL Spec immersion seal gives trouble-free operation after P.C. board processes. Tinned pins for compatibility with automated and hand soldering methods. 20 turns nominal adjustment. Power rating: 0.75 watt at 25°C. Absolute minimum resistance: 2% or 1 ohm whichever is greater. Operating maximum temperature: 125°C. Tolerance: ±10%. Temperature coefficient: ±100 ppm/°C. Size: 0.25" w. x 0.35" h. x 0.75" lgth. **When ordering specify ohms.**

Stock No.	Ohms		Price			
			1-9	10-24	25-49	50-99
12F9616	20 50 100 200 500 1K 2K 5K	10K 20K 50K 100K 200K 500K 1M 2M	2.80	2.16	1.90	1.75

¼" SQUARE CERMET MODEL 3262



3262X 3262W

Meets MIL-R-22097, Temp. coeff.: ±100 ppm/°C. max. over entire temp. and resist. range. Power: .25 watt at 85°C. Abs. min. resist.: 1 ohm, all resistances. Mechanical adjustment: 12 turns. Oper. temp. range: −65° to S/B 150°C. Size: 0.250" sq. x 0.170" thk. **When ordering specify ohms.**

Stock No.		Ohms		Price			
3262W	3262X			1-9	10-24	25-49	50-99
12F9713	12F9714	50 100 200 500 1K 2K 5K	10K 20K 25K 50K 100K 1M	9.22	7.68	6.92	6.28

SQUARE CERMET MULTI-TURN MODEL 3299

Industrial TRIMPOT Cermet potentiometer. Meets MIL-R-22097. Power Rated at 0.5W at 70°C. Mechanical Adjustment: 25 turns nominal. Max. Oper. Temp.: 125°C. Size (HWL): .39" x .37" x .24". 100 ppm temp coeff.

Stock No.			Ohms	Each			
3299P	3299W	3299X		1-49	50-99	100-499	500-999
12F9565	12F9545	12F9555	100	1.94	1.62	1.46	1.32
12F9566	12F9546	12F9556	500				
12F9567	12F9547	12F9557	1K				
12F9568	12F9548	12F9558	2K				
12F9569	12F0549	12F9559	5K				
12F9570	12F9550	12F9560	10K				
12F9571	12F9551	12F9561	20K				
12F9572	12F9552	12F9562	50K				
12F9573	12F9553	12F9563	100K				
12F9574	12F9554	12F9564	1M				

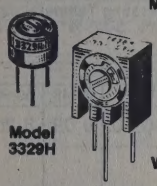
Cermet Trimming Potentiometers

MODEL 3386 COMMERCIAL CERMET

Meets military specifications for humidity. Nominal adjustment turns 280°. Power rating 0.5 watt at 85°C. Maximum operating temperature 125°C. Resistance Tolerance ± 10%. Size .375"H x .375"W x .19"L.

Stock No.				1-99	100-499	500-999	1000-4999
3386F	3386P	3386R	Ohms				
10F8196	12F168	.....	10				
10F8197	12F168	.....	20				
10F8198	12F168	.....	50				
13F015	12F168	13F028	100				
13F016	12F168	.....	200				
13F017	12F168	13F030	500				
13F018	12F168	13F031	1K				
13F019	12F168	13F032	2K				
13F020	12F168	13F033	5K	.92	.77	.69	.63
13F021	12F168	13F034	10K				
13F022	12F168	13F035	20K				
13F023	12F168	13F036	50K				
13F024	12F168	13F037	100K				
13F025	12F168	13F038	200K				
10F8199	12F168	10F8204	250K				
13F026	12F168	13F039	500K				
13F027	12F168	13F040	1M				
10F8200	12F168	10F8205	2M				

Stock No.				1-99	100-499
3386S	3386W	3386X	Ohms		
12F167	12F169	10F8206	10		
12F167	12F169	10F8206	20		
12F167	12F169	10F8206	50		
12F167	12F169	10F8206	100		
12F167	12F169	10F8206	200		
12F167	12F169	10F8206	500		
12F167	12F169	10F8206	1K		
12F167	12F169	10F8206	2K		
12F167	12F169	10F8206	5K	.92	.77
12F167	12F169	10F8206	10K		
12F167	12F169	10F8206	20K		
12F167	12F169	10F8206	50K		
12F167	12F169	10F8206	100K		
12F167	12F169	10F8206	200K		
12F167	12F169	10F8206	500K		
12F167	12F169	10F8206	1M		
12F167	12F169	10F8206	2M		



MODEL 3329 CERMET TRIMPOT® SINGLE-TURN

Meets MIL-R-22097. Positive sealed to withstand wave soldering and immersion cleaning. Rated 0.5W @ 85°C. Min. resistance 2 ohms. Max. operating temp. 150°C. Tolerance ±10%. Size (H & P) .250" dia. x .180"H; (W) .290"W x 0.245" dia. x .360"H.

Stock No.		1-99	100-499		Stk. No.	1-99	100-499
3329H	3329P			Ohms	3329W		
12F9604	.....			10	.....		
12F9604	.....			20	12F9606		
12F9604	12F9605			50	12F9606		
12F9604	12F9605			100	12F9606		
12F9604	12F9605			200	12F9606		
12F9604	12F9605			500	12F9606		
12F9604	12F9605			1K	12F9606		
12F9604	12F9605	1.76	1.47	2K	12F9606	1.96	1.63
12F9604	12F9605			5K	12F9606		
12F9604	12F9605			10K	12F9606		
12F9604	12F9605			20K	12F9606		
12F9604	12F9605			50K	12F9606		
12F9604	12F9605			100K	12F9606		
12F9604	12F9605			200K	12F9606		
12F9604	12F9605			500K	12F9606		
12F9604	12F9605			1M	12F9606		

MODEL 3352 INDUSTRIAL SINGLE-TURN CERMET

Meets military specifications for humidity. Power rating 0.75 watt at 40°C. Nominal adjustment turns 230°. Maximum operating temperature 125°. Resistance tolerance ± 20%. Size: .375"H x .350"W x .150"L.

Stock No.					1-99	100-499
3352T	3352H	3352W	3352P	Ohms		
10F8178	10F8179	10F8182	.....	50		
10F8178	10F8179	13F004	12F9992	100		
10F8178	10F8179	13F005	12F9993	200		
10F8178	10F8179	13F006	12F9994	500		
10F8178	10F8179	13F007	12F9995	1K		
10F8178	10F8179	13F008	12F9996	2K		
10F8178	10F8179	13F009	12F9997	5K		
10F8178	10F8179	13F010	12F9998	10K		
10F8178	10F8179	13F011	12F9999	20K	.70	.58
10F8178	10F8179	10F8183	.....	25K		
10F8178	10F8179	13F012	13F001	50K		
10F8178	10F8179	13F013	13F002	100K		
10F8178	10F8179	10F8184	10F8192	200K		
10F8178	10F8179	10F8185	10F8193	500K		
10F8178	10F8179	13F014	13F003	1M		
10F8178	10F8179	10F8186	10F8194	2M		
10F8178	10F8179	10F8187	10F8195	5M		

MODEL 3339 CERMET MULTI-TURN

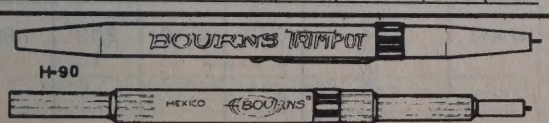
Precise wiper setting. Sealed to withstand wave soldering and immersion cleaning. Four turns 0.5 watt at 85°C. Operating temp. max.: 150°C. Tol.: ± 10%. Temp. coef.: ± 100ppm/°C. Size, 0.30" dia. x 0.25"H, except (W) .312"W x .315"T x .375"H.

Stock No.		1-99	100-499		Stk. No.	1-99	100-499
3339H	3339P			Ohms	3339W		
12F9823	12F9607			100	12F9434		
12F9823	12F9607			200	12F9434		
12F9823	12F9607			500	12F9434		
12F9823	12F9607			1K	12F9434		
12F9823	12F9607			2K	12F9434		
12F9823	12F9607			5K	12F9434		
12F9823	12F9607	3.18	2.65	10K	12F9434	4.54	3.78
12F9823	12F9607			20K	12F9434		
12F9823	12F9607			50K	12F9434		
12F9823	12F9607			100K	12F9434		
12F9823	12F9607			200K	12F9434		
12F9823	12F9607			500K	12F9434		
12F9823	12F9607			1M	12F9434		

MODEL 3359 CERMET SINGLE-TURN

Resistance stability under humid conditions. Mech. rotation: 270°. Rated .75 watt @ 40°C. Max. operating temp.: 125°C. Tolerance ± 20%. Size: 0.395" max. dia., thickness (P) .247, (W) .236" Temp. coef.: ± 100ppm/°C.

Stock No.			1-99	100-499
3359P	3359W	Ohms		
12F9600	12F9601	100		
12F9600	12F9601	200		
12F9600	12F9601	500		
12F9600	12F9601	1K		
12F9600	12F9601	2K		
12F9600	12F9601	5K		
12F9600	12F9601	10K	.88	.73
12F9600	12F9601	20K		
12F9600	12F9601	50K		
12F9600	12F9601	100K		
12F9600	12F9601	200K		
12F9600	12F9601	500K		
12F9600	12F9601	1M		



TRIMMER ADJUSTMENT TOOL

Glass filled nylon body with corrosion resistant stainless steel blades. Extended as well as recessed blade for critical adjustments. Designed to adjust Trimmers of all sizes. Overall length is 5", diameter is .255".

12F9866 H-90 . . . . . 1.00
81F014 . H-91 . . . . . 1.00

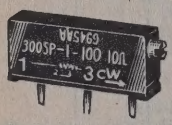
BOURNS Wirewound Trimming Potentiometers

MODEL 3345P WIREWOUND

Single-turn adjustment. Power 1.0 watt at 70°C. Abs. Min. Res.: 1.0% or .5 ohm whichever is greater. Tolerance: ±5% standard. Oper. Temp.: −55 to +150°C. Temp. Coefficient: per 70ppm/°C. Mechanical Adjustment: 280° nominal. Size: 450" diameter x .235" thick.

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9400	10 20 50 100 200 500 1K 2K 5K 10K	3.32	2.77	2.49	2.26
12F9401 12F9401	20K 50K	3.32	2.77	2.49	2.26

MODEL 3005P WIREWOUND E-Z TRIM®



Sealed to prevent contamination. Humidity meets MIL-STD-202, Method 103. 20-turn screwdriver adjustment. Rated 1.0 watt at 40°C. Min. resistance: 0.5% or 1.0 ohms, whichever is greater. Replaces Model 3007P. Max. operating temp.: 125°C. Tolerance: ±10%. Temp. coefficient: ±100 ppm/°C. Size% 17"W x .31"H x .75"L.

Stock No.	Ohms	EACH 1-9	10-24	25-49	50-99
12F9608	10 20 50 100 200 500 1K 2K 5K 10K 20K	3.66	2.82	2.49	2.29
12F9935	50K	3.66	2.82	2.49	2.29

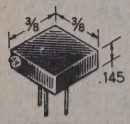
MODEL 3250 WIREWOUND MODEL TRIMPOT®

Humidity-proof; sealed in hightemperature plastic case. Power Rating: 1.0 watt at 70°C. Absolute Minimum Resistance: 0.1% or 1.0 ohm, whichever is greater. Max. Oper. Temp. 150°C. Tolerance: ±5%. Size: 1/2" sq. × 3/16" thick (L); 7/32" thick (P, W or W66).

Stock No. 3250L	Ohms	EACH 1-9	10-24	25-49	50-99
12F9683	100 200 1K 2K 5K 10K	6.38	5.31	4.79	4.34
12F9684 12F9685	20K 50K	6.38	5.31	4.79	4.34

Stock No. 3250W	Stock No. 3250W-66	Ohms	EACH 1-9	10-24	25-49	50-99
12F9840	12F9834	100 200 1K 2K 5K 10K	4.88	4.07	3.66	3.32
12F9839 12F9838	12F9835 12F9836	20K 50K	4.88	4.07	3.66	3.32

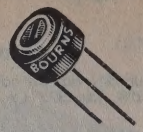
MODEL 3290 3/8" SQUARE WIREWOUND



Meets or exceeds MIL-R-27208. All plastic case provides sealing against liquids and potting. Power Rating: 1.0 watt @ 70°C. Absolute Minimum Resistance. 0.1% or 1.0 ohm, whichever is greater. Maximum Operating Temperature 150°C. Tolerance. ±5%. Size: 3/8" sq. × 0.150" thk. (L) 0.150" thk.

Stock No. 3290H	3290P	3290W	Ohms	EACH 1-9	10-24	25-49	50-99
12F9703	12F9705	15F9706	50 1K 100 2K 200 5K 500 10K	12.96	9.98	8.83	8.10
12F9910 12F9911	12F9912 12F9813	12F9914 12F9915	20K 50K	12.96	9.98	8.83	8.10

MODEL 3305 WIREWOUND SINGLE-TURN



Sealed to prevent contamination from fluxing, soldering and cleaning. Stops provided at each end of travel. Power: 0.5 watt at 70°C. Abs. Min. Res.: .05 ohm to 1.0%. Oper. temp.: 125°C max. Tolerance: ±5%. Size: (P) 5/16" dia. x 3/16" thk. (W) 5/16" w. x 1/4" d. x 3/8" h.

Stock No. Type 3305P	Ohms	EACH 1-9	10-24	25-49	50-99
12F9602	100 200 500 1K 5K	4.30	3.31	2.93	2.69
12F9775 12F9776	10K 20K	4.30	3.31	2.93	2.69

Stock No. Type 3305W	Ohms	EACH 1-9	10-24	25-49	50-99
12F9603	500 1K 2K	5.46	4.20	3.72	3.41
12F9777 12F9778	10K	5.46	4.20	3.72	3.41

MODEL 3260 1½" SQUARE WIREWOUND

All plastic case provides positive end stops at both ends of travel; sealing against liquids and potting compounds. Clutch action wiper. Power Rating: .25 watt at 85°C. Abs. Min. Res.: 0.1% or 1.0 ohm, whichever is greater. Operating Temperature: 150°C max. Tolerance: ±5%. Size: 1/4" square x 11/64" high.

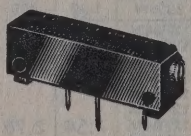
Stock No. Type 3260H	Type 3260W	Ohms	EACH 1-9	10-24	25-49	50-99
12F9711	....	50 100 200	12.12	10.10	9.09	8.25
	12F9712	500 1K				
12F9785	12F9786	2K 5K	12.12	10.10	9.09	8.25
12F9924	12F9925	10K 20K	12.12	10.10	9.09	8.25

MODEL 3057 WIREWOUND

Meets military specifications for humidity. Resistance tolerance: ±5%. Maximum operating temperature 150°C. 22 nominal adjustment turns. Power 1.0 watt at 70°C. Low temperature coefficient. Replace model 200 and 224. Size: .32"H x .19"W x 1.25"L.

Stock No. 3057P	3057Y	Ohms	EACH 1-9	10-24	25-49	50-99
12F9639	12F9640	200 500 1K 2K 5K 10K	8.48	7.06	6.36	5.77
12F9875 12F9876 12F9928	12F9877 12F9878 12F9879	20K 50K 100K	8.48	7.06	6.36	5.77

MODEL 3067 WIREWOUND E-Z TRIM®



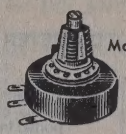
Wiper assembly idles at both ends of travel preventing forced adjustment. 15 turn screwdriver adjustment. Power rating: 0.5 watt at 25°C. Absolute Min. Resistance: 0-2.0%. Operating temperature maximum: 85°C. Tolerance: ±10%. Size: .28" w. x .36" h. x 1.00" lgth.

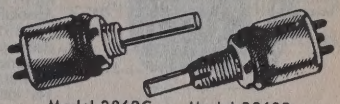
Stock No. 3067P	Ohms	EACH 1-9	10-24	25-49	50-99
12F9613	100 200 500 1K 2K 5K 10K 20K	3.12	2.40	2.12	1.95

Cermet and Modular Potentiometers

CERMET ELEMENT PANEL MOUNTED POTENTIOMETERS

Single turn potentiometers for panel mount have improved adjustability and low noise for outstanding performance. Thin ¾" diameter case has extremely high power rating: 2 watts at +70°C. Resistance tolerance: ±10%. Tapers: Linear, 10% CW or 10% CCW. Contact resistance variation: ±3% maximum of total resistance. Temperature coefficient: ± 150 ppm/°C. High Performance Models meet or exceed applicable requirements of MIL-R-94 or MIL-R-23285. **High Performance Model 3852:** Housing ¾" dia. x ¼" length. Resistance range: 50 ohms to 5 megs, linear tapeer; 1K to 2.5 megs, CW and CCW taper. Power rating: 2 watts at 70°1C, linear; 1 watt CW and CCW taper. Temperature: -65° to ±150°C. **High Performance Model 3862:** Housing ½" dia. by 0.453" length. Resistance range: 100 ohms to 5 megs, linear taper; Power rating: 1 watt at 125°C, linear taper. Temperature range: -65°C to +175°C. **All models** supplied with hardware; other shaft lengths available. Types with locking bushings supplied with locking nut. **All models have lug terminals and slotted shaft end. Specify ohms rating desired when ordering.**





MODEL 3852A

⅜" Plain bushing; ¼" shaft dia.

3852A-16S ½" shaft lgth. Stock No.	3852A-282 ⅞" shaft lgth. Stock No.	Ohms		
12F9675	12F9903	50 to 2.5M		
	1-4	5-9	50-99	100-499
Price	4.12	3.71	3.30	2.47

MODEL 3852B

⅜" Locking bushing; ¼" shaft dia.

3852B-202 ⅝" shaft lgth. Stock No.	Ohms	1-4	5-9	10-24	25-49
12F9676	1K to 100K	6.18	5.56	4.94	3.71

MODEL 3852C

¼" Plain bushing; ⅛" shaft dia.

3852C-122 ⅜" shaft lgth. Stock No.	3852C-282 ⅞" shaft lgth. Stock No.	Ohms		
12F9677	12F9985	1K to 2.5M		
	1-4	5-9	10-24	25-49
Price	5.74	5.17	4.59	3.44

MODEL 3852E

¼" dia. locking bushing; ⅛" shaft dia.

3852E-162 ½" shaft lgth. Stock No.	Ohms	1-4	5-9	10-24	25-49
12F9678	1K to 100K	6.33	5.70	5.06	3.80

MODEL 3862C

¼" Plain bushing; ⅜" shaft dia.

3862C-122 ⅜" shaft lgth. Stock No.	3862C-282 ⅞" shaft lgth. Stock No.	Ohms		
12F9681	12F9905	1K to 1.0M		
	EACH			
	1-24	25-49	50-99	100-499
Price	7.48	6.73	4.86	3.37

MODEL 3862E

¼" Locking bushing; ⅛" shaft dia.

3862E-202 ⅝" shaft lgth. Stock No.	Ohms	EACH 1-4	5-9	10-24	25-49
12F9682	1K to 100K	8.53	7.68	5.54	3.84

RESISTANCE CHART FOR MODEL 3800 CONTROLS

Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms	Ohms
50	1K	25K	500K		2.5K	50K	1M
100	2.5K	50K	1M		5K	100K	
250	5K	100K	2.5M	500	10K		
500	10K	250K		1K	25K		

MODULAR 10-TURN PRECISION POTENTIOMETERS

MODEL 83/84 SINGLE ⅜" SQUARE 10-TURN WIREWOUND MODULAR POTENTIOMETER

BOURNS® Model 83/84 Potentiometer is the only precision 10-turn modular control in the industry. This product is fully compatible with the members of the model 80 family.

For your applications requiring combinations of 10-turn; single turn; or switch modules consult the factory.

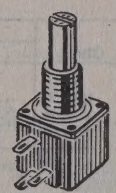
MODEL 81 SINGLE ⅜" SQUARE 10-TURN CERMET MODULAR POTENTIOMETER

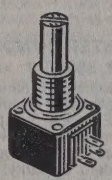
BOURNS® Model 81/82 MODULAR potentiometer combines the design versatility of advanced modular construction with factory assembled reliability and quality assurance. The net result is a consistently high quality ⅜" square panel potentiometer that can be delivered in single configurations to suit your specific applications...from off-the-shelf components...at low cost. The Model 81/82's unique shaft torque control feature provides a smooth, high quality feel that will enhance the "human engineering appeal" of your equipment.

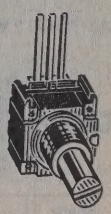
MODEL 91 SINGLE ⅜" SQUARE 10-TURN CONDUCTIVE PLASTIC MODULAR POTENTIOMETER

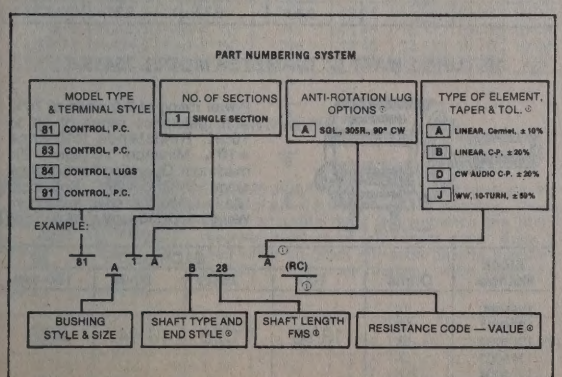
BOURNS Model 91/92 modular potentiometer combines the superior performance of a conductive plastic element with a simplified new three-piece design.

Construction features include one piece molded plastic shaft and rotor with insert molded metal bushing. The resultant combination offers the same high quality "feel" associated with the Bourns Model 80 Series plus virtually infinite electrical circuit isolation. The molded in-line P.C. pin terminations allow the pins to be easily bent forward or aft for vertical mounting to P.C. boards or mated with low cost mini-connectors for hard wired applications.





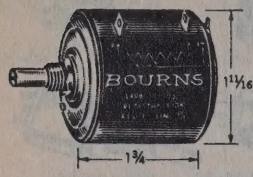



PART NUMBERING SYSTEM
MODEL TYPE & TERMINAL STYLE
81 CONTROL, P.C.
83 CONTROL, P.C.
84 CONTROL, LUGS
91 CONTROL, P.C.
NO. OF SECTIONS
1 SINGLE SECTION
ANTI-ROTATION LUG OPTIONS ②
A SQL., 305R., 90° CW
TYPE OF ELEMENT, TAPER & TOL. ③
A LINEAR, Cermet, ±10%
B LINEAR, C-P, ±20%
D CW AUDIO C-P, ±20%
J WW, 10-TURN, ±50%
EXAMPLE:
81 A 1 A B 28 A ① (RC) ①
BUSHING STYLE & SIZE
SHAFT TYPE AND END STYLE ④
SHAFT LENGTH FMS ⑤
RESISTANCE CODE — VALUE ⑥

Stock No.	Type	Resistance Code (Ohms) (RC)	Net Price Unit 1-24	25-49	50-99	100-499
81F5744	81A1A-B28-A(RC)	07(250), 08(500), 10K(1K),				
81F5745	81C1A-E28-A(RC)	12 (2.5K), 13(5K), 15(10K), 17(25K), 18 (50K), 20 (100K),	5.60	5.04	3.64	2.80
81F5746	81A1A-B28-B(RC)	22(250K), 23(500K), 25(1M),				
81F5747	81C1A-E28-B(RC)	26(2.5M), 27(5M)				
81F5748	83A1A-B28-J(RC)					
81F5749	84A1A-B28-J(RC)	10(1K), 13(5K), 15K(10K)	8.37	7.53	6.70	6.27
81F5750	84C1A-E20-J(RC)					
81F5751	91A1A-B24-B(RC)	07(250), 08(500), 10(1K),				
81F5752	91A1A-B28-B(RC)	12(2.5K), 13(5K), 15(10K), 17(25K), 18(50K), 20(100K)	3.84	3.46	3.07	2.30
81F5753	91C1A-D20-B(RC)	22(250K), 23(500K), 25K(1M),				
81F5754	91C1A-D24-B(RC)	26(2.5M), 27(5M)				
81F5755	91A1A-B24-D(RC)	07(250), 08(500), 10(1K),				
81F5756	91A1A-B28-D(RC)	12(2.5K), 13(5K), 15(10K), 17(25K), 18(50K), 20(100K)	4.44	4.00	3.55	2.66
81F5757	91C1A-D20-D(RC)	22(250K), 23(500K), 25K(1M),				
81F5758	91C1A-D24-D(RC)	26(2.5M), 27(5M)				

WIRE-WOUND BUSHING MOUNT PRECISION POTENTIOMETERS

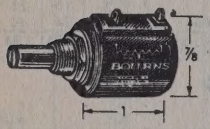
10-TURN 5 WATT 1 13/16" DIAMETER MODEL 3400S-1



Exceeds humidity cycling requirements of MIL-R-12934. Shaft supported front and rear by sleeve bearings. Power rating: 5.0 watts at 40°C. Absolute min. resistance: 1.0 ohms or 0.15%, whichever is greater. Independent linearity: ±0.15% maximum. Max. oper. temp. 105°C. Tolerance: ±3%. Size: 1 13/16" dia. x 1¾" lgth. Shaft ¼" dia.

Stock Number	Ohms		EACH 1-24	25-49	50-99	100-499
12F9766	100 200 500 1K 2K 10K	20K 30K 50K 100K 200K	44.81	40.33	33.61	29.13

10-TURN 2 WATT ⅞" DIAMETER WIRE-WOUND MODEL 3500S-2



Humidity exceeds requirement MIL-R-12934. Power: 2 watts at 70°C. Absolute min. Resistance: 1 ohm or 0.1%, whichever is greater. Independent linearity: ±0.20%. Oper. temp. 125°C max. Tolerance: ±3%. Size: ⅞" dia. x 1" lgth. Shaft ¼" dia.

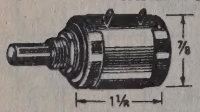
Stock Number	Ohms		EACH 1-24	25-49	50-99	100-499
12F9826	1K 2K 5K	10K 20K 50K 100K	21.33	19.20	16.00	13.86

10-TURN 2 WATT ⅞" DIAMETER CONDUCTIVE PLASTIC MODEL 3501S-1

Infinitron® conductive plastic element provides essentially infinite resolution. Exceeds moisture resistance requirements of MIL-R-39023. Power: 2.0 watts at 70°C (325 volts maximum). Independent Linearity: ±.5% maximum. Max. Oper. Temp.: 105°C. Tolerance: ±10%. Size: ⅞" dia. x 1" lgth. Shaft ¼" dia.

Stock Number	Ohms	EACH 1-24	25-49	50-99	100-499
12F9768	1K 5K 10K 500K	30.87	27.87	23.15	20.07

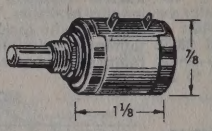
10-TURN 2 WATT INDUSTRIAL ⅞" DIAMETER WIRE-WOUND MODEL 3507S-1



Excellent wiper stability. Power: 2 watts at 25°C. Absolute min. Resistance: 1.0 or 0.25%, whichever is greater. Max. oper. temp.: 105°C. Size: ⅞" dia. x 1⅛" lg. Screwdriver slot standard. Shaft ¼" dia.

Stock Number	Ohms		EACH 1-24	25-49	50-99	100-499
12F9769	50 100 200 500 1K 2K	5K 10K 20K 50K 100K	16.75	13.97	12.90	11.98

10-TURN 2 WATT ⅞" DIAMETER WIRE-WOUND MODEL 3509S-1 and 3509S-8



Power: 2 watts at 25°C. Absolute Min.: 1 ohm or .25%, whichever is greater. Independent Linearity: ±0.25% max. Oper. Temp. Max.: 105°C. Tolerance: ±5%. **3509S-8** has metallic shaft bushing. **3509S-1** has nonmetallic shaft and bushing. Shaft ¼" dia.

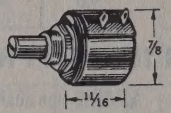
MODEL 3509S-1

Stock Number	Ohms		EACH 1-24	25-49	50-99	100-499
12F9770	100 200 500 1K 2K	5K 10K 20K 50K 100K	14.28	11.91	10.99	10.21

Model 3509S-8

12F9821	100 200 500 1K 2K	5k 10K 20K 50K 100K	16.75	13.97	12.90	11.98

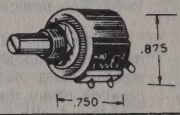
5-TURN 1.5 WATT ⅞" DIAMETER WIRE-WOUND MODEL 3520S-1



Exceeds humidity cycling requirements of MIL-R-12934. Power: 1.5 w at 70°C. Abs. Min. Resistance: 1.0 ohm or 0.1%, whichever is greater. Independent Linearity: ±0.3% max. Oper. Temp. Max. 125°C. Tolerance: ±3%. Size: ⅞" dia. x .678" lgth. Shaft ¼" dia.

Stock Number	Ohms		EACH 1-24	25-49	50-99	100-499
12F9771	1K	10K	28.73	25.86	21.55	18.67

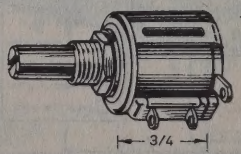
10-TURN 2 WATT ⅞" DIAMETER WIRE-WOUND MODEL 3540S-1



Extends only ¾" behind panel. Power: 2 watt @ 70°C. Tolerance: ±5%. Linearity: ±0.25%. Oper. Temp. Range: -55° to +125°C. Absolute Min.: 1.0 ohm or 0.1% whichever is greater. .875" dia. x 19/16" lgth. Shaft ¼" dia.

Stock Number	Ohms		EACH 1-24	25-49	50-99	100-499
12F9587	100 200 500 1K 2K	5K 10K 20K	8.74	7.87	6.99	6.56
	50K 100K		9.28 9.69	8.35 8.72	7.42 7.75	6.96 7.27

10-TURN 2 WATT ⅞" DIAMETER MODEL 3541S-1



Power rating of 2.0 watts at 70°C with resistance range of 1K to 100K. Resistance tolerance +10%. Minimum Voltage 0.2% maximum. Operating Temperature range -55°C to+125°C. Rotational Life is 5,000,000 shaft revolution. Weight approximately .80 oz.

Stock Number	Ohms	EACH 1-24	25-49	50-99	100-499
12F5000 12F5001 12F5002 12F5003 12F5004	1K 2K 5K 10K 20K	13.05	11.75	10.44	9.79

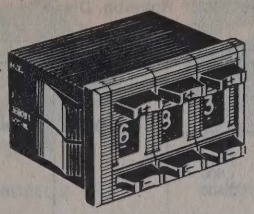
Potentiometers

BOURNS INC

PUSHBUTTON DIGITAL KNOBPOT MODEL 3683

2 WATT

Selectable resistance range from 1K to 1 Meg with ±1% tolerance. Power consumption is 2 watts at 25°C and 0 watts at 85°C. Dielectric strength is 1000 VAC. Life expectancy is 100,000 button operations/decade within operating temperature range of −25°C to +85°C. Size: 1.45"L x 1.00"W 0.80"H.



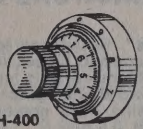
TWO MODULE

Stock No.	Type No.	Ohms	1-24	25-49	50-99	100-499
76F1091	3682S-1-102	1K	15.12	13.61	12.10	11.34
76F1092	3682S-1-103	10K				
76F1094	3682S-1-104	100K				

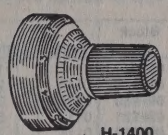
THREE MODULE

13F041	3683S-1-102	1K	22.51	20.26	18.01	16.88
13F042	3683S-1-202	2K				
13F043	3683S-1-502	5K				
13F044	3683S-1-103	10K				
13F047	3683S-1-104	100K				

- **Molded and filled markings**
- **Cam detent for positive lock**
- **Corrosion resistant**
- **Plastic and metal construction**



H-400



H-1400

For use with precision potentiometers or other rotating devices up to 10 turns. Mounts directly to pot shaft. Model H-1400 plastic and metal construction. Models H-400, H-700 stainless steel and aluminum. Oper. temp. -15°C to +85°C, except H-1400 -15°C to +70°C.

Stock No.	Type	Finish	Brake	Shaft dia.	1-24	25-49	50-99	100-499
13F3401	H-412	Black	Yes	¼"	14.28	12.82	11.42	10.71
13F3403	H-462	Clear	Yes	¼"	14.28	12.82	11.42	10.71
13F3407	H-1412	Black	Yes	¼"	11.85	10.67	9.48	8.89
13F3409	H-1462	Grey	Yes	¼"	11.85	10.67	9.48	8.89

TURNS COUNTING DIALS

For use with precision potentiometers or other rotating devices up to 30 turns. Mounts directly to pot shaft. 0.30 turns. 100 dial div. per turn. Oper Temp. Range: -15° to +85°C.

1"

H490

H500

1⅜

Stock No.	Type No.	Finish	Shaft Dia.	Brake	EACH 1-24	25-49	50-99	100-499
12F9416	H-492-2	Clear	⅛"	Yes	13.45	12.11	10.76	10.09
12F9418	H-494-2	Black	⅛"	Yes	13.45	12.11	10.76	10.09
12F9669	H-491-3	Clear	¼"	No	13.45	12.11	10.76	10.09
12F9670	H-492-3	Clear	¼"	Yes	13.45	12.11	10.76	10.09
12F9671	H-493-3	Black	¼"	No	13.45	12.11	10.76	10.09
12F9672	H-494-3	Black	¼"	Yes	13.45	12.11	10.76	10.09
12F9674	H-510-2	Clear	¼"	Yes	13.22	11.90	10.58	9.92

TURNS COUNTING DIALS

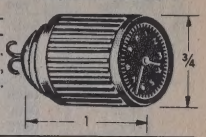
CT 23 CT 26

CT 23/26 digital Turns-Counting Dials give you the choice of panel front or recessed mounting. These highly accurate dials will enhance the man-machine interface of any control panel. Easy to read white on black numerals provide excellent legibility and accurate readings within 1/500 of a turn.

Stock No.	Type	Finish	Shaft Dia.	Brake	1-24	25-49	50-99	100-499
13F1710	CT23	White	¼"	Yes	17.29	15.56	13.83	12.97
13F1711	CT26	White	¼"	Yes	18.12	16.31	14.50	13.59

10-TURN 1.5 WATTS ¾" DIA. KNOBPOT® MODEL 3600S-1

Phasing of dial readout to potentiometer performed at factory with accuracy of ±0.5% (including linearity). Power Rating: 1.5 watts at 25°C. Absolute Minimum Resistance: 1.0 ohm or 0.1%, whichever is greater. Maximum Operating Temp. 85°C. Tolerance: ±5%. Size: ¾" dia. x 1" lgth.



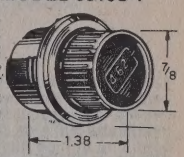
¾

1

Stock No.	Ohms	EACH 1-24	25-49	50-99	100-499
12F9774	500 1K 2K 5K 10K 20K 50K 100K	31.59	28.43	25.27	23.69

10-TURN 1.5 WATTS ⅞" DIA. KNOBPOT® MODEL 3610S-1

Integral digital readout, knob and potentiometer. Recessed lens. Snap-in mounting cup. ⅞" diameter. Behind panel extension less than ⅞". Power Rating: 1.5 watt at 25°C. Tolerance: ±5%. Accuracy: ±0.5% voltage ratio. Absolute Min. Resistance: 1 ohm or 0.1% whichever is greater. Oper. Temp. Range: −25° to +85°C. Temp. Coefficient of Wire Res.: 20 ppm/°C max. ⅞" dia. x 1⅓" lgth.



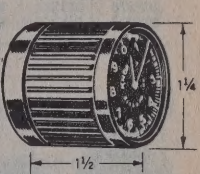
⅞

1.38

Stock No.	Ohms	EACH 1-24	25-49	50-99	100-499
12F9575	100 1K 2K 5K 10K 20K 50K 100K	30.72	27.65	24.58	23.04

10-TURN 2.5 WATTS 1¼" DIA. KNOBPOT® MODEL 3604S-1

Clock face readout provides excellent readability and setting accuracy. Phasing adjusted to ±0.1%. Repeatability to ±.05% voltage ratio. Power rating: 2.5 watts at 25°C. Abs. min. res.: 1.0 ohm or 0.1%, whichever is greater. Max. oper. temp.: 85°C. Tolerance: ±3%. Extends 9/16" behind panel. 1¼" diameter, 1½" out from panel. Requires two holes in panel: 0.413" and .0785".



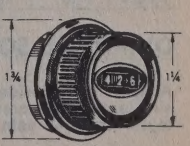
1¼

1½

Stock No.	Ohms	EACH 1-24	25-49	50-99	100-499
12F9663	1K 2K 5K 10K 100K	50.02	45.02	40.02	37.52

10-TURN 2.5 WATTS 1¼" DIA. KNOBPOT® MODEL 3650S-1

Digital readout, knob and potentiometer in one unit requires less front panel space than most dials alone. Readability of 1 part in 10,000. 0.05% repeatability of total applied voltage. Output accuracy within 0.1% of total applied voltage (including linearity). Power 2.5 watts at 25°C. Absolute min. resistance: 1.0 ohm or 0.1%, whichever is greater. Max. oper. temp.: 85°C. Tolerance: ±3%. Knob dia.: 1¼". Extends total of 1.58" behind panel front.



1¾

1¼

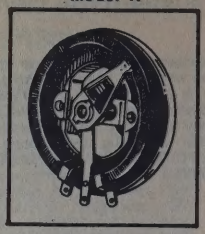
Stock No.	Ohms	EACH 1-24	25-49	50-99	100-499
12F9664	1K 2K 5K 10K	67.89	61.30	54.31	50.92

OHMITE Wire Wound Power Rheostats

ALL RHEOSTATS SUPPLIED LESS KNOBS. MODEL R—500 WATT

Mounts on panels to 1", by two ¼"—20 screws. Shaft diameter ⅜". 325° Rotation. Dia. 6". See Specification Table on previous page.

Model R



Stk. No.	Type	Ohms	Stk. No.	Type	Ohms	1-2	3-Up
11F176	0855	5	11F185	0863	175	52.06	44.24
11F177	0856	8	11F186	0864	250		
11F178	0857	12.5	11F187	0865	325		
11F179	0858	16	11F188	0866	500		
11F180	0859	25	11F189	0867	750		
11F181	0860	40	11F190	0868	1,000		
11F182	0872	50	11F191	0869	1,500		
11F183	0861	80	11F193	0871	2,500		
11F184	0862	125					

MODEL C—7½ WATT STANDARD MINIATURE RHEOSTATS

Stock No.	Type	Ohms	Amps	1-4	5-9	10-Up
11F203	4910	25	.55	28.03	23.88	18.81
11F204	4912	50	.39			
11F206	4914	100	.27			
11F234	4919	500	.12			

Compact power rheostats for limited space applications. For high temperature applications; operates at max. hot spot temp. of 340°C. Rugged ceramic and metal construction. Only .515 dia. ⅞" behind panel. Shaft dia. ⅛". Rotation 300° ±5°. Resistance tol. ±10%. Mounts with ¼-32 bushing on panels to ⅛" thick. Standard knob No. 5151. Solder terminal also fit EIA Type TS-E3R100 transistor socket.

MODEL E—12½ WATT UNENCLOSED MINIATURE RHEOSTATS

12½-Watt Miniature Rheostat. Standard shaft unenclosed. Rugged all-ceramic and metal construction. Use where 12½ watts dissipation is needed but space is limited. Operation at a maximum hot spot temperature rise of 300°C at an ambient of 40°C, but also useful for operating at high military ambients, derated linearly to zero at 340°C. Specifications. Overall diameter: ⅞".

Shaft diam. ⅛". Resistance range: Up to 5000 ohms with vitreous enamel; higher values available with (†) Ohmicone silicone-ceramic coating. Resistance tol: ±10%. Standard Mounting: for panels up to ⅛", ¼-32 threaded bushing. With non-turn lug. Rotation: 300° ±5%. Shpg. wt. 0.6 oz.

Stock No.	Type	Ohms	Max. Amps	1-4	5-9	10-24	25-49
09F695	0101	1	3.53	11.15	9.48	7.47	6.12
09F966	0102	2	2.50				
09F967	0103	3	2.04				
09F968	0104	6	1.44				
09F969	0105	8	1.25				
09F970	0106	10	1.12				
09F971	0107	15	.91	10.82	9.21	7.27	5.95
09F972	0108	25	.71				
09F973	0109	35	.60				
09F974	0110	50	.50				
09F975	0111	75	.41				
09F976	0112	100	.35				
09F977	0113	125	.32				

Stock No.	Type	Ohms	Max. Amps	1-4	5-9	10-24	25-49
09F978	0114	175	.27	10.82	9.21	7.27	5.95
09F979	0115	250	.22				
09F980	0116	350	.19				
09F981	0117	500	.16				
09F982	0118	750	.13				
09F983	0119	1,000	.11	11.15	9.48	7.47	6.12
09F984	0120	1,500	.091				
09F985	0121	2,500	.071				
09F986	0122†	3,500	.061	13.45	11.43	9.01	7.40
09F987	0123†	5,000	.050				
09F988	4190†	7,500	.041	14.34	12.19	9.61	7.88
09F989	4191†	10,000	.035				
09F991	4193†	15,000	.029	15.60	13.27	10.47	8.59

RHEOSTAT ACCESSORIES

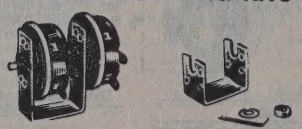
KNOBS FOR OHMITE RHEOSTATS

5105 5104 5150 5151

5105—Handwheel without pointer. For models N & R. **5104.** Same but with pointer. **5150** for models H, J, K, L "AB" pots, except CLU. Model **5151** for Model E.

Stk. No.	Type	1-9	10-49	50-Up
11F023	5105	6.32	5.37	4.11
11F200	5104	7.30	5.84	4.75
11F024	5150	1.76	1.41	1.14
11F025	5151	1.94	1.65	1.26

TANDEM COUPLING KITS



Type 6532 for models H and J; couple models K, H, J, or L in rear position. Type **6533** for models K and L; couple models H, J, K, or L in rear position. **Type 6591** for model E thermostats. Shpg. wt. 5 oz.

Stk. No.	Type	1-4	5-9	10-24	25-Up
11F196	6532	9.88	8.40	6.60	5.42
11F197	6533	12.65	10.76	8.47	6.96
11F195	6591	6.65	5.66	4.46	3.66

DIAL PLATES

5000 5001

Finished dials for rheostats and other apparatus. Bright figures and lines on etched black backgrounds. Divisions 0-100 indicate percentage of resistance in circuits. **5007** for use with C, E, 1¼" dial dia. **5000** for use with H, J, G, K, L 2⅛"dial dia. **5001** for use with P, R, N, T, U. Dial dia. 5½".

Stk. No.	Type	1-9	10-49	50-Up
11F199	5000	.58	.50	.40
11F198	5001	2.05	1.73	1.32
11F194	5007	.58	.50	.40

OHMITROL SOLID STATE POWER AND MOTOR SPEED CONTROLS

Adaptable to a wide variety of applications by simple turn of screwdriver! Adjustment of integral trimmer sets starting point of control voltage within stated trimmer adjust range. Panel mount.

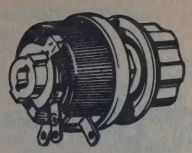
Stock No.	Type No.	Input V	Input Freq.	Voltage Adj.	Max. Ratings	1-9	10-24	25-Up
13F051	PCA-1000	120 VAC	60Hz	0-120 VAC	1KW, 8.3 Amps AC	42.26	38.06	33.81
13F052	PCA-1050	120 VAC	60Hz	0-120 VAC	15 Amps AC	58.23	52.39	46.60
13F054	PCA-1020	240 VAC	60Hz	0-240 VAC	2KW, 8.3 Amps AC	53.19	47.91	42.55
13F056	PCD-1000	120 VDC	60Hz	0-120 VDC	*	82.32	74.08	65.86

(*) 6.0 Amps. DC-Resistive, 3.5 Amps. DC Motor Load

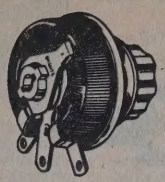
CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Wire Wound Power Rheostats

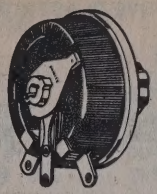
OHMITE



MODEL H



MODEL J



MODEL K

MODEL L

MODEL N

- UL LISTED EXCEPT (†)

All ceramic vitreous enameled construction. Wire wound over ceramic core. Shunt pigtail carries current to slip-ring. High strength ceramic hub insulates shaft and bushing. Resistance tolerance ± 10%. UL listed and marked series A except (†) high resistance Silicone Ceramic Coated models which are not UL listed.

Model	Body Dia.	Shaft Dia.	Rotation	Max. Panel Thickness	Mounting Hardware (*Not furnished with Rheostat)	Suggested Knob	Lb.
H 25w	1 9/16"	¼"	300° ± 5°	Up to ¼"	⅜"-32 Bushing with Hex Nut	5150	0.19
J 50w	2 5/16"	¼"	300° ± 5°	Up to ¼"	⅜"-32 Bushing with Hex Nut	5150	0.32
K 100w	3⅛"	¼"	300° ± 5°	Up to ¼"	⅜"-32 Bushing with Hex Nut	5150	0.64
L 150w	4"	¼"	300° ± 5°	Up to ¼"	2 Ea 10-32x¾" FH Screws*	5150	1.1
N 300w	6"	⅜"	320° ± 5°	Up to 1¼"	2 Ea ¼"-20x1¼" FH Screws*	5105	2.6
R 500w	8"	⅜"	325° ± 3°	Up to 1¼"	2 Ea ¼"-20x1½" FH Screws*	5105	4.0

ALL RHEOSTATS SUPPLIED LESS KNOBS - SEE NEXT PAGE FOR KNOB LISTING

5

MODEL H—25 WATT

Stk. No.	Type	Ohms	1-4	5-9	10-24	25-49
11F000	0140	1				
11F001	0141	2				
11F002	0142	3	11.72	9.98	7.85	6.43
11F003	0143	6				
11F004	0144	8				
11F005	0145	10				
11F006	0146	15				
11F007	0147	25				
11F008	0148	35				
11F009	0149	50				
11F010	0150	75				
11F011	0151	100				
11F012	0152	125	11.37	9.69	7.61	6.27
11F013	0153	175				
11F014	0154	250				
11F015	0155	350				
11F016	0156	500				
11F017	0157	750				
11F018	0158	1,000				
11F019	0159	1,500	11.72	9.98	7.85	6.43
11F020	0160	2,500				
11F021	0161	3,500				
11F022	0162	5,000	13.21	11.21	8.85	7.27
11F027	4201†	10,000	14.09	11.99	9.46	7.77
11F028	4202†	15,000	15.04	12.81	10.06	8.32
11F029	4203†	20,000	16.03	13.59	10.75	8.79
11F030	4204†	25,000	17.53	14.90	11.76	9.67

H-25 LOCKING SHAFT AVAILABLE ON SPECIAL ORDER.

MODEL J—50 WATT

Stk. No.	Type	Ohms	1-4	5-9	10-24	25-49
11F040	0308	0.5				
11F041	0309	1.0				
11F042	0310	2.0	13.75	11.71	9.21	7.56
11F043	0311	4.0				
11F044	0312	6.0				
11F045	0313	8.0				
11F046	0314	12.0				
11F047	0315	16.0				
11F048	0316	22.0				
11F049	0317	35.0				
11F050	0318	50.0				
11F051	0319	80.0	12.28	10.40	8.20	6.74
11F052	0320	125.0				
11F053	0321	150.0				
11F054	0322	225.0				
11F055	0323	300				
11F056	0324	500				
11F057	0325	800				
11F058	0326	1000				
11F059	0327	1600	12.99	11.06	8.72	7.15
11F060	0328	2500				
11F061	0329	3500				
11F062	0330	5000	13.75	11.71	9.21	7.56
11F064	0332	10000				
11F071	4215†	50000	28.00	23.82	18.78	15.44

MODEL K—100 WATT

Stk. No.	Type	Ohms	1-4	5-9	10-24	25-Up
11F076	0440	0.5				
11F077	0441	1	25.62	21.73	17.14	14.06
11F078	0442	2				
11F079	0443	3				
11F080	0444	5	23.85	20.26	15.95	13.09
11F081	0445	7.5				
11F082	0446	10				
11F083	0447	16				
11F084	0448	25				
11F085	0449	50				
11F086	0450	75				
11F087	0451	100	19.98	16.97	13.37	10.98
11F088	0452	200				
11F089	0453	300				
11F090	0454	400				
11F091	0455	500				
11F093	0457	1,000				
11F096	0460	2,500	23.85	20.26	15.95	13.09
11F097	0461	5,000	24.88	21.15	16.66	13.68

MODEL L—150 WATT

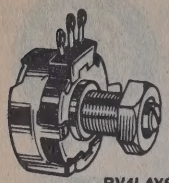
Stk. No.	Type	Ohms	1-4	5-9	10-24	25-Up
11F100	0524	0.5				
11F101	0525	1	28.37	24.12	19.01	15.62
11F102	0528	5				
11F103	0530	10	24.80	21.11	16.63	13.67
11F115	0531	15				
11F104	0532	25				
11F105	0534	50				
11F106	0536	100				
11F107	0537	150	23.01	19.60	15.43	12.69
11F108	0538	200				
11F109	0539	250				
11F110	0541	500				
11F111	0543	1,250	26.60	21.11	16.63	13.67
11F112	0545	2,250	28.58	22.63	17.82	14.63
11F113	0547	4,500	31.70	24.27	19.13	15.72
11F114	0549	10,000	38.83	33.00	26.02	21.37

MODEL N—300 WATT

Stk. No.	Type	Ohms	1-2	3-Up
11F130	0650	1		
11F136	0656	10		
11F137	0657	15		
11F138	0658	25		
11F139	0659	50		
11F140	0660	75		
11F141	0661	100	43.79	37.23
11F145	0665	400		
11F146	0666	700		
11F148	0668	1,200		
11F149	0669	1,500		
11F151	0671	2,500		

CLAROSTAT Potentiometers

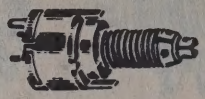
THICK FILM CONDUCTIVE PLASTIC POTENTIOMETERS



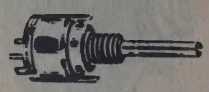
RV4LAYSA

RV4NAYSD

SERIES RV4—2 W THICK FILM CONDUCTIVE PLASTIC Meets Mil. Spec.—MIL-R-94B



RV6L



RV6N

A 2W pot. totally enclosed and sealed against moisture and other environmentals. High quality resistance device incorporating high-stability under extreme climatic and operational condtions. 1-1/16″ diameter and 9/16″ deep, .025″ dia. shaft. Brass nickel plated shaft, bushing and stainless steel cover. Terminals, hot tinned. **Resistance Tolerance:** Up to 1 megohm ±10%, above 1 megohm ±20%. **Electrical and Mechanical Rotation:** 312° ±3°. **Working Voltage:** 500 Vdc across end term, but power not to exceed rating. **Effective Rotation:** 270° +0° –10°. **Dielectric Strength:** 1,000 VAC, 60 Sec. ATM. **Rotational Life:** 25,000 Cycles. **Power Ratng:** 2 watt at 70°C. **Torque Range:** 1-4 oz. in. **Operating Temp.:** –55°C to +120°C. **Stop Torque:** 12 lb. in. **Weight:** .072 lb. **Functional Output:** Linear.

5

TYPE RV4LAYSD:

½″ long locking bushing. Slotted shaft ⅞″ lg. FMS.

Stk. No.	Type	Ohms	Stk. No.	Type	Ohms
8F687	RV4LAYSD501A	500	**8F694**	RV4LAYSD104A	100K
8F688	RV4LAYSD102A	1K	**8F696**	RV4LAYSD504A	500K
8F690	RV4LAYSD502A	5K	**8F697**	RV4LAYSD105A	1M
8F691	RV4LAYSD103A	10K	**8F699**	RV4LAYSD505B	5M
8F693	RV4LAYSD503A	50K			

Price	1–9	10–49	50–99	100–249
	6.56	4.59	3.68	2.63

TYPE RV4LAYSA:

½″ long locking bushing. Slotted shaft ⅝″ lg. FMS.

Stk. No.	Type	Ohms
9F1431	RV4LAYSA500A	50
8F715	RV4LAYSA101A	100
8F716	RV4LAYSA251A	250
8F717	RV4LAYSA501A	500
8F718	RV4LAYSA102A	1K
9F1439	RV4LAYSA152A	1.5K
8F719	RV4LAYSA252A	2.5K
8F720	RV4LAYSA502A	5K
8F721	RV4LAYSA103A	10K
9F1445	RV4LAYSA153A	15K
8F722	RV4LAYSA253A	25K
8F723	RV4LAYSA503A	50K
8F724	RV4LAYSA104A	100K
9F1451	RV4LAYSA154A	150K
8F725	RV4LAYSA254A	250K
8F726	RV4LAYSA504A	500K
8F727	RV4LAYSA105A	1M
9F1458	RV4LAYSA205B	2M
8F728	RV4LAYSA255B	2.5M
8F729	RV4LAYSA505B	5M

Price	1–9	10–49	50–99	100–249
	6.56	4.59	3.68	2.63

TYPE RV4NAYSD:

⅜″ long plain bushing. Slotted shaft ⅞″ lg. FMS.

Stk. No.	Type	Ohms
9F1400	RV4NAYSD500A	50
8F700	RV4NAYSD101A	100
9F1402	RV4NAYSD151A	150
8F701	RV4NAYSD251A	250
8F702	RV4NAYSD501A	500
8F703	RV4NAYSD102A	1K
9F1408	RV4NAYSD152A	1.5K
8F704	RV4NAYSD252A	2.5K
8F705	RV4NAYSD502A	5K
8F706	RV4NAYSD103A	10K
8F707	RV4NAYSD253A	25K
8F708	RV4NAYSD503A	50K
9F1418	RV4NAYSD753A	75K
8F709	RV4NAYSD104A	100K
9F1420	RV4NAYSD154A	150K
8F710	RV4NAYSD254A	250K
8F711	RV4NAYSD504A	500K
9F1424	RV4NAYSD754A	750K
8F712	RV4NAYSD105A	1M
8F713	RV4NAYSD255B	2.5M
9F1429	RV4NAYSD355B	3.5M
8F714	RV4NAYSD505B	5M

Price	1–9	10–49	50–99	100–249
	5.99	4.19	3.35	2.39

TYPE RV4NAYSB:

⅜″ long plain bushing. Slotted shaft ½″ lg. FMS.

Stk. No.	Type	Ohms
9F1482	RV4NAYSB502A	5K
9F1486	RV4NAYSB104A	100K
9F1489	RV4NAYSB105A	1M
9F1490	RV4NAYSB255B	2.5M

Price	1–9	10–49	50–99	100–249
	5.99	4.19	3.35	2.39

TYPE RV4NAYSK:

½″ long plain bushing. Slotted shaft 2½″ lg. FMS.

Stk. No.	Type	Ohms
9F1467	RV4NAYSK502A	5K
9F1468	RV4NAYSK103A	10K
9F1471	RV4NAYSK104A	100K
9F1474	RV4NAYSK105A	1M

MIL-R-94 STYLE RV6: High-resolution, highly stable for applications requiring miniaturization and reliability. Rated 0.5 W @ 70°C, derated to zero power @ 120°. Working voltage 350 VDC across end terminals. Mechanical and electrical rotation 295° ±3°. Voltage breakdown 750 VAC between terminals and ground for 1 minute. Available with standard or locking type bushing. RV6L Locking Bushing. RV6N Standard Bushing. Diameter: ½″. Shaft dia.: ⅛″. Shipping weight, 5 oz.

SERIES RV6L

Stk. No.	RV6L/AYSA Type	Ohms
9F2000	101A	100
9F2002	501A	500
9F2003	102A	1K
9F2005	502A	5K
9F2006	103A	10K
9F2009	503A	50K
9F2010	104A	100K
9F2014	105A	1M

Price	1–9	10–49	50–99	100–249
	5.50	4.27	2.56	2.22

SERIES RV6N

Stk. No.	RV6N/LAYSD Type	Ohms
9F2017	501A	500
9F2018	102A	1K
9F2019	252A	2.5K
9F2020	502A	5K
9F2021	103A	10K
9F2023	253A	25K
9F2024	503A	50K
9F2025	104A	100K
9F2029	105A	1M

Price	1–9	10–49	50–99	100–249
	5.50	4.02	2.41	2.09

SERIES RA20—2 WATT WIRE WOUND Meets Mil. Spec.—MIL-R-19A

Linear resistance taper. ±10% tolerance. 1 17/64″ dia. Shpg. wt. 7 oz. **RA20NASD:** Standard bushing ⅜″ long. Slotted shaft ¼″ diameter, ⅞″ long. FMS. **RA20LASB:** Locking bushing ½″ long. Slotted shaft ¼″ diameter ⅝″ long FMS.

Stk. No.	Type	Ohms
08F737	RA20NASD100A	10
08F740	RA20NASD250A	25
08F742	RA20NASD500A	50
08F750	RA20NASD102A	1K
08F752	RA20NASD202A	2K
08F753	RA20NASD252A	2.5K
08F755	RA20NASD502A	5K
08F756	RA20NASD103A	10K
08F767	RA20LASB101A	100
08F772	RA20LASB501A	500
08F774	RA20LASB102A	1K
08F779	RA20LASB502A	5K
08F780	RA20LASB103A	10K

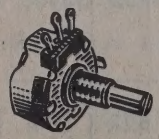
Type	1–9	10–49	50–99	100–249
RA20NASD	5.24	3.66	2.57	2.11
RA20LASB	5.24	3.79	2.70	2.27

SERIES RA30—4 WIRE WOUND Meets Mil. Spec.—MIL-R-19A

Linear resistance taper. 10% tolerance. 1 17/32″ dia. Shpg. wt. 7 oz. **TYPE RA30NASD:** ⅜″ long standard bushing. Slotted shaft ¼″ diameter, ⅞″ long FMS.

Stk. No.	Type	Ohms
08F788	RA30NASD100A	10
08F791	RA30NASD250A	25
08F793	RA30NASD500A	50
08F795	RA30NASD101A	100
08F796	RA30NASD151A	150
08F799	RA30NASD501A	500
08F800	RA30NASD102A	1K
08F802	RA30NASD202A	2K
08F805	RA30NASD502A	5.0K
08F807	RA30NASD103A	10K
08F808	RA30NASD203A	20K
08F809	RA30NASD253A	25K

Price	1–9	10–49	50–99	100–249
	5.92	4.33	3.13	3.29



- **Linear taper**
- **100,000 cycle rotational lifetime**

SERIES SC380C-3 SLIP-CLUTCH POTENTIOMETER

2 Watt conductive plastic. Potentiometer with Slip-Clutch action to prevent damage due to excessive torque. Res. Tol: 5K to 1M ±10%, above 1M ± 20%. Lin. ±5%. ⅞″ screwdriver slotted shaft fms. ⅜″ × ⅜″ bushing. ¼″ shaft.

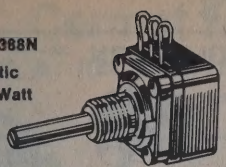
Stock No.	Res.	1–249
13F3340	5K	3.77
13F3341	10K	
13F3342	25K	
13F3343	1 Meg	
13F3344	2 Meg	

Potentiometers

CLAROSTAT

SERIES 388N

Conductive Plastic
½" Square—½ Watt



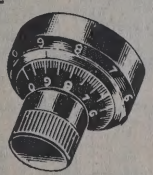
Linear taper carbon pot. with ¼" plain bushing, terminal hooks. Shaft dia. .125" x .750" lg. FMS. **Resistance Tolerance:** ±10% up to 500K, ±20% above. **Electrical and Mechanical Rotation:** 295° ± 5°. **Effective Rotation:** 265° ± 5°. **End Resistance:** 4Ω max. linear. **Dielectric Strength:** 750 VAC for 60 sec. atm. **Working Voltage:** 350 Vdc across terminals. **Dynamic Noise:** 1.5% total resistance. **Static Noise:** to 30K Ω: −20 DB, 100K Ω: −12 DB, 1 Meg and over: + 3 DB. **Linearity (Independent):** ±5%. **Voltage Coefficient:** .008%/volt (max). **Rotational Life:** 50,000 cycles. **Power Rating:** 5 watt at 70°C. **Torque Range:** .2 to 4.5 oz.-in. **Stop Torque:** 3 lb. in. **Weight:** .018 lb. (typical). **Functional Output:** Linear. **Insulation Resistance:** 1,000 Meg per MIL std. 202. **Resolution:** Infinite: **Corrosion Resistant:** Yes.

Stk. No.	Ohms	Stk. No.	Ohms
12F1100	100	**12F1108**	50K
12F1101	250	**12F1109**	100K
12F1102	500	**12F1110**	250K
12F1103	1K	**12F1111**	500K
12F1104	2.5K	**12F1112**	1M
12F1105	5K	**12F1113**	2.5M
12F1106	10K	**12F1114**	5M
12F1107	25K	.....	.....

	1-9	10-49	50-99	100-249
Price	4.08	3.06	2.63	1.90

"CLARODIAL"

10 TURN SCALE DIALS

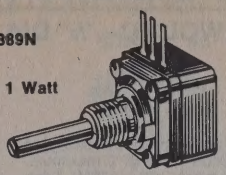


Calibrated dials designed for multiturn potentiometers up to 10 turns. Requires 1 inch of panel space. The knob attaches directly to the shaft and the body of the dial is mounted rigidly to the panel. Ratio of 1000 to 1 for 10 turns provided with zero backlash with reading error ¼" shaft.

Stock No.	Type	Color	1-24	25-49	50 99	100-Up
08F585	412	Black*	9.43	8.80	8.45	7.82
08F586	411	Black	8.74	8.17	7.82	7.36
08F587	462	Clear*	9.43	8.80	8.45	7.82
08F588	461	Clear	8.74	8.17	7.82	7.36

SERIES 389N

Cermet
½" Square — 1 Watt

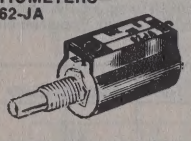


Linear taper cermet pot. with ¼" plain bushing, PC pin terminals. Shaft dia. .125" x .750" g. FMS. **Resistance Tolerance:** ±10%. **Electrical and Mechanical Rotation:** 295° ±5°. **End Resistance:** 4Ω max. linear. **Dielectric Strength:** 900 VAC for 60 Sec. ATM. **Working Voltage:** 350 Vdc across terminals. **Dynamic Noise:** 3% total resistance. **Static Noise:** 100Ω/sq is −24 DB, 10K Ω/sq is −9 DB, 100K Ω/sq is +1 DB. **Linearity (Independent):** ±5%. **Voltage Coefficient:** .008%/volt (max.). **Rotational Life:** 25,000 cycles. **Power Rating:** 1 watt at 85°C. **Torque Range:** 2 to 4.5 oz.-in. **Operating Temperature:** −55°C to +150°C. **Stop Torque:** 3 lb.-in. **Weight:** .018 lb. (typical). **Functional Output:** Linear or tapered. **Insulation Resistance:** 100 Meg per MIL std 202. **Resoluion:** Infinite. **Corrosion Resistant:** Yes.

Stk. No.	Ohms	Stk. No.	Ohms
12F1115	100	**12F1123**	50K
12F1116	250	**12F1124**	100K
12F1117	500	**12F1125**	250K
1251118	1K	**12F1126**	500K
12F1119	2.5K	**12F1127**	1M
12F1120	5K	**12F1128**	2.5M
12F1121	10K	**12F1129**	5M
12F1122	25K	.....	.....

	1-9	10-49	50-99	100-249
Price	4.08	3.06	2.63	1.90

10-TURN POTENTIOMETERS— SERIES 62-JA



Res. Tol.: 5%. Linearity: .25% 500-100K. Power dissipation: .2W @ 25°C. Rotation 360° nom. Ins. Res: 100 megohms. Max rotation speed: 60 RPM. Dielectric strength: 1000 VAC.

Stk. No.	Res.	Stk. No.	Res.	Stk. No.	Res.
08F570	100	**08F573**	1K	**08F577**	20K
08F569	200	**08F574**	2K	**08F578**	30K
08F571	250	**08F575**	5K	**08F579**	50K
08F572	500	**08F576**	10K	**08F580**	100K

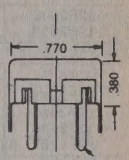
	1-9	10-99	100-Up
Prices	11.72	10.15	9.37

58C1 WIRE-WOUND POTENTIOMETERS

Standard bushings; wire wound. Rated 4 watts. Electrical tolerance is 5%. Shaft 2" FMS plain. Diam. 1 23/32 x 1" depth. Shpg. wt. 4 oz.

Stk. No.	Type	Ohms	NET
08F442	58C1-100	100	4.16
08F443	58C1-200	200	
08F448	58C1-1000	1K	
08F449	58C1-1500	1.5K	
08F450	58C1-2000	2K	
08F453	58C1-5000	5K	
08F455	58C1-10K	10K	
08F461	58C1-50K	50K	5.54

SERIES U80—3W WIREWOUND TRIMMER



Industrial shaftless trimmer for board mounting. Furnished with fiber adapter plate. Res. Tol: ±20%; Power Rating: 3W @ 55°C, OW @ 105°C; Rot: mech: 240°; elec: 215°.

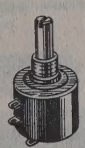
Stk. No.	Ohms	Stk. No.	Ohms
12F1145	5	**12F1149**	500
12F1146	50	**12F1150**	1K
12F1147	100	**12F1151**	2K
12F1148	200	**12F1152**	5K
Price	Net		1.10

43C 2-WATT WIRE WOUND

2 watt wire wound control. Tolerance 5%. ⅛ lg. screwdriver slotted shaft. Dia. 1 13/32 x 5/8" deep. Fabricated in accordance with MIL-R-19. Style RA20L. Shpg. wt. 4 oz.

Stk. No.	Type	Ohms	Net
08F401	42C2-10	10	4.62
08F403	43C2-25	25	
08F406	43C2-50	50	
08F408	43C2-100	100	
08F410	43C2-200	200	
08F413	43C2-500	500	
08F415	43C2-1000	1K	
08F421	43C2-5000	5K	
08F423	43C2-10K	10K	
08F479	43C2-50K	50K	6.09

SERIES 73JA 10-TURN WIRE-WOUND POTENTIOMETER



Specifications: Resistance Tolerance, ± 5% standard; Power Rating (watts) at 70°C derated to 0 at 125°C; Operating Temperature Range 55°C to 125°C; Temperature Coefficient ± 20 PPM/°C wire; Insulation Resistance 1000 megohms @ 500 V. maximum; Dielectric Strength 100 Vac for 60 seconds at ATM; Rotational Torque 0.5 oz. in. maximum; Environmental Rotational Life (shaft revolutions) 1,000,000.

Stk. No.	Type	Ohms	Stk. No.	Type	Ohms
9F1850	73JA-100	100	9F1856	73JA-10K	10K
9F1851	73JA-200	200	9F1857	73JA-20K	20K
9F1852	73JA-500	500	9F1858	73JA-25K	25K
9F1853	73JA-1K	1K	9F1859	73JA-50K	50K
9F1854	73JA-2K	2K	9F1860	73JA-100K	100K
9F1855	73JA-5K	5K			

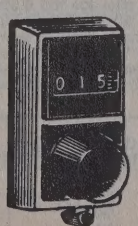
Price	1-9	10-24	25-49	50-99
	5.51	5.32	5.12	4.82

DIGI-DIALS

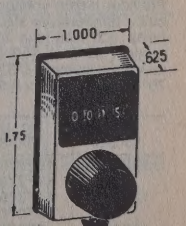
- **Large, Highly Readable Numerals**
- **Positive Braking Action**
- **Attractive Appearance**

Model DR-400. 100 turns. Four Digit-Left two digits indicate the number of completed revolutions of the turning knob and the right two digits indicate the percent of revolution. The unit register a total count of 9999. Satin chrome body finish. Knobs, bezel, and base are matte black plastic. White numerals on black background. Weight: 16 oz.
Model DR-300. Same above with three digits, 10 turn.

Stock No.	Type	Shaft Dia.	1-24	25-49	50-99	100-249	250-up
81F022	DR300	¼	14.40	11.70	10.95	10.25	9.60
81F023	DR400	¼	22.80	18.50	17.30	16.15	15.25



MODEL DR 300



MODEL DR 400

Spectrol Wirewound Trimmers

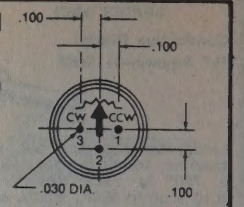
MODEL 84 WIREWOUND—½" DIA. ROUND SINGLE-TURN

- Meets Military Specifications

Higher power miniature trimmers for Military and industrial circuits. Designed to meet applicable portions of MIL-R-27208. Tempco of 50 PPM/°C maximum. Effective adjustment 300° nominal. Temperature range: –65 to 175°C. Tolerance ±5% 1.5 watt @ 70°C. Weight 1.7 Grams maximum.

84-3-8

84-3-10



5

TYPE 84-3-8 SCREWDRIVER ADJUST PC PINS

Stock No.	Ohms	1-9	10-24	25-49	50-99
12F2682 12F2683	200 500	6.00	5.60	5.25	4.90

Stock No.	Ohms	1-9	10-24	25-49	50-99
12F2684 12F2685 12F2686 12F1287	1K 2K 5K 10K	6.00	5.60	5.25	4.90
12F2688	20K	8.10	7.60	7.10	6.60

TYPE 84-3-10—KNOB ADJUST PC PINS

Stock No.	Ohms	1-9	10-24	25-49	50-99
12F2937	500	6.70	6.25	5.85	5.45

Stock No.	Ohms	1-9	10-24	25-49	50-99
12F2938 12F2939 12F2940 12F2941	1K 2K 5K 10K	6.70	6.25	5.85	5.45
12F2942	20K	8.30	7.75	7.25	6.75

MODEL 50 WIREWOUND RES. ELEMENTS FOR TEMP. STABILITY

Features and exceptional size/power factor, for service where space is limited. Can be integrated into almost any layout. Screw adjustment of 23 turns ±5. Stops/clutch feature. Tempco is 50 PPM/°C. Resistance tol. max. Model 50-3-11. Sug. Replacement for Model RT-24C2.

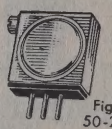


Fig. A
50-2-11

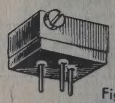
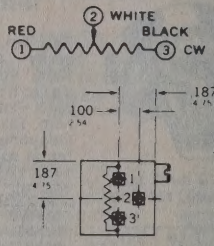


Fig. B
50-4-11

Fig. C
50-3-11



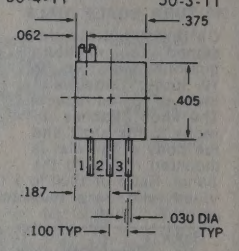
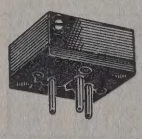


Fig. A 50-2-11	Fig. B 50-4-11	Fig. C 50-3-11	Ohms	1-9	10-24	25-49	50-99
67F3659 67F3660	67F3679 67F3680	67F3669 67F3670	500 1K	15.45	14.45	13.50	12.60
67F3661 67F3662 67F3663	67F3681 67F3682 67F3683	67F3671 67F3672 67F3673	2K 5K 10K				
67F3664 67F3665	67F3684 67F3685	67F3674 67F3675	20K 50K	17.50 18.75	16.35 17.50	15.30 16.40	14.25 15.25

MODEL 55, ½" SQ. MULTI-TURN METAL CASE MILITARY TRIMMER

55-3-X



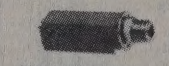
55-4-X

Provides higher voltage in a package only 0.500" square for demanding circuits. Temperature stable to 50 PPM/°C maximum. Screw adjusted with 23 turns ±3. Has idler at stops to prevent damage. Operating temperature range: –65°C to 150°C. 55-1-X has 6" Teflon leads and 0.093" diameter mounting holes on 0.520" centers. Resistance tolerance is ±5% 1.5 watt @ 70°C. Size: 0.500×0.500×0.190. Nominal. Weight: 2.5 Grams maximum.

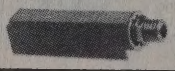
Fig. C 55-4-B	Fig. D 55-3-8	Ohms	1-9	10-24	25-49	50-99
12F2635 ..... 12F2637 ..... 12F2639	12F2794 12F2795 12F2796 12F2797 12F2798	500 1K 2K 5K 10K	20.35	19.00	17.75	16.55
.....	12F2799	20K 50K	21.45 22.50	20.00 21.00	18.75 19.65	17.45 18.30

MODEL 6 SNAP-ON PANEL MOUNT ADAPTERS

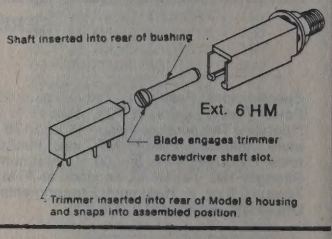
- Fits Model 40 & 70
- Easy Mounting
- Polyester Plastic



61-1-0



62-1-0


Shaft inserted into rear of bushing
Ext. 6 HM
Blade engages trimmer screwdriver shaft slot.
Trimmer inserted into rear of Model 6 housing and snaps into assembled position

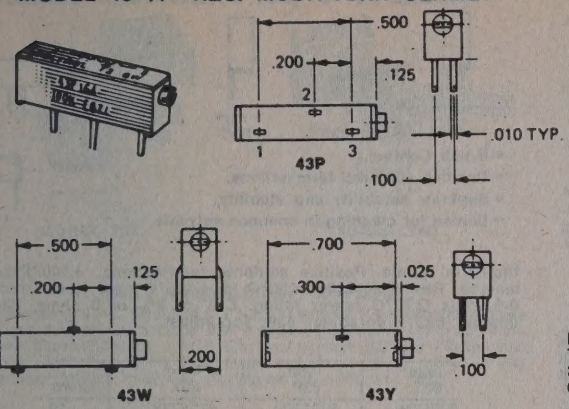
Spectrol's standard ¾ inch and 1¼-inch rectangular trimming potentiometers, the Models 43 and 70, may be easily panel-mounted through the use of Spectrol Model 6 Panel Mount Adapters. The adapters are designed to convert these standard trimmer models into panel mount trimmers in a quick, convenient, and economical manner. Assembly with the trimmer is accomplished by snap-in, providing for minimal installation time. Hardware included.

Stock No.	Type	Description	1-9	10-24	25-49	50-99
81F005	6-1-0	W/O Shaft	1.13	1.06	.99	.92
81F006	6-1-1	Shaft Flush	.23	.22	.20	.19
81F007	6-1-2	.575 Shaft Ext.	.30	28	.26	.25
81F008	6-1-3	.875 Shaft Ext.	.39	.36	.34	.32
81F009	6-2-0	W/O Shaft	1.13	1.06	99	.92
81F010	6-2-1	Shaft Flush	.23	.22	.20	.19
81F011	6-2-2	.575 Shaft Ext.	.30	.28	.26	.25
81F012	6-2-3	.875 Shaft Ext.	.39	.36	.34	.32

Cermet Multi-turn Trimmers

Spectrol

MODEL 43 ¾" REC. MULTI-TURN CERMET



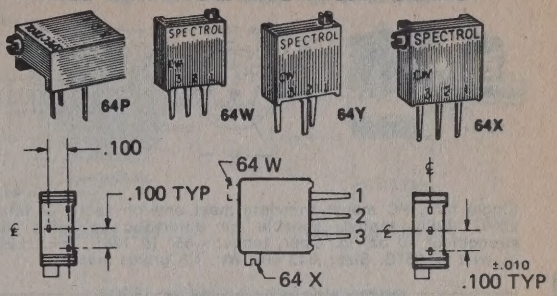
Designed for general use where cost and space are factors. Has 20 turn screw-driver adjustment with idling and stops. Operating temp. range:–65°C to 125°C. Fully sealed, suitable for automatic soldering. Wedge shaped pins make automatic insertion practical. Choice of 3 pin grids. Perfect for new or replacement purposes. Res. tol.: ±10%. ¾ watt @ 25°C. Size: .750 × .25 × 1.9.

Type 43P	Type 43W	Type 43Y	Ohms	Type 43P	Type 43W	Type 43Y	Ohms
12F4400	.....	.....	10	12F4409	12F4427	12F4445	10K
12F4401	.....	.....	20	12F4410	12F4228	12F4446	20K
12F4402	12F4420	12F4438	50	12F4411	12F4429	12F4447	50K
12F4403	12F4421	12F4439	100	12F4412	12F4430	12F4448	100K
12F4404	12F4422	12F4440	200	12F4413	.....	12F4449	200K
12F4405	12F4423	12F4441	500	12F4414	12F4432	.....	250K
12F4406	12F4424	12F4442	1K	12F4415	12F4433	12F4451	500K
12F4407	12F4425	12F4443	2K	12F4416	12F4434	12F4452	1 Meg
12F4408	12F4426	12F4444	5K	12F4417	12F4435	12F4453	2 Meg

PRICE

Type	Ohms	1-9	10-24	25-49	50-99	100-249	250-499
Model 43	10-5K	1.35	1.25	1.20	1.15	1.10	1.05
	10-2 Meg	1.35	1.25	1.20	1.15	1.10	1.05

MODEL 64 ⅜" SQ. MULTI-TURN CERMET



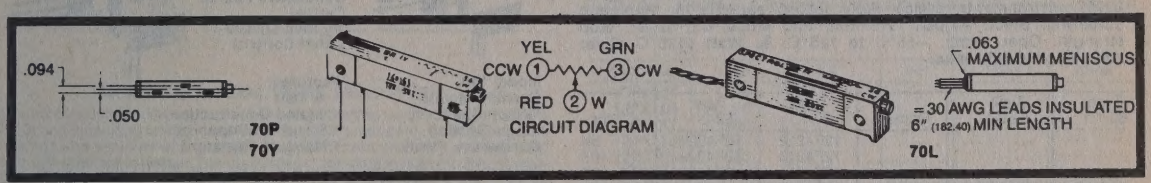
Industrial grade trimmer with positive gear drive. 25 turn nom. Fully sealed. Tempco ±100ppm/°C. Res. tol. 10%. Power rating 0.5 watts @ 70°C. CRV of 3% or 3 ohms. Oper. Temp. –55°C to +125°C. Adjustment screw: 64P, end; 64W, side; 64X, top; 64Y, top. 2 lb. min. terminal.

Type 64P	Type 64X	Type 64W	Type 64Y	Ohms
67F5755	67F5774	67F5821	67F5840	10
.....	67F5775	67F5822	67F5841	20
67F5757	67F5776	67F5823	67F5842	50
67F5758	67F5777	67F5824	67F5843	100
67F5759	67F5778	67F5825	67F5844	200
67F5760	67F5779	67F5826	67F5845	500
67F5761	67F5780	67F5827	67F5846	1K
67F5762	67F5781	67F5828	67F5847	2K
67F5763	67F5782	67F5829	67F5848	5K
67F5764	67F5783	67F5830	67F5849	10K
67F5765	67F5784	67F5831	67F5850	20K
67F5766	67F5785	67F5832	67F5851	25K
67F5767	67F5786	67F5833	67F5852	50K
67F5768	67F5787	67F5834	67F5853	100K
67F5769	67F5788	67F5835	67F5854	200K
67F5770	.....	67F5836	67F5855	250K
67F5771	67F5790	67F5837	67F5856	500K
67F5772	67F5791	67F5838	67F5857	1 Meg
.....	67F5792	67F5839	67F5858	2 Meg

PRICE

Type	1-9	10-24	25-49	50-99	100-249	250-499
Model 64	2.00	1.90	1.75	1.65	1.55	1.45

MODEL 70 1¼" RECTANGULAR MULTI-TURN CERMET



- **1000 hr. operating life**
- **200 cycle min. rotational life (loaded circuit)**
- **Will withstand 30 G's 10 to 2000 Hz vibrations**

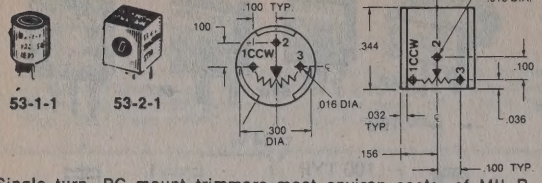
For use where higher operating wattage and temperature is desired. Resistance to humidity, shock and vibratioon. 20-turn screwdriver adjustment with idling end stops. Insulated wire lead or PC pin models. Body mounting holes: .093" on 1" centers. Operating temp. range is .55°C to 150°C. Tolerance: 10% 1 Watt 85°C. Size: 1.250 × .315 × .190. Net wt. 3.3 Gms. Maximum,

Type 70P	Type 70Y	Ohms	1-9	10-24	25-49	50-99	100-249	250-499
67F3515	67F3534	10	2.45	2.30	2.15	2.00	1.90	1.75
67F3516	67F3535	20						
67F3517	67F3536	50						
67F3518	67F3537	100						
67F3519	67F3538	200						
67F3520	67F3539	500						
67F3521	67F3540	1K						
67F3522	67F3541	2K						
67F3523	67F3542	5K						
67F3524	67F3543	10K						
67F3525	67F3544	20K						
67F3526	67F3546	50K						
67F3528	67F3547	100K						
67F3529	67F3548	200K						
67F3530	67F3549	250K						
67F3531	67F3550	500K						
67F3532	67F3551	1 Meg						
67F3533	67F3552	2 Meg						

Type 70L	Ohms	1-9	10-24	25-49	50-99	100-249	250-499
67F3553	10	3.55	3.30	3.10	2.85	2.70	2.50
67F3554	20						
67F3555	50						
67F3556	100						
67F3557	200						
67F3558	500						
67F3559	1K						
67F3560	2K						
67F3561	5K						
67F3562	10K						
67F3563	20K						
67F3565	50K						
67F3566	100K						
67F3567	200K						
67F3569	500K						
67F3570	1 Meg						

Spectrol Single Turn Cermet Trimmers

MODEL 53 11/32" Round & Cube Single Turn



53-1-1 53-2-1

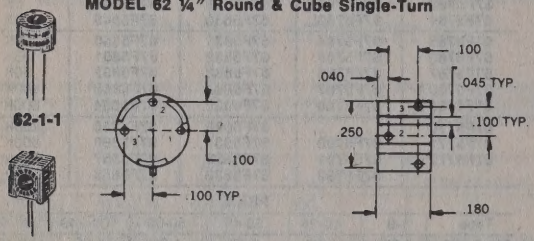
Single turn, PC mount trimmers meet environ sects. of MIL-R-22097. Fully sealed, suitable for automatic soldering. Stop strength of 10 oz. in. Oper. temp.: –65° to 125°. Tol.: ±20%. ½ watt @ 85°C. Size: .343 dia. Wt.: 1.5 grams max.

Type 53-1-1	Type 53-2-1	Ohms	Type 53-1-1	Type 53-2-1	Ohms
.....	.....	.....	12F3037	12F3053	5K
.....	.....	.....	12F3038	12F3054	10K
.....	.....	.....	12F3039	12F3055	20K
12F3032	12F3048	100	12F3040	12F3056	50K
12F3033	12F3049	200	12F3041	12F3057	100K
12F3034	12F3050	500			
12F3035	12F3051	1K	12F3043	12F3059	500K
12F3036	12F3052	2K	12F3044	12F3060	1 meg

PRICE

Type	1-9	10-24	25-49	50-99	100-249	250-499
53-1-1	1.95	1.80	1.70	1.60	1.50	1.40
53-2-1	1.95	1.80	1.70	1.60	1.50	1.40

MODEL 62 ¼" Round & Cube Single-Turn



62-1-1

62-2-1

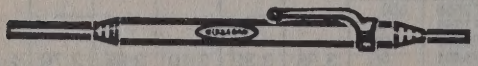
Single turn sub-miniature, PC mount trimmers meet MIL-H-22097 environmental specs. Fully sealed, suitable for automatic soldering. Elect. Adjust.: 215 min. End stops. 6.0 oz.-in. stop strength. Oper. temp. –55°C to 125°C. ¾ Watt @25°C. Size: .250. Wt.: 1.0 Gm. max.

Type 62-1-1	Type 62-2-1	Ohms	Type 62-1-1	Type 62-2-1	Ohms
.....	.....	.....	12F4212	12F4228	5K
.....	.....	.....	12F4213	12F4229	10K
.....	.....	.....	12F4214	12F4230	20K
12F4209	12F4225	500	12F4217	12F4233	200K
12F4210	12F4226	1K	12F4218	12F4234	500K
12F4211	12F4227	2K			

PRICE

Type	1-9	10-24	25-49	50-99	100-249	250-499
62-1-1	2.55	2.40	2.25	2.05	1.95	1.80
62-2-1	2.55	2.40	2.25	2.05	1.95	1.80

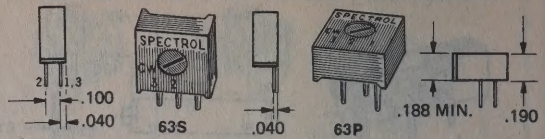
MODEL 8 TRIMMER ADJUSTMENT TOOL



Glass filled nylon body with corrosion resistant stainless steel blades. Extended as well as recessed blade for critical adjustments. Designed to adjust Trimmers of all sizes. Overall length is 5", diameter is .255".

67F5795 NET **$1.10**

MODEL 63 ⅜" SQ. SINGLE-TURN CERMET



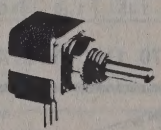
- **Brush Contact.**
- **Positive soldered terminations.**
- **Superior setability and stability.**
- **Sealed for cleaning in common solvents.**

Industrial grade. Positive soldered terminations. +100PPM/°C tempco. Res. Tol: 20%. –55°C to +125°C oper. temp. range. 0.5 watts @70°C power rating. CRV of 3% or 3 ohms. Brush contact. 63S. Side adjust. 63P: Top adjust.

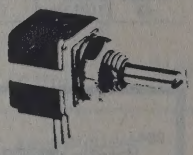
Type 63S	Type 63P	Type 63X	Ohms
67F5719	67F5700	67F5738	10
67F5720	67F5701	67F5739	20
67F5721	67F5702	67F5740	50
67F5722	67F5703	67F5741	100
67F5723	67F5704	67F5742	200
67F5724	67F5705	67F5743	500
67F5725	67F5706	67F5744	1K
67F5726	67F5707	67F5745	2K
67F5727	67F5708	67F5746	5K
67F5728	67F5709	67F5747	10K
67F5729	67F5710	67F5748	20K
67F5730	67F5711	67F5819	25K
67F5731	67F5712	67F5749	50K
67F5732	67F5713	67F5750	100K
67F5733	67F5714	67F5751	200K
67F5734	67F5715	67F5820	250K
67F5735	67F5716	67F5752	500K
67F5736	67F5717	67F5753	1 Meg
67F5737	67F5718	67F5754	2 Meg

PRICE

Type	1-9	10-24	25-49	50-99	100-249	250-499
63S	1.26	1.05	.94	.87	.82	.73
63P	1.26	1.05	.94	.87	.82	.73
63X	1.26	1.05	.94	.87	.82	.73



MODELS 148 ,149
Conductive Plastic Cermet
½ Inch square panel Control



Model 148
Bushing Mount
⅛ Inch Shaft
Single Section
Conductive Plastic

Features:
- **.5 Watt**
- **Sealed Construction**
- **Stand Off Supports**
- **Moisture Resistant**

Single turn potentiometer for panel mounting with outstanding performance. Case ½ in. sq., linearty tolerance ±5% independent; rotation 265° ±5°; torq., starting and running 0.3 to 3.0 oz-in; stop strength 48 oz-in.

148—Conductive plastic—power rating 0.5 watt @ 70°C; temp. coef. ±500ppm/°C; contact resistance variation 1.5% of total res.; operating temp. –55°C to 125°C.

149—"Cermet"—power rating 1.0 watt @ 85°C; temp. coef. ±150 ppm/°C; contact resistance variation 3% of total res.; operating temp. –55°C to 150°C.

Additional sections: ganging up to 4 Modual with other option are available on special order.

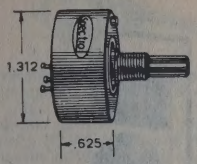
Stk. No. Type 148	Stk. No. Type 149	Ohms	Stk. No. Type 148	Stk. No. Type 149	Ohms
		100			25K
		250			50K
		500			100K
81F1113	81F1112	1K	81F1113	81F1112	250K
		2.5K			500K
		5K			1 Meg
		10K			2 Meg

Type No.	1-9	10-24	25-49	50-99	100-249	250-499
148	2.55	2.40	2.25	2.10	1.95	1.80
149	2.80	2.60	2.45	2.25	2.10	2.00

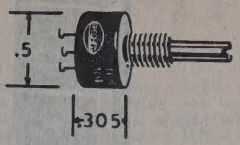
Precision Potentiometers

Spectrol

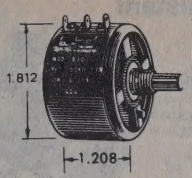
PRECISION LINEAR WIREWOUND



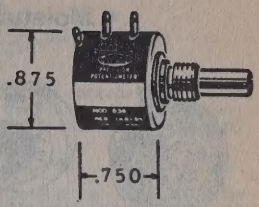
MODEL 132



MODEL 140



MODEL 830



MODELS 533, 534

MODEL 132 SINGLE-TURN WIRE WOUND

2.75 watts @ 40°C. Size: 0.625″ × 1.312″ diameter. Precision potentiometer for general purpose industrial-use. Independent linearity: Up to 200 ohms, ±1%; above 200 ohms, ±0.5%. Electrical rotation: 352° ±2°. Temperature range: -55°C to +125°C. Shaft length including bushing: 0.875″ × 0.250″ diameter. Bushing: ⅜-32 × ⅜″. Resistance Tol. ±3%. Wt.: 1.0 oz.

Stock No.	Ohms	1-4	5-9	10-24	25-49
12F4043	100				
67F3513	200				
12F4044	500				
12F4045	1K	14.55	13.60	12.70	11.85
12F4046	2K				
12F4047	5K				
12F4048	10K				
12F4049	20K				

MODEL 830 3-TURN WIREWOUND

3.0 watts @ 40°C. Size: 1.218″ × 1.812″ diameter. Extra rugged design for machine controls and industrial test instruments. Independent linearity: ±0.25%. Has stops. Electrical rotation: 1080° +4° to -0°. Temperature range: -55°C to +125°C. Shaft length including bushing: 0.812″ × 0.2497″ diameterBushing: ⅜-32 × 5/16″. Resistance Tolerance: ±3%. Weight: 3.0 oz. maximum.

Stock No.	Ohms	1-4	5-9	10-24	25-49
12F2746	100				
12F2747	500				
12F2748	1K				
12F2749	2K	26.25	24.50	22.95	21.35
12F2750	5K				
12F2751	10K				
12F2752	20K				
12F2754	50K				

MODEL 533 (3-TURN), MODEL 534 (10-TURN)

Low cost industrial wirewound precision potentiometer available as three turn (533) and dual gang units as well as 10-turn (534) standard. Choose between bushing and servo-mounting styles. Rugged construction and superior stop strength inherent in design. Standard specs. common to both models: Resistance tol. ±5%; operating temp. -55°C to 125°C; temp. coeff. 20 PPM/°C; Shaft size 0.812″ length × 0.2497″ dia.; elec. and mech. rotation: 533: 1080° +10° -0°; 534: 3600° +10° -0°; power rating: 533: 1.0W; 534: 2.0W.

Ohms	533 Stock No.	534 Stock No.
100	12F4454	12F4463
200	12F4455	12F4464
500	12F4456	12F4465
1K	12F4457	12F4466
2K	12F4458	12F4467
5K	12F4459	12F4468
10K	12F4460	12F4469
20K	12F4461	12F4470
50K	.....	12F4471
100K	.....	12F4472

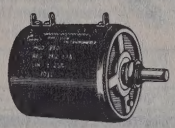
PRICE LIST

Type	1-4	5-9	10-24	25-49
533	10.50	9.80	9.15	8.55
534	8.90	7.90	7.40	6.90

MODEL 140 SINGLE-TURN WIREWOUND

2.0 watts @ 40°C. Size: 0.305″ × 0.500″ diameter. Precision miniature potentiometer. Independent linearity: ±1.0%. Has stops. Electrical rotation: 320° ±5°. Shaft length including bushing: 0.700″ × 0.1248″ diameter maximum. Bushing: ¼-32 × 5/16″. Resistance Tolerance: ±5%. Weight: 0.1 oz. maximum.

Stock No.	Ohms	1-4	5-9	10-24	25-49
12F2699	100				
12F2701	500				
12F2702	1K	12.90	12.05	11.25	10.50
12F2703	2K				
12F2704	5K				
12F2705	10K				
12F2706	20K				



860

162

- **Wide Temp. Range**
- **Independent Linearity**
- **Excellent Stop Strength**

10-TURN MODEL 860

High power model for wide service. Independent linearity: ±0.25%. Has stops. Electrical rotation: 3600° +4° to 0°. Temperature range: -55°C to 125°C. Shaft length including bushing: 0.812″ × 0.2497″ diameter. Bushing: ⅜-32 × 5/16″. Resistance Tolerance: Up to 200 ohms, ±5%; above, ±3%. 8.0 watts @ 40°C. Size: 2.000″ × 1.812″ diameter. Weight: 4.5 oz. maximum.

Stock No.	Ohms	1-4	5-9	10-24	25-49
12F2755	20				
12F2756	50				
12F2757	100				
12F2758	200				
12F2759	500				
12F2760	1K	26.25	24.50	22.95	21.35
12F2761	2K				
12F2762	5K				
12F2763	10K				
12F2764	20K				
12F2766	50K				
12F2767	100K				
12F2768	200K				

10-TURN MODEL 162 WIREWOUND

2.0 watts @ 40°C. Size: 1.000″ × 0.500″ diameter. Precision potentiometer for limited panel space. Independent linearity: ±0.3%. Has stops. Electrical rotation: 3600° +15° to -0°. Temperature range: -55°C to +125°C. Shaft length including bushing: 0.687″ × 0.935″ diameter. Bushing: ¼-32 × 0.281″. Resistance Tolerance: ±5%. Weight: 1.0 oz. maximum.

Stock No.	Ohms	1-4	5-9	10-24	25-49
12F2899	100				
12F2901	500				
12F2902	1K				
12F2903	2K	21.70	20.25	18.95	17.65
12F2904	5K				
12F2905	10K				
12F2906	20K				
12F2908	50K				

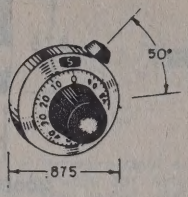
Spectrol

Turns Counting Dials

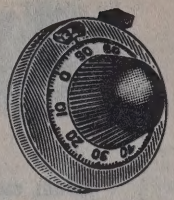
PRECISION MULTIDIALS®

- **Moisture Resistant**

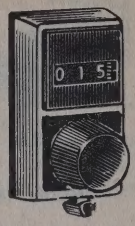
Model 11



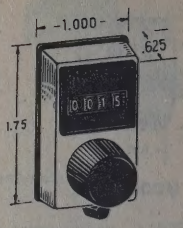
Model 16-1-11



Model 21



Model 15
(Model 15-1-13 Shown)



Model 15-2-11

5

Model 11. Eleven turns. Counts to 1099. Satin body finish. Black knob and brake lever. Black numerals. 1" diameter. For ¼" shaft. Order by stock number. Weight: 0.7 oz. maximum. 11-1-31 Same as above, except in brushed chrome finish, with black markings.

Stk. No.	Type	Shaft Dia	1-4	5-9	10-24	25-49
12F2773	11-1-11	¼"	14.95	13.50	13.05	12.15
12F4491	11-1-31	¼"	14.95	13.50	13.05	12.15

Model 16-1-11. Fifteen turns. Counts to 1499. Clear anodize body finish. Black turning and brake lever knobs. Size: .875" deep, .875" diameter, .250" shaft bore. Wt. 7 oz.

Stk. No.	Type	Shaft Dia	1-4	5-9	10-24	25-49
12F4498	16-1-11	¼"	8.80	8.20	7.65	7.10

Model 21. Fifteen turns. Counts to 1499. Satin body finish; black knob and brake lever. Black numerals. 1 3/16" diameter. For ¼" shaft. Order by stock number. Weight: 3.0 oz. maximum.

Stk. No.	Type	Shaft Dia	1-4	5-9	10-24	25-49
8F898	21-1-11	¼"	17.90	16.75	15.65	14.60

Model 15. Ten turns. Counts to 999. Satin body finish. Black removable knob, for shaft access after mounting. Smooth operating mechanism and positive brake. Size: 1.750" H x 1.0" W x 1.0" Lg. Weight 1.6 ozs. **Type 15-1-11:** Satin body finish; **Type 15-1-13:** Black anodized finish. Wt. 1.6 oz.

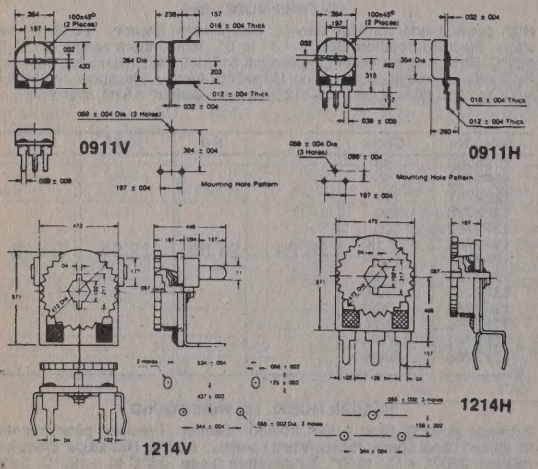
Stk. No.	Type	Shaft Dia	1-4	5-9	10-24	25-49
12F4492	15-1-11	¼"	16.10	15.05	14.10	13.10

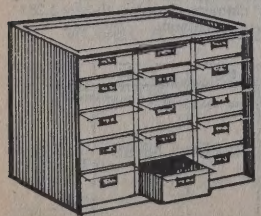
Model 15-2-11. 100 turns. Counts to 9999. Satin chrome body finish. Knobs, bezel, and base are matte black plastic. White numerals on black background. Size 1.75H x 1.00W x 1.00 Lg. Weight: 1.6 ounces.

Stk. No.	Type	Shaft Dia	1-4	5-9	10-24	25-49
12F4497	15-2-11	¼"	25.35	23.65	22.15	20.60

MALLORY

SUBMINIATURE TRIMMING POTENTIOMETERS





MALLOBIN

RVS151 A package containing cermet and carbon subminiature trimmer potentiometers. Horizontal and vertical mounting styles. Values from 500 ohms to 2 megohms.
81F000 Net **49.92**

¾ WATT CERMET SUBMINIATURE TRIMMING POTENTIOMETERS

Mallory subminiature adjustable trimming potentiometers provide excellent long-term reliability under adverse environmental conditions in an extremely small overall package.
Cermet units, additionally, provide considerably increased power dissipating capability in the same small package.

CERMET HORIZONTAL ADJUSTMENT

Stk. No.	Type RVG	Stk. No.	Type RVG	Ohm	1-49	50-99	100-249	250-499	500-999
81F001	0911H501	81F003	1214H501	500					
81F001	0911H102	81F003	1214H102	1000					
81F001	0911H252	81F003	1214H252	2500	.70	.61	.50	.43	.34
81F001	0911H502	81F003	1214H502	5000					
81F001	0911H103	81F003	1214H103	10K					
81F001	0911H253	81F003	1214H253	25K					
81F001	0911H503	81F003	1214H503	50K					
81F001	0911H104	81F003	1214H104	100K					
81F001	0911H254	81F003	1214H254	250K	.70	.61	.50	.43	.34
81F001	0911H504	81F003	1214H504	500K					
81F001	0911H105	81F001	1214H105	1 MEG					
81F001	0911H205	81F003	1214H205	2 MEG					

CERMET VERTICAL ADJUSTMENT

Stk. No.	Type RVG	Stk. No.	Type RVG	Ohm	1-49	50-99	100-249	250-499	500-999
81F002	0911V501	81F004	1214V501	500					
81F002	0911V102	81F004	1214V102	1000					
81F002	0911V252	81F004	1214V252	2500	.80	.69	.57	.48	.38
81F002	0911V502	81F004	1214V502	5000					
81F002	0911V103	81F004	1214V103	10K					
81F002	0911V253	81F004	1214V253	25K					
81F002	0911V503	81F004	1214V503	50K					
81F002	0911V104	81F004	1214V104	100K					
81F002	0911V254	81F004	1214V254	250K	.80	.69	.57	.48	.38
81F002	0911V504	81F004	1214V504	500K					
81F002	0911V105	81F004	1214V105	1 MEG					
81F002	0911V205	81F004	1214V205	2 MEG					

Mallory Controls

MALLORY

TYPE MLC — SUBMINIATURE

Subminiature Carbon Control. Only ½" diameter. **Rated ¼ watt linear, ⅛ watt audio.** ¼" 32 x ¼" bushing with nut. Shaft: ⅛" diameter x 1 7/16" FMS, MLC (steel); MLCN (nylon). (*) Indicates an SPST switch rated 3 amperes at 125 VAC, UL approved. Tolerance ±20%.

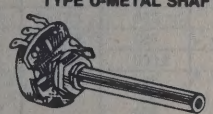
Taper No. 1: Logarithmic used in audio circuits where percent of change is small at start of rotation.
Taper No. 2: Reverse logarithmic used where percent of change must be large at start of rotation.
Taper No. 4: Linear taper where percentage of resistance change is directly proportional to rotational change on a straight line.

Stk. No.	Type	Ohms	Taper	Net
60F2164	MLC13L	1K	4	A
60F2168	MLC53A	5K	1	A
60F2170	MLC53L	5K	4	A
60F2171	MLC53LS*	5K	4	B
60F2172	MLC14AS*	10K	1	B
60F2173	MLC14L	10K	4	A
60F2174	MLC54L	50K	4	A
60F2175	MLC15A	100K	1	A
60F2176	MLC15L	100K	4	A
60F2181	MLC55LS*	500K	4	B
60F2182	MLCN55L	500K	4	A
60F2186	MLCN16L	1M	4	A

PRICE CHART

CODE	1-24	25-49	50-99	100-249
A	2.33	2.15	1.92	1.87
B	4.56	4.21	3.77	3.66

TYPE U-METAL SHAFT



TYPE U

Universal replacement 19/16" dia. carbon control. ¼" dia. brass shaft w/adapters for knurled, slotted or flatted knobs. Hex nut incl. ⅜"32 x ⅜" bushing. **1 watt linear taper, ½ watt Audio taper. See Type MLC for Taper No. explanation.**

Stk. No.	Type	Ohms	Taper
09F073	U1	100	4
09F078	U4	1K	4
09F086	U14	5K	4
09F087	U18	10K	1
09F089	U20	10K	4
09F096	U29	25K	4
09F098	U33	50K	1
09F219	U35	50K	4
09F221	U39	100K	1
09F223	U41	100K	4
09F229	U46	250K	4
09F235	U54	1M	4

PRICE CHART

Type	1-24	25-49	50-99	100-249
U	2.73	2.52	2.26	2.19

SWITCHES FOR TYPE U. CONTROL

Add to Type U and others for versatility. Common shaft. Type US26 flame retardant, U.L. recognized.

Stk No.	Type	Description	Net
09F246	US26	SPST 6A @ 125V	A
09F248	US27	DPST 6A @ 125V	B

PRICE CHART

CODE	1-24	25-49	50-99	100-249
A	1.50	1.39	1.24	1.21
B	1.83	1.69	1.51	1.47

TYPE M-TC MINIATURE TRIMMER

MTC-4

MTC-1

For printed circuitry. Wherever an occasionally adjusted, low watt variable resistance source is needed. MTC-1 terminals for stand up mounting. MTC-4 terminals for flat mounting. Open cross slot for either blade or Phillips screwdriver. Tol.: ±20% Linear taper. **Rated ¼ watt.**

Resist. Ohm	Vert. Mount Stk. No.	Vert. Mount Type	PC Horz. Mount Stk. No.	PC Horz. Mount Type
100	60F2187	MTC-12L1	60F2229	MTC-12L4
250	60F2189	MTC-251L1	60F2231	MTC-251L4
500	60F2191	MTC-52L1	60F2233	MTC-52L4
1K	60F2193	MTC-13L1	60F2235	MTC-13L4
2K	60F2195	MTC-23L1	60F2237	MTC-23L4
3K	60F2196	MTC-33L1	60F2238	MTC-33L4
5K	60F2197	MTC-53L1	60F2239	MTC-53L4
10K	60F2200	MTC-14L1	60F2242	MTC-14L4
15K	60F2201	MTC-153L1	60F2215	MTC-153L4
20K	60F2202	MTC-24L1	60F2216	MTC-24L4
25K	60F2203	MTC-253L1	60F2217	MTC-253L4
50K	60F2204	MTC-54L1	60F2218	MTC-54L4
100K	60F2205	MTC-15L1	60F2219	MTC-15L4
250K	60F2208	MTC-254L1	60F2222	MTC-254L4
500K	60F2211	MTC-55L1	60F2225	MTC-55L4
1M	60F2212	MTC-16L1	60F2226	MTC-16L4
2M	60F2213	MTC-26L1	60F2227	MTC-26L4
3.5M	60F2214	MTC-355L1	60F2228	MTC-355L4

TYPE	1-24	25-49	50-99	100-249
MTC	.57	.53	.47	.46

LAB SAMPLE KIT

MTC 151 Mallobin. Contains assortment of subminiature carbon trimmer controls designed for printed circuitry. MTC-1 for vertical mounting and MTC-4 for horizontal mounting. All are packed in compact, easy to stack case. "Mallobin" contains values, 10 ohms to 5 megs.
60F2293. Type MTC 151 NET 27.07

TYPE LW WIRE WOUND CONTROL

Fully enclosed. Wire wound on filled Teflon strips. Terminals: End, steel w/tin coating; Center: copper alloy w/silver plating. **5 watt at 25°C, derated to 4 watts at 55°C** in a case of 19/16" dia. ⅜-32" x ⅜" bushing and ¼" x 11/16" FMS, hollow, knurled, screwdriver slotted shaft. Specify length and type. Linear taper. Res. range: 1-25 Kohm. Tol.: 10% standard, 5% on special order. Life: 10,000 cycles. Torque: 5-6" oz., 2 oz. nom.

Stk. No.	Type LW-	Ohms	Net	Stk. No.	Type LW-	Ohms	Net
27F1121	5	5	A	27F1101	250	250	A
27F1103	8	8	A	27F1116	500	500	B
27F1119	10	10	A	27F1113	1K	1K	B
27F1108	20	20	A	27F1120	1P5K	1.5K	C
27F1122	25	25	A	27F1104	2P5K	2.5K	C
27F1111	50	50	A	27F1109	5K	5K	D
27F1117	100	100	A	27F1115	10K	10K	D

PRICE CHART

Code	1-9	10-49	50-99	100-249
A	1.82	1.68	1.50	1.44
B	1.87	1.73	1.55	1.49
C	1.93	1.78	1.59	1.53
D	2.09	1.93	1.72	1.66

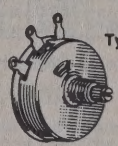
TYPE VW-5 WATT WIREWOUND CONTROL

Subminiature industrial 5 watt potentiometer. Case only ¾" by 15/32" deep. Bushing ⅜" x ⅜" in dia. and length. ¼" plain round shaft 2½" from mounting surface.

Stk. No.	Type	Ohms	Net	Stk. No.	Type	Ohms	Net
09F033	VW-1	1	A	09F055	VW-250	250	A
09F034	VW-2	2	A	09F058	VW-500	500	A
09F039	VW-10	10	A	09F061	VW-1K	1K	A
09F040	VW-15	15	A	09F063	VW-2K	2K	A
09F041	VW-20	20	A	09F064	VW2P5K	2.5K	A
09F042	VW-25	25	A	09F067	VW-5K	5K	A
09F045	VW-50	50	A	09F069	VW-10K	10K	B
09F048	VW-100	100	A	09F071	VW-20K	20K	B
09F049	VW-200	200	A	09F072	VW-25K	25K	B

PRICE CHART

Code	1-9	10-49	50-99	100-249
A	3.92	3.62	3.24	3.12
B	3.92	3.62	3.24	3.12



Type M-4 Watt Wirewound Control

Bias Control and Voltage divider. Arm insul. from shaft. Rotation: 275° electrical; 294° mechanical. 1⅝" dia. x 9/16" width. Mounts in ⅜" hole. weight 4 oz.

Stk. No.	Type M-	Ohms	Net	Stk. No.	Type M-	Ohms	Net
09F300	1PK	1	A	09F317	1MPK	1K	A
09F303	10PK	10	A	09F318	2MPK	2K	A
09F330	20PK	20	A	09F321	5MPK	5K	A
09F309	50PK	50	A	09F322	10MPK	10K	A
09F312	100PK	100	A	09F324	20MPK	20K	B
09F313	200PK	200	A	09F325	25MPK	25K	B
09F331	300PK	300	A	09F326	50MPK	50K	B
09F315	500PK	500	A	09F335	100MPK	100K	B

PRICE CHART

Code	1-9	10-49	50-99	100-249
A	4.23	3.91	3.49	3.36
B	4.61	4.26	3.80	3.66

15 WATT WIREWOUND AUDIO ATTENUATOR

T PAD L PAD

Shunt coil elements open at min. attenuation, placing load directly across output for max. volume. W/palnut and dial plate. **T, L 15 watt.**

T Pad Attenuator

Present constant impedance to both source (amplifier) and output (speaker). 1⅝" dia. x 1 11/16" Deep.

L Pad Attenuator

Constant impedance to source. Used where Output impedance is not critical. 1⅝" dia. x 1⅛" deep.

Stk. No.	Type	Ohms	Net	Stk. No.	Type	Ohms	Net
....	...	...	.	09F281	L4	4	C
09F253	T8	8	A	09F283	L8	8	C
....	...	...	.	09F284	L15	15	C
....	...	...	.	09F285	L50	50	D
09F260	T600	600	B	09F290	L600	600	D

PRICE CHART

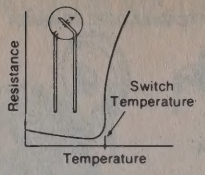
Code	1-9	10-49	50-99	100-249
A	12.96	11.97	10.70	10.29
B	14.27	13.18	11.78	11.33
C	8.78	8.11	7.25	6.97
D	9.38	8.66	7.74	7.45

5

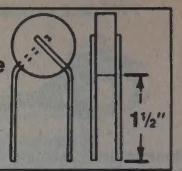
Keystone NTC and PTC Thermistors

PTC THERMISTORS—

Positive temperature coefficient themistors are characterized by an extremely large resistance change in a small termperature span. Temperature at which resistance begins to increase rapidly is referred to as the switch temperature (° C). All PTC resistances are ±30% @ 25 ° C.



All thermistors on this page are disc type with dip-soldered, radial leads



Stock No.	Type RL--PTO	R @ 25° C (Ohms)	Switch Temp. (° C)	V.	Max. Dia. (In.)	D.C.†	Price Code
20F700	3006-50-30-25	50	30° C	25	.320	7.0	A
20F701	3006-50-40-25	50	40° C	25	.320	7.0	A
20F702	3006-50-50-25	50	50° C	25	.320	7.0	A
20F703	3006-50-60-25	50	60° C	25	.320	7.0	A
20F704	5506-5-65-50	5.0	65° C	50	.580	14.0	B
20F705	5510-25-65-120	25	65° C	120	.580	15.0	B
20F706	3006-50-70-25	50	70° C	25	.320	7.0	A
20F707	3006-50-80-25	50	80° C	25	.320	7.0	A
20F708	3006-50-90-25	50	90° C	25	.320	7.0	A
20F709	3006-50-100-25	50	100° C	25	.320	7.0	A
20F710	3006-50-110-25	50	110° C	25	.320	7.0	A
20F711	5510-32-110-50	32	110° C	50	.580	20.0	B
20F712	3006-20-120-25	20	120° C	25	.320	8.0	A
20F713	3006-50-120-25	50	120° C	25	.300	7.0	A
20F714	3312-200-120-50	200	120° C	50	.350	12.0	C
20F715	5505-2.5-120-20	2.5	120° C	20	.580	14.0	B
20F716	5505-5-120-20	5.0	120° C	20	.580	14.0	B
20F717	6306-11-120-20	11	120° C	20	.660	15.0	D
20F718	8206-120-30	4.0	120° C	30	.860	20.0	E

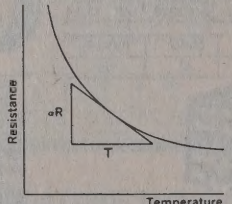
PTC-1 THERMISTOR KIT—1 each of 19 different types.
20F754 NET 29.95

NTC THERMISTORS—

Negative temperature coefficient thermistors decrease in resistance as temperature increases. Temp. coefficients range from −2%/° C to −5%/° C @ 25° C. Max. oper. temp. = 150° C.

$R = Ae^{B/T}$

$\alpha = -\frac{B}{T^2}$ = -2%/° C to -5%/° C



Stock No.	Type RL--PTO	R @ 26° C (Ohms)	Tol. ±%	Resist. Ratio††	Max. Dia. (in.)	D.C.†	Price Code
20F719	1004-65.6-59	100	20	5.53	.110	2.5	F
20F720	1003-312-73	500	10	6.85	.110	2.5	F
20F721	1007-624-73	1K	10	6.85	.110	2.8	F
20F722	1003-1746-97	3K	10	9.42	.110	2.5	F
20F723	1004-2910-97	5K	10	9.42	.110	2.5	F
20F724	1009-5820-97	10K	10	9.42	.110	3.0	F
20F725	1007-13770-120	25K	10	11.41	.110	2.8	F
20F726	1003-26670-140	50K	10	12.90	.110	2.5	F
20F727	1006-53330-140	100K	10	12.90	.110	2.8	F
20F728	1004-104550-155	200K	10	13.82	.110	2.5	F
20F729	2004-16.4-59	25	20	5.53	.220	6.5	G
20F730	2007-32.8-59	50	20	5.53	.220	6.5	G
20F731	2003-62.4-73	100K	10	6.85	.220	6.5	G
20F732	2005-124.8-73	200	10	6.85	.220	6.5	G
20F733	2008-187.1-73	300	10	6.85	.220	6.5	G
20F734	2013-312-73	500	10	6.85	.220	7.2	H
20F735	2004-582-97	1K	10	9.42	.220	6.5	G
20F736	2006-657-69	1K	20	6.45	.220	6.5	G
20F737	2007-1164-97	2K	10	9.42	.220	6.5	G
20F738	2009-1446-97	25K	10	9.42	.220	6.5	G
20F739	2010-1746-97	3K	10	9.42	.220	7.0	H
20F740	2006-2753-120	5K	10	11.41	.220	7.2	G
20F741	2012-5506-120	10K	10	11.41	.220	7.2	H
20F742	2006-13330-140	25K	10	12.90	.220	6.5	G
20F743	2012-26660-140	50K	10	12.90	.220	7.2	H
20F744	2008-52270-155	100K	10	13.82	.220	6.5	G
20F745	3004-6.56-59	10	20	5.53	.320	7.0	H
20F746	3504-31.2-73	50	10	6.85	.370	7.5	H
20F747	4004-174.6-97	300	10	9.42	.420	8.0	I
20F748	4504-3.28-59	5	20	5.53	.475	10.0	I
20F749	4504-15.6-73	25	10	6.85	.475	10.0	I
20F750	4504-116.4-97	200	10	9.42	.475	10.0	I
20F751	7605-6.24-73	10	20	6.85	.795	16.0	J
20F752	7605-58.2-97	100	10	9.42	.795	16.0	J

† D.C.—Dissipation Constant (MW/° C)
†† —Resistance Ratio—ratio of zero power resistance @ 0° C to zero power reistance @ 50° C
A-658 NTC THEMISTOR KIT—1 each of 34 different types
20F753 NET 29.95

INRUSH CURRENT LIMITERS

protect against high peak inrush current, especially in AC/DC switching switching power supplies.
- All resistances ±25% @C
- All parts are insulated with a protective coating

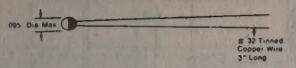
Stock No.	Type	No Load Res. @ 25° (Ohms)	Steady State Current (Amps)	25° C Load Ohms Load	Max. Dia.	Price Code
81F3385	CL-10	7	6 8 10 12	.120 .095 .085 .030	80 inch	K
81F3386	CL-20	1.3	4 5 6	.110 .080 .060	60 inch	L
81F3387	CL-30	2.5	6 7 8	.090 .070 .060	.80 inch	K
81F3388	CL-40	5	5 6	.140 .110	.80 inch	K
81F3389	CL-50	7.0	3 4 5	.300 .200 .160	.80 inch	M
81F3390	CL-60	10	2 3 4 5	.650 .390 .260 .200	.80 inch	K
81F3391	CL-70	16	3	.350	.80 inch	K
81F3392	CL-80	47	2	.850	.80 inch	K
81F3393	CL-90	120	1	3.000	.95 inch	N
81F3394	CL-100	.5	4 8 12 16 20	.100 .050 .030 .020 .010	.95 inch	N
81F3395	CL-120	10.0	6 1.3 1.7	1.020 .420 .280	.45 inch	O
81F3396	CL-140	50.0	3 5 1.0	4.560 2.380 1.010	.50 inch	O
81F3397	CL-160	5.0	.8 2.0 2.8	.740 .270 .180	.60 inch	P
81F3398	CL-180	16.0	.5 .8 1.0 1.7	2.170 1.280 .990 .560	.60 inch	P
81F3399	CL-200	25.0	.4 .8 1.0 1.7	3.060 1.310 1.000 .850	.60 inch	P

A-681 INRUSH CURRENT LIMITER KIT—1 each of 15 different types.
84F4900 NET 32.50

Price	1-99	100-249	250-499	500	1,000
A	3.36	2.26	1.36	1.01	.61
B	3.46	2.36	1.46	1.11	.71
C	3.52	2.42	1.52	1.17	.77
D	3.60	2.48	1.60	1.25	.85
E	3.93	2.83	1.93	1.58	1.18
F	2.90	1.90	1.20	.90	.58
G	2.68	1.68	.98	.68	.36
H	2.69	1.69	.99	.69	.37
I	2.33	1.73	1.03	.73	.41
J	2.45	1.84	1.14	.84	.52
K	2.87	1.87	1.17	.87	.55
L	2.77	1.77	1.07	.77	.45
M	2.89	1.89	1.19	.89	.57
N	2.92	1.92	1.22	.92	.60
O	2.35	1.74	1.04	.75	.42
P	2.75	1.75	1.06	.76	.44

Yellow Springs Instruments Thermistors

YSI 1% PRECISION THERMISTORS

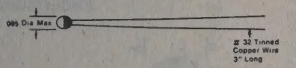


- **Low Cost Precision Thermistors**

Stock No.	Type	Ohms	Res. Tol.	Temp. Tol.	1-29	30-99	100-999
29F200	44001	100	1.0%	.3° C			
29F201	44002	300	1.0%	.3° C			
29F202	44003	1K	1.0%	.3° C			
29F229	44004	2.252K	.8%	.2° C			
29F203	44005	3K	.8%	.2° C	8.95	7.61	6.26
29F256	44007	5K	.8%	.2° C			
29F204	44006	10K	.8%	.2° C			
29F205	44008	30K	.8%	.2° C			
29F206	44011	100K	.8%	.2° C			
29F214	44014	300K	1.0%	.2° C			
29F215	44015	1 Meg	1.0%	.2° C			

Thermistors which match a published resistance-temperature curve and thus each other to ± 1% not only at 25° C but over most of their useable range of —80° C to +150° C. Each thermistor is provided with resistance-temperature data for each degree C and with tolerance curves both in resistance variation and temperature sensing interchangeability. Base resistance from 100 ohms to 1 Megohm at 25° C available to ease circuit design impedance matching problems. Useful as transducers for measurement and control circuits where precision of YSI thermistors allow interchanging of transducers and multiple monitoring from single circuits. In control circuitry direct dialing of set points is possible as is trigger action at a specific temperature since resistance at any usable temperature is known to close tolerances. Also useful as temperature compensating devices for transistors, meters, circuits, etc. Physical size: .095″ maximum dimension #32 solid tinned copper leads, 3″ long. Thermistors are epoxy encapsulated for ruggedness and long life. Each thermistor supplied with data and with dissipation information, time constant and instructions. Rated at 25°C.

YSI ½% PRECISION THERMISTORS

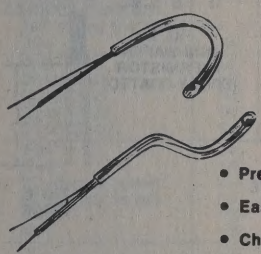


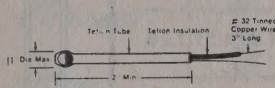
- **Twice the Precision over Previous YSI Devices**

Stock No.	Type	Ohms	Res. Tol.	1-29	30-99	999
29F223	44030	3K	.4%			
29F224	44031	10K	.4%			
29F225	44032	30K	.4%	14.30	12.15	10.01
29F228	44033	2.252K	.4%			
29F257	44034	5K	.4%			

Specifically designed to match published and provided curves to within ± ½% over exceptionally wide range! Units can be interchanged in measuring circuitry with a maximum 0.1°C error. Resistance tolerance data provided with each thermistor for each degree centigrade and its corresponding resistance shown from —40°C to +100°C. Physical size: .095″ diameter. #32 solid tinned copper leads, 3″ long. Thermistors are epoxy encapsulated for ruggedness and extremely long life. Individually packaged with dissipation information, time constant data, and instructions. Rated at 25°C.

YSI 1% TEFLON PRECISION THERMISTOR PROBES





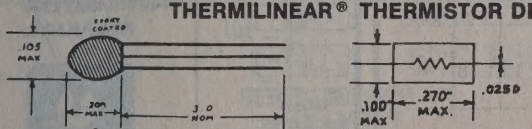
- **Precision—± 1% at 25°C.**
- **Easily bent to required shape**
- **Chemically impervious Teflon casing**

YSI interchangeable thermistors in chemically impervious form for sensing or control use. The interchangeable precision thermistors listed above, but additionally encased in a 2″ length of chemically impervious Teflon. 3″ leads extend 1″ beyond the probe for convenience in attaching leads. Leads are insulated from each other by a smaller Teflon tube around one lead. Probes can be used straight or can be bent by finger pressure to exact configuration required for placing the thermistor where you want it. 0.11″ max. in diameter.
Can be assorted for quantity prices.

Stock No.	Type	Ohms	Res. Tol.	Temp. Tol.	1-29	30-99	100-299
29F211	44106	10K	.8%	.2° C			
29F212	44108	30K	.8%	.2° C	17.10	14.53	11.97
29F213	44111	100K	.8%	.2° C			

Stock No.	Type	Ohms	Res. Tol.	Temp. Tol.	1-29	30-99	100-299
29F209	44103A	1K	1.0%	.3° C			
29F264	44104	2.252K	.8%	.2° C			
29F210	44105	3K	.8%	.2° C	17.10	14.53	11.97
29F258	44107	5K	.8%	.2° C			

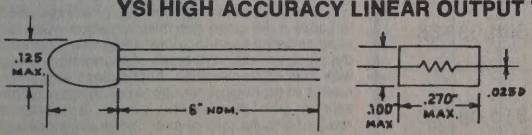
THERMILINEAR® THERMISTOR DEVICES Linear Output Thermistor Networks



Stk No.	Type	Range	Linearity	1-29	30-99	100-999
29F218	44201	0° to 100° C	±0.2° C			
29F219	44202	−5 to +45° C	±0.06°			
29F220	44203	−30 to +50° C	±0.16° C	18.10	15.38	12.67
29F221	44204	+30 to 100° F	±0.055° C			
29F226	44211	−55 to 85° C	±1.1° C			
29F222	44018	Extra Thermistor				
29F227	44019	−55 to 85° C	±1.1° C	13.65	11.60	9.55
29F252	44301	Values: R_1 3200 Ohm, R_2 6250 Ohm				
29F253	44302	Values: R_1 5700 Ohm, R_2 1200 Ohm		5.90	5.01	4.13

A composite precision thermistor device which in conjunction with the precision resistors supplied, provides linear voltage output or linear resistance, change with change of temperature. Sensitivities of 20 mv/°C. and more are common, 400 times the sensitivity of an IC thermocouple. Linearity deviation is as little as 2 parts in 1000 from 0 to 100°C. Combined absolute accuracy, linearity and interchangeability specifications of as little as 3 parts in 1000 from 0 to 100°C. Greater accuracies, interchangeabilities, and linearities available for shorter standard ranges. Parts guaranteed to stay within tolerances for three years. Useful for direct digital temperature indication with DVM or linear recorder. Provides linear temperature compensation with thermistor sensitivity. Time constant: 1 second, in well-stirred oil bath. Parts consist of composite thermistor and resistor assembly. For complete information and technical data, write Newark. Type 44018 and type 44019; additional thermistor composites for replacement or multiple input work. Items 44301 and 44302 are 0.1% metal film resistor sets (2 values per set) for use with thermistor composites.

YSI HIGH ACCURACY LINEAR OUTPUT THERMILINEAR THERMISTOR NETWORKS



Type 44212. Linear thermistor temperature transducer for use over a range of −50° C to +50° C. Uses a 3-thermistor composite and three resistors. Absolute accuracy and interchangeability is ±0.1° C. Linearity deviation is ±0.15° C with ±0.08° C possible with extra resistor selection.

Stk No.	Type	Range	Linearity	1-29	30-99	100-999
29F265	44212	−50° to 50° C	±0.15° C	34.05	28.94	23.83

See Test Equipment Section for a complete listing of YSI Thermovolt Thermometers

THERMISTORS

Fenwal® Electronics

BROADEST THERMISTOR LINE AVAILABLE ANYWHERE

5

GLASS COATED BEADS FIG. A

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec.)	L (In.)	D (In.)	B (In.)	Each 1-9	Each 10-24	Each 25-99
30F1722	GB31J1	1000	20	7.04	.4	.4	3/8	.043	. . .	4.43	3.54	2.88
30F1723	GB32J2	2000	20	7.04	.4	.4	3/8	.043	. . .	4.43	3.54	2.88
30F1724	GB35J1	3000	20	7.04	.4	.4	3/8	.043	. . .	5.31	4.25	3.45
30F1725	GB41J1	10 K	20	7.59	.4	.4	3/8	.043	. . .	5.31	4.25	3.45
30F1726	GA42J16	15 K	20	9.10	.4	.4	3/8	.043	. . .	6.20	4.96	4.03
30F1728	GA45J1	50 K	20	9.53	.4	.4	3/8	.043	. . .	4.87	3.90	3.17
30F1729	GA51J1	100 K	15	10.30	.4	.4	3/8	.043	. . .	4.43	3.54	2.88
30F1730	GA52J16	150 K	20	10.90	.4	.4	3/8	.043	. . .	4.43	3.54	2.88
30F1732	GA55J1	500 K	20	11.80	.4	.4	3/8	.043	. . .	5.31	4.25	3.45
30F1733	GA61J1	1000 K	20	13.12	.4	.4	3/8	.043	. . .	6.20	4.96	4.03

GLASS PROBES FIG. B

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec.)	L (In.)	D (In.)	B (In.)	Each 1-9	Each 10-24	Each 25-99
30F1765	GB31P2	1000	20	7.04	1.7	22	2	.100	1/2	3.28	2.62	2.13
30F1766	GB32P2	2000	20	7.04	1.7	22	2	.100	1/2	3.28	2.62	2.13
30F1767	GB32P8	2000	20	7.04	1.7	22	2	.100	1/2	3.85	3.08	2.50
30F1768	GB34P2	4000	20	7.04	1.7	22	2	.100	1/2	3.28	2.62	2.13
30F1770	GB41P2	10 K	20	7.59	1.7	22	2	.100	1/2	3.93	3.14	2.55
30F1774	GA45P2	50 K	20	9.53	1.7	22	2	.100	1/2	3.93	3.14	2.55
30F1776	GA51P2	100 K	15	10.3	1.7	22	2	.100	1/2	3.61	2.89	2.35
30F1778	GA52P2	200 K	20	10.3	1.7	22	2	.100	1/2	3.28	2.62	2.13
30F1779	GA55P2	500 K	20	11.78	1.7	22	2	.100	1/2	3.93	3.14	2.55
30F1781	GA61P2	1000 K	20	13.12	1.7	22	2	.100	1/2	4.59	3.67	2.98

THERMISTOR IN GLASS DIODE TYPE ENCLOSURE FIG. C

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec.)	L (In.)	D (In.)	B (In.)	Each 1-9	Each 10-24	Each 25-99
30F1744	PB32D1	2 K	10	6.95	2	8	1 1/8	.080	.180			
30F1745	PB35D1	5 K	10	6.95	2	8	1 1/8	.080	.180	1.89	1.51	1.23
30F1746	PB41D1	10 K	10	6.95	2	8	1 1/8	.080	.180			
30F1747	PA45D1	50 K	10	9.10	2	8	1 1/8	.080	.180			
30F1748	PA51D1	100 K	10	9.10	2	8	1 1/8	.080	.180	1.89	1.51	1.23
30F1749	PT55D1	500 K	10	11.60	2	8	1 1/8	.080	.180			
30F1750	PT61D1	1 meg	10	11.60	2	8	1 1/8	.080	.180			

UNI-CURVE R-T CURVE MATCHED THERMISTORS FIG. D

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec.)	L (In.)	D (In.)	B (In.)	Each 1-9	Each 10-24	Each 25-99
30F1797	UUA33J1	3,000	± 0.2	—	1	10	1 1/8	.095	—			
30F1798	UUA35J1	5,000	± 0.2	—	1	10	1 1/8	.095	—			
30F1799	UUA41J1	10,000	± 0.2	—	1	10	1 1/8	.095	—	4.72	3.99	3.25
30F1800	UUT43J1	30,000	± 0.2	—	1	10	1 1/8	.095	—			
30F1802	UUT51J1	100,000	± 0.2	—	1	10	1 1/8	.095	—			

MINI-WAFER THERMISTOR (EPOXY COATED) FIG. E

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec.)	L (In.)	D (In.)	B (In.)	Each 1-9	Each 10-24	Each 25-99
30F1751	FB31J1-WC	1 K	10	6.35	1.0	10	1 1/2	.095	—			
30F1752	FB32J1-WC	2 K	10	9.1	1.0	10	1 1/2	.120	—			
30F1753	FA41J1-WC	10 K	10	9.1	1.0	10	1 1/2	.095	—	2.19	1.78	1.47
30F1754	FA42J1-WC	20 K	10	9.1	1.0	10	1 1/2	.095	—			
30F1851	FT51J1-WC	100 K	10	10.45	1.0	10	1 1/2	.095	—			

GLASS COATED DISCS. FIG. F.

Stock No.	Mfrs. Type	Ohms @25°C	Tol. %	Resis. Ratio 0°C to 50°C	Diss. Const. mW/°C	Time Const. (Sec.)	L (In.)	D (In.)	T (In.)	Each 1-9	Each 10-24	Each 25-99
30F1758	JB25J1	500	10	6.95	3	10	1 1/2	.1	.035			
30F1759	JB31J1	1000	10	6.95	4	10	1 1/2	.1	.069	1.42	1.14	.92
30F1760	JA33J1	3000	10	9.10	3	10	1 1/2	.1	.029			
30F1761	JA35J1	5000	10	9.10	4	10	1 1/2	.1	.048			
30F1762	JA38J1	8000	10	9.10	4	10	1 1/2	.1	.076	1.42	1.14	.92
30F1763	JA41J1	10 K	10	9.10	4	10	1 1/2	.1	.095			
30F1702	KD05J1	5	10	4.80	4	20	1 1/2	.2	.027			
30F1704	KD13J3	30	10	4.80	4	20	1 1/2	.2	.160	1.35	1.08	.88
30F1705	KD14J1	40	10	4.80	6	50	1 1/2	.2	.213			
30F1706	KB21J1	100	10	6.95	4	16	1 1/2	.2	.028			
30F1707	KB22J1	200	10	6.95	5	18	1 1/2	.2	.055			
30F1708	KB23J1	300	10	6.95	6	20	1 1/2	.2	.083	1.35	1.08	.88
30F1709	KB25J1	500	10	6.95	6	25	1 1/2	.2	.138			
30F1710	KA31L1	1000	10	9.10	6	20	1 1/2	.2	.038			
30F1711	KA33J1	3000	10	9.10	6	22	1 1/2	.2	.114			
30F1712	KA35J3	5000	10	9.10	7	35	1 1/2	.2	.190			
30F1735	CA31J1	1000	10	9.10	8	48	1 1/2	.3	.085	1.35	1.08	.88
30F1741	LB15J1M	50	10	6.95	7	40	2	.4	.055			
30F1784	LB21J1M	100	10	6.95	8	65	2	.4	.110			
30F1829	LA31J1	1000	10	9.10	10	70	2	.4	.152	1.35	1.08	.88
30F1842	NA21J1	100	10	9.10	16	100	2	.77	.056	2.35	1.88	1.53
30F1846	ZB11J1M	10	10	6.95	30	140	2	1.00	.069	2.65	2.12	1.72

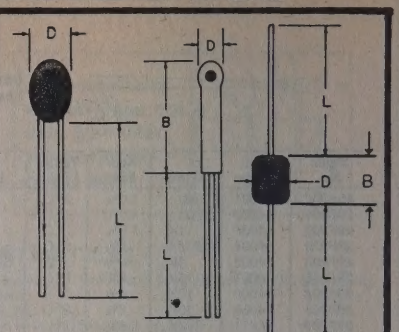


FIG. A GLASS COATED BEADS

FIG. B GLASS PROBES

FIG. C GLASS DIODE TYPE ENCLOSURE

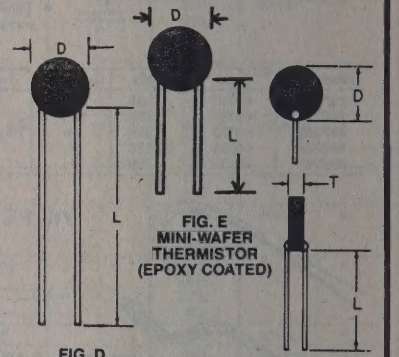
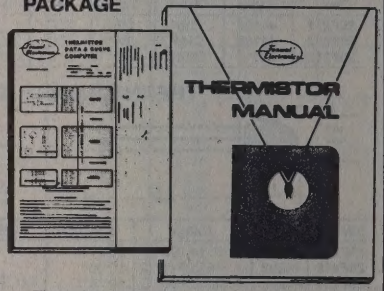


FIG. E MINI-WAFER THERMISTOR (EPOXY COATED)

FIG. D UNI-CURVE DISCS

FIG. F DISCS

THERMISTOR ENGINEERING PACKAGE



- **Thermistor manual**
- **Handy time-saving "computer"**
- **Specs on over 500 thermistors**
- **Resistance-Temperature charts**
- **All dimensions tabulated**

Includes 8½ × 11" Data and Curve "Computer." Displays resistance values alongside temperature points of thermistor curves. Shortens computation time. Includes dimensions. Package also includes a 36 page thermistor manual. Can be used as a step-by-step primer and guide. Contains definitions of different types of thermistors along with their characteristics. Applications and schematics of thermistor circuits. Application problem solving with thermistors. Linear temperature readout circuits. List of over 500 thermistors and their specs along with Temperature-Resistance tables and a glossary of terms. Schematics of typical circuits included.

30F1783. NET 2.50

CAPACITOR INDEX

General ordering information for capacitors: When specifying capacitors, the most necessary information items are:

1. Dielectric type: (e.g., Mica, Film, Tantalum, Electrolytic)
2. Capacitance*: Picofarad (pf) Or Microfarad (µf, mf, mfd)
3. Voltage: Usually working voltage DC or AC (e.g., 50 WVDC)
4. Capacitance Tolerance: e.g., ±X% (±10% is common industrial std.)
5. Size.

Manufacturer's Type	Page
ARCO	
CCD	199
DM5	199
DM10	199
DM15	199
DM19	199
DMS	199
TCA	199
TCD	199
TCP	199
CENTRALAB	
C40, C41, C48 + Kit	197
CE	194
CK	194, 196
CKR	196, 197
CN	198
CW	198
CZ	198
DC	194
DD	194, 195
DDA	194
DD30	195
DD60	195
SFT	219
UK	194
XX	194
XXDD	195
Kits	195
800 Filters	219
CORNELL DUBLIER	
APF (power line filters)	214, 215
CD6	182
CD7	183
CD10-CM04	183
CD15-CM-5	183
CD19-CM06	183
CD30-CM-07	183
IF54	215
FAH	182
CD (decade boxes)	215
RD (decade boxes)	215
MMW	180
NLW	182
PC	181
WBR	181
WBR (kit)	181
WMF	180
CORCOM	
ED	211
EF	210

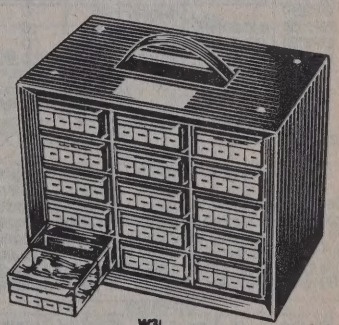
Manufacturer's Type	Page
CORCOM CONT.	
EH	210
EP	211
V, VJ	213
S, SK ,SP	212
V, W	212
VB, VK	210
VR	211
70	213
80	212
MURATA/ERIE	
CK, CKR	204
DD	205
E	205
EAB (trimmers)	205
PK	206
RP	204
RVA, RVG	206
7SB	206
1200	207
9000	207
GENERAL ELECTRIC	
21L	200
26F	200, 201
97F	200
5300	201
6700, 6900	201
Hardware	201
JOHANSON	
5200, 5400-5800, 9600	213
JOHANSON DIE.	
S	208
500	208
E. F. JOHNSON	
T	219
U	219
100	219
MALLORY	
CG, CGS	190
CGR	191
CK05, CK06	192
CMT	185
CMT Kit	185
CSR	186
CTL Kit	185
CTL	185
FP	189
HC	190
MTP	185
MTP Kit	185
NP	190

Manufacturer's Type	Page
MALLORY CONT.	
SX	193
SX Kit	187
SXK, SXL, SXM	193
SK301, Kit	187
TAC	186
TAC Kit	186
TC	188
TC Kit	188
TCG	189
TCG Kit	187
TCX	189
TCX Kit	187
TDC	184
TDC Kit	184
TDM	184
TDM Kit	184
TIHF Kit	187
TT	188
TT, Kit	188
VPR	191
VPR Kit	187
VTL	187
VTL Kit	187
VTT, Kit	187
WP	189, 193
Hardware	193
J. W. MILLER	
RPC	216
23A	217
48A	216
70F	216
4500, 4600	216
5200, 6300	216
9000	216
9100, 9300	217
75000	217
NYTRONICS	
DD	218
SWD	218
WEE-WEE	218
PLASTIC CAPACITOR	
HV, LK, OF	203
TUSONIX	
CK70	202
321, 327, 357, 362	202
518, 538, 557	202
801, 805, 811, 831	202
841, 851	202
2400	202
3192	202
5600, 5800, 5900	202

Manufacturer's Type	Page
SPRAGUE	
CS	164
CSR13	165
HY	169
J141, Kit	179
TE	173
TG	168
TVA	174
1FT	168
2DF	168
2PS	177
1C	169
2C	169
3C	169
4PS	177
5GA	169
5H	169
8PS, 10PS	177
20DK	168
30DK, 30DK	168
36DX	171
KE-11, Kit	179
KF-32, Kit	179
KE-21, Kit	179
KF-35, Kit	179
KF-37, Kit	179
KT-11	179
JX Filters	209
39D	172
75-327	171
109	164
150D	164
162D, 173D	167
192P	176
196D, 199D	166
225P	177
292C	168
431P	176
450P	176
501D	175
510D	178
503D	172
630D	174
672D 673D	175
715P	178
735D	178
923C	168
926C	168

6

SPC TECHNOLOGY



SPC CAPACITOR KIT

Type SAC-462

This general purpose kit includes SPC capacitors in most requested values of miniature aluminum electrolytic, ceramic disk and film capacitors. The 10"x8"x6½" metal cabinet has 15 see through drawers that make finding the capacitor easy. Labels list the type, capacitance and voltage range. Cabinets can be stacked or mounted on the wall.

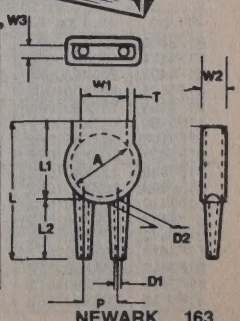
81F9240 type SAC-462 NET 130.95

CAPACITOR BOOTS

The Voltrex one-piece sleeve completely insulates leads and part of capacitor body allowing for increased insulation and higher component density. Available in: Round type for Ceramic and Titanium—Square type for Mylar—Tubular type for Electrolitic.

CAPACITOR INSULATING SLEEVES (ROUND)

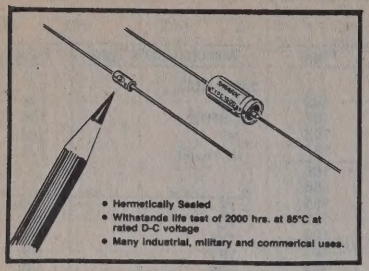
Stock No.	Type MIS-	A	D1	D2	P	L1 ± .004	L2 ± .004	L ± .006	W1	W2	T ± .008	Pkg. of 100 1-9	10-49	50-99	100-up
81N5290	810906	.354	.055	.070	.215	.392	.433	.827	.295	.086	.031	16.23	13.80	10.15	8.12
81N5291	811207	.472	.059	.059	.256	.512	.196	.708	.378	.197	.031	17.62	14.98	11.01	8.81
81N5292	811409	.551	.059	.079	.354	.630	.945	1.575	.472	.157	.039	22.45	19.08	14.03	11.23
81N5293	811609	.630	.059	.079	.354	.708	.590	1.300	.512	.157	.039	22.73	19.32	14.21	11.37
81N5294	811810	.708	.059	.079	.394	.826	.590	1.417	.551	.157	.039	25.11	21.35	15.70	12.56
81N5295	811810-1	.708	.059	.087	.394	.787	.984	1.772	.551	.118	.039	24.11	20.50	15.07	12.06
81N5296	811810-2	.708	.059	.079	.394	.787	.787	1.575	.551	.118	.039	24.55	20.87	15.35	12.28
81N5297	812010	.787	.055	.079	.394	.866	1.062	1.930	.670	.196	.039	31.20	26.52	19.50	15.60
81N5298	812214	.866	.078	.138	.551	.945	.787	1.732	.670	.276	.039	29.17	24.80	18.23	14.59
81N5299	812216	.866	.078	.118	.630	1.060	.590	1.653	.787	.315	.039	31.27	26.58	19.55	15.64
81N5300	812316	.905	.059	.118	.630	1.100	.394	1.496	.827	.177	.039	30.29	25.75	18.93	15.15
81N5301	812510	.984	.078	.078	.394	1.120	.394	1.516	.866	.236	.039	33.79	28.72	21.12	16.90
81N5302	812816	1.102	.078	.118	.622	1.378	.787	2.166	.905	.236	.039	36.59	31.10	22.87	18.30



NOTE: All dimensions rounded-off to nearest hundredths. **U.L. RECOGNIZED NO. E 55167 105°C—600V**

Type 109D, 150D & CS13 Tantalums

STANDARD SERIES 150D & MILITARY TYPE CS13


• Hermetically Sealed
• Withstands life test of 2000 hrs. at 85°C at rated D-C voltage
• Many industrial, military and commerical uses.

Subminiature axial-leaded tubular style, solid-electrolyte tantalex capacitor. Combines low leakage current, high capacitance and low dissipation factor with stability over time and temperature. Its operating temperature range is −80°C to +85°C with no voltage derating. Can withstand high frequency vibration from 55 to 2000HZ at 20g without internal damage. Furnished with plastic film insulating sleeve.

PRICE & SIZE LOCATOR - 10%

Key	Sizes	1-24	25-49	50-99	100-499	500-999
A	.135"x.286"	.95	.67	.48	.38	.30
B	.185"x.474"	1.85	1.30	.93	.74	.57
C	.289"x.636"	5.65	3.96	2.83	2.26	1.75
D	.351"x.786"	10.65	7.46	5.33	4.26	3.30
E	.125"x.250"	1.75	1.23	.88	.70	.54
F	.175"x.438"	1.00	.70	.50	.40	.31
G	.279"x.650"	1.95	1.37	.98	.78	.61
H	.341"x.750"	5.50	3.85	2.75	2.20	1.71
I	.289"x.686"	5.80	4.06	2.90	2.32	1.80
J	.351"x.786"	10.90	7.63	5.45	4.36	3.38

6

6WVDC ±10% TOLERANCE

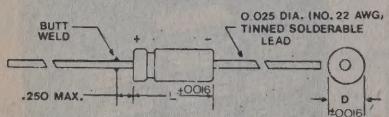
Stk. No.	150D	CS13	μF	Price & Size Key
65F2320	685x9006A2	.....	6.8	A
65F2321	476x9006B2	.....	47	B
18F2261	.....	BB476K	47	B
65F2322	606x9006B2	.....	60	B
65F2323	157x9006R2	.....	150	C
18F2264	.....	BB157K	150	C
65F2324	187x9006R2	.....	180	C
65F2325	337x9006S2	.....	330	D

10 WVDC ±10% TOLERANCE

Stk. No.	150D	CS13	μF	Price & Size Key
18F1359	475x9010A2	.....	4.7	A
65F2326	276x9010B2	.....	27	B
65F2327	336x9010B2	.....	33	B
65F2328	396x9010B2	.....	39	B
65F2329	406x9010B2	.....	40	B
65F2330	107x9010R2	.....	100	C
65F2331	127x9010R2	.....	120	C
65F2332	187x9010S2	.....	180	D
18F2281	.....	BC187K	180	D
65F2333	227x9010S2	.....	220	D

15WVDC ±10% TOLERANCE

Stk. No.	150D	CS13	μF	Price & Size Key
65F2334	335x9015A2	.....	3.3	A
65F2335	186x9015B2	.....	18	B
65F2336	226x9015B2	.....	22	B
65F2337	566x9015R2	.....	56	H
18F2290	.....	BD566K	56	C
65F2338	686x9015R2	.....	68	C
65F2339	157x9015S2	.....	150	D
18F2293	.....	BD157K	150	D



20WVDC ±10% TOLERANCE

Stk. No.	150D	CS13	μF	Price & Size Key
65F2340	125x9020A2	.....	1.2	A
65F2341	155x9020A2	.....	1.5	A
65F2386	225x9020A2	.....	2.2	A
65F2342	825x9020B2	.....	8.2	B
18F2302	.....	BE825K	8.2	B
65F2343	106x9020B2	.....	10	B
65F2344	126x9020B2	.....	12	B
18F2305	.....	BE126K	12	B
65F2345	156x9020B2	.....	15	B
65F2346	276x9020R2	.....	27	C
65F2347	336x9020R2	.....	33	C
65F2348	396x9020R2	.....	39	C
18F2311	.....	BE396K	39	C
65F2349	476x9020R2	.....	47	C
65F2350	566x9020S2	.....	56	D
65F2351	686x9020S2	.....	68	D
65F2352	826x9020S2	.....	82	D
18F2317	.....	BE826K	82	D
65F2353	107x9020S2	.....	100	D

35 WVDC ±10% TOLERANCE

Stk. No.	150D	CS13	μF	Price & Size Key
18F1375	103x9035A2	.....	.010	A
18F1379	223x9035A2	.....	.022	A
18F1383	473x9035A2	.....	.047	A
18F1385	683x9035A2	.....	.068	A
18F1387	104x9035A2	.....	.10	A
18F1388	124x9035A2	.....	.12	A
18F1389	154x9035A2	.....	.15	A
18F1391	224x9035A2	.....	.22	A
18F1393	334x9035A2	.....	.33	A
65F2354	474x9035A2	.....	.47	A
18F2323	.....	BF474K	.47	A
65F2355	564x9035A2	.....	.56	A
18F2325	.....	BF564K	.56	A
65F2356	684x9035A2	.....	.68	A
18F2326	.....	BF684K	.68	A
65F2357	824x9035A2	.....	.82	A
18F2328	.....	BF824K	.82	A
65F2358	105x9035A2	.....	1.0	A
18F2329	.....	BF105K	1.0	A
65F2359	125x9035B2	.....	1.2	B

35WVDC ±10% TOLERANCE

Stk. No.	150D	CS13	μF	Price & Size Key
18F2331	.....	BF125K	1.2	B
65F2360	155x9035B2	.....	1.5	B
18F2332	.....	BF155K	1.5	B
65F2361	185x9035B2	.....	1.8	B
18F2334	.....	BF185K	1.8	B
65F2362	225x9035B2	.....	2.2	B
18F2335	.....	BF225K	2.2	B
65F2363	275x9035B2	.....	2.7	B
18F2337	.....	BF275K	2.7	B
65F2364	335x9035B2	.....	3.3	E
18F2338	.....	BF335K	3.3	B
65F2365	395x9035B2	.....	3.9	B
18F2340	.....	BF395K	3.9	B
18F1359	475x9035B2	.....	4.7	B
18F2341	.....	BF475K	4.7	B
65F2366	685x9035B2	.....	6.8	B
65F2367	825x9035R2	.....	8.2	C
18F2346	.....	BF825K	8.2	C
65F2368	106x9035R2	.....	10	C
18F2347	.....	BF106K	10	C
65F2369	126x9035R2	.....	12	C
18F2349	.....	BF126K	12	C
65F2370	156x9035R2	.....	15	C
18F2350	.....	BF156K	15	C
65F2371	186x9035R2	.....	18	C
18F2352	.....	BF186K	18	C
65F2372	226x9035R2	.....	22	C
65F2373	336x9035S2	.....	33	D
65F2374	396x9035S2	.....	39	D
18F2358	.....	BF396K	39	D
65F2375	476x9035S2	.....	47	D

50 WVDC ±10% TOLERANCE

Stk. No.	150D	CS13	μF	Price & Size Key
65F2376	104x9050A2	.....	.10	F
18F2957	.....	BG105K	.10	F
65F2377	474x9050A2	.....	.47	F
65F2378	105x9050A2	.....	1.0	F
65F2379	225x9050B2	.....	2.2	G
65F2380	335x9050B2	.....	3.3	G
18F2960	.....	BG335K	3.3	G
65F2381	475x9050B2	.....	4.7	G
65F2382	106x9050R2	.....	10	I
65F2383	156x9050R2	.....	15	I
65F2384	186x9050R2	.....	18	I
65F2385	226x9050S2	.....	22	J

TYPE 109D SINTERED-ANODE TANTALEX ® CAPACITORS

Designed for auto, tele-com, aerospace, and critical equip. Suited to withstand shock and vibration found in military equip. Long shelf life (excess of 10 yrs.), have outer plastic-film insulation. Operating Temp. Range: −55° C to +125° C, Capacitance Tol: ±10%, ±20%, Leakage Current: Max d-c Leakage Current @ 25° C, 10μA, @85° C and 40μA @+1 25° C. Ripple Current: 100 to 600 max. Amp RMS @ 120 Hz, depending on Capacitance.

Price Code

Key	Sizes	1-24	25-49	50-99	100-249	250-499
C	¼ "x½"	4.80	3.91	3.12	2.32	2.23
F	5/16"x¾"	9.93	8.09	6.44	4.79	4.61
T	11/16"x⅞"	14.79	12.05	9.59	7.13	6.86
K	11/16"x1⅛"	22.57	18.39	14.63	10.88	10.46

Stk. No.	Type	μF	WV DC	Key
81F3400	827X9006F2	820	6	F
81F3401	158X9006T2	1500	6	T
81F3402	228X9006K2	2200	6	K
81F3403	127X9010C2	120	10	C
81F3404	157X9010C2	150	10	C
81F3405	447X9010F2	470	10	F
81F3406	567X9010F2	560	10	F
81F3407	108X9010T2	1000	10	T
81F3408	128X9010T2	1200	10	T
81F3409	158X9010K2	1500	10	K
81F3410	826X9015C2	82	15	C
81F3411	107X9015C2	100	15	C
81F3412	337X9015F2	330	15	F
81F3413	397X9015F2	390	15	F
81F3414	687X9015T2	680	15	T
81F3415	827X9015T2	820	15	T
81F3416	108X9015K2	1000	15	K

Stk. No.	Type	μF	WV DC	Key
81F3417	686X9025C2	68	25	C
81F3418	227X9025F2	270	25	F
81F3419	567X9025T2	560	25	T
81F3420	687X9025K2	680	25	K
81F3421	336X9050C2	33	50	C
81F3422	127X9050F2	120	50	F
81F3423	227X9050T2	270	50	T
81F3424	337X9050K2	330	50	K
81F3425	126X9075C2	12	75	C
81F3426	156X9075C2	15	75	C
81F3427	226X9075C2	22	75	C
81F3428	476X9075F2	47	75	F
81F3429	566X9075F2	56	75	F
81F3430	826X9075F2	82	75	F
81F3431	187X9075T2	180	75	T
81F3432	227X9075K2	220	75	K

Stk. No.	Type	μF	WV DC	Key
81F3433	825X9100C2	8.2	100	C
81F3434	106X9100C2	10	100	C
81F3435	336X9100F2	33	100	F
81F3436	396X9100F2	39	100	F
81F3437	566X9100T2	56	100	T
81F3438	686X9100T2	68	100	T
81F3439	866X9100K2	86	100	K
81F3440	175X9150C2	1.7	150	C
81F3441	305X9150C2	3	150	C
81F3442	565X9150C2	5.6	150	C
81F3443	685X9150F2	6.8	150	F
81F3444	116X9150F2	11	150	F
81F3445	226X9150F2	22	150	F
81F3446	396X9150T2	39	150	T

MIL-Type CSR-13 Solid Tantalum Capacitors

SPRAGUE
THE MARK OF RELIABILITY

- **Established reliability version of type 150D**
- **Meets Military Specification MIL-C-39003**
- **Hermetically sealed**
- **Direct Replacement for superceded Mil Type CS13**

Polarized, sub-miniature type, solid electrolyte tantalex capacitors to Mil Spec MIL-C-39003/01 established reliability. Axial-leaded, metal encased tubular.

Operating temperature −80°C to +85°C with no voltage derating. Furnished with plastic film insulating sleeves. Last letter in type number denotes established failure rate over 1000 hrs. L:2%; M:1% ±10% Cap. tolerances listed; ±20% Available on special request. Note: This design not intended to be mounted by its leads.

CSR 13 2% "L" Failure Level ± 10% Tolerance

6 WVDC

Stock No.	Mil Type CSR 13	M39003/ 01-	mfd	Price size code
47F406	B565KL	2001	5.6	A
47F407	B685KL	2002	6.8	A
47F409	B476KL	2004	47	B
47F411	B566KL	2006	56	B
47F412	B157KL	2007	150	C
47F414	B187KL	2009	180	C
47F415	B277KL	2010	270	D
47F416	B337KL	2011	330	D

10 WVDC

47F419	C475KL	2014	4.7	A
47F421	C276KL	2016	27	B
47F422	C336KL	2017	33	B
47F424	C396KL	2019	39	B
47F426	C107KL	2021	100	C
47F428	C127KL	2023	120	C
47F430	C227KL	2025	220	D

15 WVDC

47F433	D335KL	2028	3.3	A
47F435	D186KL	2030	18	B
47F436	D226KL	2031	22	B
47F438	D566KL	2033	56	C
47F439	D686KL	2034	68	C
47F441	D127KL	2036	120	D
47F442	D157KL	2037	150	D

20 WVDC

47F444	E125KL	2039	1.2	A
47F445	E155KL	2040	1.5	A
47F447	E185KL	2042	1.8	A
47F448	E225KL	2043	2.2	A
47F450	E825KL	2045	8.2	B

20 WVDC Cont.

Stock No.	Mil Type CSR 13	M39003/ 01-	mfd	Size code
47F451	E106KL	2046	10	B
47F453	E126KL	2048	12	B
47F454	E156KL	2049	15	B
47F456	E276KL	2051	27	C
47F457	E336KL	2052	33	C
47F459	E396KL	2054	39	C
47F460	E476KL	2055	47	C
47F462	E566KL	2057	56	D
47F463	E686KL	2058	68	D
47F466	E107KL	2061	100	D

35 WVDC

Stk. No.	Mil Type CSR 13	M39003/ 01-	Mfd.	Size Code
47F468	F565KL	2063	5.6	B
47F469	F685KL	2064	6.8	B
47F471	F226KL	2066	22	C
47F473	F276KL	2068	27	D
47F474	F336KL	2069	33	D
47F476	F396KL	2071	39	D
47F477	F476KL	2072	47	D

50 WVDC

47F485	G103KL	2080	.01	N
47F497	G473KL	2092	.047	H
47F500	G683KL	2095	.068	H
47F503	G104KL	2098	.1	H
47F506	G154KL	2101	.15	H
47F509	G224KL	2104	.22	H
47F511	G274KL	2106	.27	H
47F512	G334KL	2107	.33	H
47F515	G474KL	2110	.47	H

CSR-13 SIZE & PRICE CHART

Key	Size	1-24	25-49	50-99	100-499	500-999
A	.135"x.286"	.95	.67	.48	.38	.30
B	.185"x.474"	1.85	1.30	.93	.74	.57
C	.289"x.686"	5.65	3.96	2.83	2.26	1.75
D	.351"x.786"	10.65	7.46	5.33	4.26	3.30
H	.135"x.286"	1.00	.70	.50	.40	.31
J	.185"x.474"	1.95	1.37	.98	.78	.61
L	.289"x.686"	5.80	4.06	2.90	2.32	1.80
M	.351"x.786"	10.90	7.63	5.45	4.36	3.38
N	.135"x.286"	1.00	.70	.50	.40	.31
*P	.185"x.474"	1.95	1.37	.98	.78	.61
R	.289"x.686"	5.80	4.06	2.90	2.32	1.80

50 WVDC Cont.

Stock No.	Mil Type CSR 13	M39003/ 01-	mfd	Size code
47F517	G564KL	2112	.56	H
47F521	G105KL	2116	1	H
47F523	G125KL	2118	1.2	P
47F524	G155KL	2119	1.5	J
47F527	G225KL	2122	2.2	J
47F529	G275KL	2124	2.7	J
47F530	G335KL	2125	3.3	J
47F532	G395KL	2127	3.9	J
47F533	G475KL	2128	4.7	J
47F535	G565KL	2130	5.6	R
47F536	G685KL	2131	6.8	R
47F538	G825KL	2133	8.2	R
47F539	G106KL	2134	10	R
47F542	G156KL	2137	15	L
47F544	G186KL	2139	18	L
47F545	G226KL	2140	22	M

CSR 13 1% "M" Failure Level ± 10% Tolerance

CSR-13 SIZE & PRICE CHART

Key	Size	1-24	25-49	50-99	100-499	500-999
A	.135"x.286"	1.05	.74	.53	4.20	3.30
C	.185"x.474"	1.95	1.37	.98	.78	.61
E	.289"x.686"	5.75	4.03	2.88	2.30	1.78
G	.351"x.786"	10.75	7.53	5.38	4.30	3.33
J	.135"x.286"	1.10	.77	.55	.44	.34
L	.135"x.286"	1.10	.77	.55	.44	.34
N	.185"x.474"	2.05	1.44	1.03	.82	.64
R	.289"x.686"	5.90	4.13	2.95	2.36	1.83
T	.289"x.686"	5.90	4.13	2.95	2.36	1.83
V	.351"x.786"	11.00	7.70	5.50	4.40	3.41

6 WVDC

Stk. No.	Mil Type CSR13	M390031 01-	mfd	Price & size code
47F550	B476KM	2244	47	C
47F552	B566KM	2246	56	C
47F557	B337KM	2251	330	G

10 WVDC

47F560	C475KM	2254	4.7	A
47F562	C276KM	2256	27	C
47F563	C336KM	2257	33	C
47F565	C396KM	2259	39	C
47F567	C107KM	2261	100	E
47F570	C187KM	2264	180	G
47F571	C227KM	2265	220	G

15 WVDC

47F574	D335KM	2268	3.3	A
47F577	D226KM	2271	22	C
47F579	D566KM	2273	56	E
47F580	D686KM	2274	68	E
47F583	D157KM	2277	150	G

20 WVDC

47F585	E125KM	2279	1.2	A
47F586	E155KM	2280	1.5	A
47F589	E225KM	2283	2.2	A
47F591	E825KM	2285	8.2	C
47F592	E106KM	2286	10	C
47F595	E156KM	2289	15	C
47F597	E276KM	2291	27	E
47F598	E336KM	2292	33	E

20 WVDC Cont.

Stk. No.	Mil Type CSR13	M390031 01-	mfd	Price & size code
47F600	E396KM	2294	39	E
47F601	E476KM	2295	47	E
47F604	E686KM	2298	68	G
47F607	E107KM	2301	100	G

35 WVDC

47F609	F565KM	2303	5.6	C
47F610	F685KM	2304	6.8	C
47F612	F226KM	2306	22	E
47F614	F276KM	2308	27	G
47F615	F336KM	2309	33	G
47F618	F396KM	2311	39	G
47F619	F476KM	2312	47	G

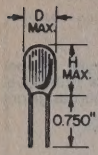
50 WVDC

47F090	G103KM	2320	.01	J
47F638	G473KM	2332	.047	L
47F644	G104KM	2338	.1	L
47F650	G224KM	2344	.22	L
47F653	G334KM	2347	.33	L
47F656	G474KM	2350	.47	L
47F662	G105KM	2356	1	L
47F668	G225KM	2362	2.2	N
47F671	G335KM	2365	3.3	N
47F674	G475KM	2368	4.7	N
47F676	G565KM	2370	5.6	R
47F677	G685KM	2371	6.8	R
47F680	G106KM	2374	10	R
47F683	G156KM	2377	15	T
47F685	G186KM	2379	18	T
47F686	G226KM	2380	22	V

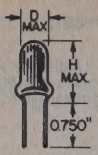
SPRAGUE
THE MARK OF RELIABILITY
a GK Technologies subsidiary

Solid-Tantalum Capacitors

196D EPOXY DIPPED SOLID ELECTROLYTE TANTALEX CAPACITORS



A1, A2 LEADS



B1 LEADS

Designed for plug-in mounting on printed circuit boards. Epoxy-dipped coating gives good electrical and mechanical protection. High stability, low dissipation factor. Cap. tol. ±10%. Operating temp. range −55° C to +85° C. End of type number denotes lead style and spacing: A1: 0.125"; E4: 0.250".

PRICE AND SIZE CHART

Price Code	D	H	1-49	50-99	100-499	500-999
A	.225	450	1.70	.85	.68	.53
B	.175	.375	.75	.38	.30	.23
C	.225	.425	1.30	.65	.52	.40
D	.350	.650	5.55	2.78	2.20	1.72
E	.400	.750	10.75	5.38	4.30	3.33
F	.175	.375	.80	.40	.32	.25
G	.225	.425	1.40	.70	.56	.43
H	.225	.425	1.80	.90	.72	.56
K	.350	.650	5.70	2.85	2.28	1.77

4 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F347	196D106X9004HA1	10	B
47F349	196D107X9004KA1	100	A
47F350	196D227X9004PE4	220	D

6 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F351	196D685X9006HA1	6.8	B
47F352	196D336X9006JA1	33	C
47F354	196D686X9006KA1	68	A
47F355	196D157X9006PE4	150	D
17F1972	196D277X9006TE4	270	E
47F356	196D337X9006TE4	330	E

10 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F357	196D475X9010HA1	4.7	B
47F358	196D226X9010JA1	22	C
47F359	196D336X9010KA1	33	A
17F1973	196D826X9010PE4	82	D
47F360	196D107X9010PE4	100	D
47F361	196D227X9010TE4	220	E

15 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F362	196D335X9015HA1	3.3	B
47F363	196D156X9015JA1	15	C
47F364	196D226X9015KA1	22	A
47F365	196D686X9015PE4	68	D

15 WVDC

Stock No.	Type	Mfd.	Price & Size Code
17F1975	196D127X9015TE4	120	E
47F366	196D157X9015TE4	150	E

20 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F386	196D106X9020JA1	10	C
47F387	196D156X9020KA1	15	A
47F388	196D476X9020PE4	47	D
17F1976	196D826X9020TE4	82	E
47F389	196D107X9020TE4	100	E

25 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F390	196D155X9025HA1	1.5	B
47F391	196D225X9025HA1	2.2	B
47F392	196D685X9025JA1	6.8	C
47F393	196D106X9025KA1	10	A
47F395	196D336X9025PE4	33	D
17F1977	196D566X9025TE4	56	E
47F397	196D686X9025TE4	68	E

35 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F398	196D104X9035HA1	0.10	B
47F399	196D154X9035HA1	0.15	B
47F400	196D224X9035HA1	0.22	B
47F401	196D334X9035HA1	0.33	B
47F402	196D474X9035HA1	0.47	B

35 WVDC (Con't.)

Stock No.	Type	Mfd.	Price & Size Code
47F403	196D684X9035HA1	0.68	B
17F1978	196D824X9035HA1	.82	B
47F404	196D105X9035HA1	1.0	B
47F405	196D155X9035JA1	1.5	C
47F367	196D225X9035JA1	2.2	C
17F1979	196D275X9035JA1	2.7	C
47F368	196D335X9035JA1	3.3	C
47F369	196D475X9035JA1	4.7	C
47F370	196D685X9035KA1	6.8	A
47F371	196D106X9035PE4	10	D
47F372	196D156X9035PE4	15	D
47F373	196D226X9035PE4	22	D
47F374	196D336X9035TE4	33	E
17F1980	196D396X9035TE4	39	E

50 WVDC

Stock No.	Type	Mfd.	Price & Size Code
47F375	196D104X9050HA1	.10	F
47F377	196D224X9050HA1	0.22	F
47F378	196D334X9050HA1	0.33	F
47F379	196D474X9050HA1	0.47	F
47F381	196D105X9050HA1	1.0	F
47F382	196D155X9050JA1	1.5	G
47F383	196D225X9050JA1	2.2	G
47F384	196D335X9050JA1	3.3	G
47F385	196D475X9050KA1	4.7	H
17F1981	196D565X9050PE4	5.6	K
17F1982	196D126X9050PE4	12	K

E4 LEADS

SIZE CHART

Case	D	H
AA	0.18	0.28
BB	0.20	0.30
CC	0.26	0.36
DD	0.34	0.40
EE	0.40	0.56
FF	0.44	0.68

PRICE CHART

Code	1-49	50-99	100-499	500-999
A	.72	.36	.29	.23
B	.72	.36	.29	.23
C	.72	.36	.29	.23
D	.77	.39	.31	.24
E	.88	.44	.36	.28
F	.74	.37	.30	.23
F1	1.05	.53	.42	.33
G	.74	.37	.30	.23
H	1.40	.70	.56	.44
H1	1.43	.72	.58	.45
K	1.05	.53	.42	.33
L	1.87	.94	.75	.58
L1	1.87	.94	.75	.58
M	2.00	1.00	.80	.62
M1	2.40	1.20	.96	.75
P	2.60	1.30	1.04	.81
P1	2.60	1.30	1.04	.81
R	4.25	2.13	1.70	1.32
R1	3.30	1.65	1.32	1.02
R2	3.30	1.65	1.32	1.02
S	4.25	2.13	1.70	1.32
S1	6.30	3.15	2.52	1.95
V	6.30	3.15	2.52	1.95
V1	7.95	3.98	3.18	2.47
W	7.80	3.90	3.12	2.42
W1	8.00	4.00	3.20	2.48
X	9.10	4.55	3.64	2.82
Y	12.90	6.45	5.16	4.00

199D RESIN-COATED SOLID ELECTROLYTE TANTALUM CAPACITORS

Designed for minimum cost applications in entertainment and commercial equipment. Resin coating is flame retardent, highly resistant to moisture, damage. Cap. tol. ±20%. Operating temp. range -55°C to +85°C. End of type number denotes lead style and spacing: A1: 0.10"; A2: 0.20"; B1: 0.10". Other lead spacing available on special request.

6.3 WVDC, 8V SURGE

Stk. No.	Type	µF	Case	Price
17F2014	199D106X06R3BB1	10	BB	E
17F2015	199D156X06R3BB1	15	BB	E
17F2016	199D226X06R3CB1	22	CC	F
17F2017	199D476X06R3DB1	47	DD	L
17F2018	199D107X06R3DB1	100	DD	R
17F2019	199D157X06R3EA2	150	EE	V
17F2020	199D227X06R3EA2	220	EE	W
17F2021	199D337X06R3FA2	330	FF	Y

10 WVDC, 12V SURGE

Stk. No.	Type	µF	Case	Price
17F2022	199D475X0010BB1	4.7	BB	D
17F2023	199D106X0010BB1	10	BB	E
17F2024	199D156X0010CB1	15	CC	F1
17F2025	199D226X0010CB1	22	CC	H
17F2026	199D336X0010DB1	33	DD	L1
17F2027	199D476X0010DB1	47	DD	P1
17F2028	199D686X0010DB1	68	DD	R
17F2029	199D107X0010EA2	100	EE	V
17F2030	199D157X0010EA2	150	EE	W
17F2031	199D227X0010FA2	220	FF	Y

16 WVDC, 19V SURGE

Stk. No.	Type	µF	Case	Price
17F2032	199D106X0016CB1	10	CC	F
17F2033	199D156X0016CB1	15	CC	H1
17F2034	199D226X0016DB1	22	DD	L
17F2035	199D336X0016DB1	33	DD	P
17F2036	199D476X0016EA2	47	EE	S
17F2037	199D686X0016EA2	68	EE	V
17F2038	199D107X0016FA2	100	FF	X
17F2039	199D157X0016FA2	150	FF	Y

25 WVDC, 30V SURGE

Stk. No.	Type	µF	Case	Price
17F2040	199D105X0025AB1	1.0	AA	C
17F2041	199D225X0025BB1	2.2	BB	C
17F2042	199D106X0025CB1	10	CC	L
17F2043	199D156X0025DB1	1.5	DD	M1
17F2044	199D226X0025DB1	22	DD	R1
17F2045	199D336X0025EA2	33	EE	S1
17F2046	199D476X0025EA2	47	EE	W1
17F2047	199D686X0025FA2	68	FF	Y

35 WVDC, 42 V SURGE

Stk. No.	Type	µF	Case	Price
17F2048	199D224X0035AB1	.22	AA	A
17F2049	199D474X0035AB1	.47	AA	B
17F2050	199D684X0035AB1	.68	AA	B
17F2051	199D105X0035BB1	1.0	BB	C
17F2052	199D225X0035CB1	2.2	CC	E
17F2053	199D335X0035CB1	3.3	CC	E
17F2054	199D475X0035DB1	4.7	DD	H
17F2055	199D685X0035DB1	6.8	DD	L

35 WVDC Cont.

Stk. No.	Type	µF	Case	Price
17F2056	199D106X0035DB1	10	DD	M1
17F2057	199D156X0035EA2	15	EE	R1
17F2058	199D226X0035EA2	22	EE	V
17F2059	199D336X0035FA2	33	FF	W
17F2060	199D476X0035FA2	47	FF	Y

50 WVDC, 60V SURGE

Stk. No.	Type	µF	Case	Price
17F2061	199D104X0050AB1	.10	AA	F
17F2063	199D224X0050AB1	.22	AA	F
17F2064	199D334X0050AB1	.33	AA	G
17F2065	199D474X0050BA1	.47	BB	G
17F2066	199D684X0050BB1	.68	BB	G
17F2067	199D105X0050CB1	1.0	CC	G
17F2069	199D225X0050DB1	2.2	DD	K
17F2070	199D335X0050DB1	3.3	DD	L
17F2071	199D475X0050DB1	4.7	DD	M
17F2072	199D685X0050FA2	6.8	FF	R2
17F2073	199D106X0050FA2	10	FF	V1

Solid Tantalum & Electrolyte Tantalex Cap.

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a GK Technologies subsidiary

TYPE 162D RED TOP SOLID ELECTROLYTE TANTALEX CAPACITORS

6 WVDC

Stk. No.	Type	Mfd.	Price & Size Code
47F1406	162D475X9006BC2	4.7	A
47F1407	162D156X9006CD2	15	B
47F1408	162D336X9006DD2	33	D
47F1409	162D476X9006EE2	47	F

10 WVDC

47F1410*	162D335X9010BC2	3.3	A
47F1411	162D106X9010CD2	10	B
47F1412	162D226X9010DD2	22	D
47F1413	162D336X9010EE2	33	F

15 WVDC

47F1414	162D225X9015BC2	2.2	A
47F1415	162D685X9015CD2	6.8	B
47F1416	162D156X9015DD2	15	D
47F1417	162D226X9015EE2	22	F

20 WVDC

47F1418	162D155X9020BC2	1.5	A
47F1419	162D475X9020CD2	4.7	B
47F1420	162D156X9020EE2	15	F

25 WVDC

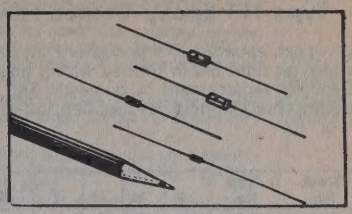
47F1421	162D684X9025BC2	.68	A
47F1422	162D105X9025BC2	1	A
47F1423	162D225X9025CD2	2.2	B
47F1424	162D335X9025CD2	3.3	B
47F1425	162D685X9025DD2	6.8	D
47F1426	162D106X9025DD2	10	D

35WVDC

Stk. No.	Type	Mid.	Price & Size Code
47F1427	162D472X9035BC2	.0047	A
47F1432	162D333X9035BC2	.033	A
47F1433	162D473X9035BC2	.047	A
47F1434	162D683X9035BC2	.068	C
47F1435	162D104X9035BC2	.1	A
47F1436	162D154X9035BC2	.15	A
47F1437	162D224X9035BC2	.22	A
47F1438	162D334X9035BC2	.33	A
47F1439	162D474X9035BC2	.47	A
47F1440	162D684X9035CD2	.68	B
47F1441	162D105X9035CD2	1	B
47F1442	162D155X9035CD2	1.5	B
47F1443	162D225X9035DD2	2.2	D
47F1444	162D335X9035DD2	3.3	D
47F1445	162D475X9035DD2	4.7	D
47F1446	162D685X9035EE2	6.8	F

50 WVDC

47F1449	162D103X9050BC2	.01	C
47F1455	162D104X9050BC2	.1	C
47F1457	162D224X9050BC2	.22	C
47F1459	162D474X9050CD2	.47	E
47F1461	162D105X9050CD2	1	E
47F1463	162D225X9050DD2	2.2	G
47F1464	162D335X9050EE2	3.3	H
47F1465	162D475X9050EE2	4.7	H



Miniature commercial/industrial tantalum capacitors for use in applications where space is at a premium. Metal case is insulated with a heat shrunk polyester film. Leads are solder coated nickel 1.5" long x .02" dia. Tolerance: +10%. Designed to operate over a temperature range of −55c to +85c with no voltage derating. Maximum operating voltage is for continous duty at rated temperature.

162D—PRICE AND SIZE CHART

Code	Dia. x Lgth.	1-24	25-49	50-99	100-499
A	.095 x .260	.86	.61	.44	.35
B	.110 x .290	1.01	.71	.51	.41
C	.095 x .260	.91	.64	.46	.37
D	.180 x .345	1.56	1.10	.79	.63
E	.110 x .290	1.11	.78	.56	.45
F	.180 x .420	1.86	1.31	.94	.75
G	.180 x .345	1.71	1.20	.86	.69
H	.180 x .420	2.11	1.48	1.06	.85

6

TYPE 173D SOLID ELECTROLYTE TANTALEX CAPACITORS

PERFORMANCE CHARACTERISTICS

1. **Operating Temperature Range:** −55°C. to +85°C; to +125°C with 33.3% voltage derating.
2. **Capacitance Tolerance:** ±10% and ±20%.
3. **Dissipation Factor:** (At 25°C) 2 WVDC capacitors, 10%; 4 WVDC capacitors, 8%; 6 through 20 WVDC capacitors, 4 to 6%; 25 through 50 WVDC capacitors, 3 to 4%.
4. **Leakage Current:** Max. d-c leakage current at 25°C is: capacitors in size code U, 5μA; size code V, .7 to 1μA; size code W, 1.4 to 2μA; size code X, 2.4 to 5μA.
5. **Life Test:** Capacitors are capable of withstanding a 2000 hour life test at +85°C, or 1000 hour test at +125°C. After test, leakage current shall not be more than 125% of initial requirement, and capacitance at +25°C shall not have changed by more than ±10% of initial requirement.

2 WVDC, 2.5 VDC SURGE

Stk. No.	Type No.	μF	Size Code
81F1796	173D106x9002U*	10	U
81F1797	173D336x9002V*	33	V
81F1798	173D686x9002W*	68	W

4 WVDC, 5 VDC SURGE

81F1799	173D685x9004U*	6.8	U
81F1800	173D226x9004V*	22	V
81F1801	173D476x9004W*	47	W

6 WVDC, 8 VDC SURGE

81F1802	173D475x9006U*	4.7	U
81F1803	173D156x9006V*	15	V
81F1804	173D336x9006W*	33	W
81F1805	173D686x9006X*	68	X

10 WVDC, 13 VDC SURGE

81F1806	173D335x9010U*	3.3	U
81F1807	173D106x9010V*	10	V
81F1808	173D226x9010W*	22	W
81F1809	173D476x9010X*	47	X

15 WVDC, 20 VDC SURGE

81F1810	173D225x9015U*	2.2	U
81F1811	173D685x9015V*	6.8	V
81F1812	173D156x9015W*	15	W
81F1813	173D276x9015X*	27	X
81F1814	173D336x9015X*	33	X

20 WVDC, 25 VDC SURGE

Stk. No.	Type No.	μF	Size Code
81F1815	173D155x9020U*	1.5	U
81F1816	173D475x9020V*	4.7	V
81F1817	173D186x9020X*	18	X
81F1818	173D226x9020X*	22	X

25 WVDC, 32 VDC SURGE

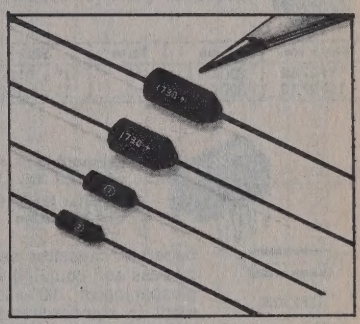
81F1819	173D684x9025U*	.68	U
81F1820	173D105x9025U*	1.0	U
81F1821	173D225x9025V*	2.2	V
81F1822	173D335x9025V*	3.3	V
81F1823	173D685x9025W*	6.8	W
81F1824	173D106x9025W*	10	W
81F1825	173D126x9025X*	12	X
81F1826	173D156x9025X*	15	X

35 WVDC, 46 SURGE

81F1827	173D104x9035U*	.10	U
81F1828	173D154x9035U*	.15	U
81F1829	173D224x9035U*	.22	U
81F1830	173D334x9035U*	.33	U
81F1831	173D474x9035U*	.47	U
81F1832	173D684x9035V*	.68	V
81F1833	173D105x9035V*	1.0	V
81F5407	173D155x9035V*	1.5	V
81F5408	173D225x9035W*	2.2	W
81F1834	173D335x9035W*	3.3	W
81F1835	173D475x9035W*	4.7	W
81F1836	173D685x9035X*	6.8	X1
81F1837	173D825x9035X*	8.2	X
81F1838	173D106x9035X*	10	X

50 WVDC, 65 VDC SURGE

81F1839	173D104x9050U*	.10	U1
81F1840	173D154x9050U*	.15	U1
81F1841	173D224x9050U*	.22	U1
81F1842	173D334x9050V*	.33	V1
81F1843	173D474x9050V*	.47	V1
81F1844	173D684x9050V*	.68	V1
81F1845	173D105x9050V*	1.0	V1
81F1846	173D155x9050W*	1.5	W1
81F1847	173D225x9050W*	2.2	W1
81F1848	173D335x9050X*	3.3	X2
81F1849	173D475x9050X*	4.7	X2



- Designed for use in automotive, industrial, and consumer electronic equipment.
- Precision-molded in thermosetting flame-retardant epoxy resin.
- Meet stringent environmental and electrical performance requirements.
- Rugged construction, low dissipation factor, and low leakage current.
- Furnished lead-taped.
- Capacitors listed have capacitance tolerance of ±10%. Units with star * also available with tolerance of ±20%.

173D—PRICE AND SIZE CHART

Code	Dia." x Lgth."	1-24	25-49	50-99	100-499
U	.095x.260	.85	.60	.43	.34
U1		.90	.63	.45	.36
V	.110x.290	1.00	.70	.50	.40
V1		1.10	.77	.55	.44
W	.180x.345	1.55	1.09	.78	.62
W1		1.70	1.19	.85	.68
X	.180x.420	2.85	2.00	1.43	1.14
X1	.180x.420	1.85	1.30	.93	.74
X2	.180x.420	2.10	1.47	1.05	.84

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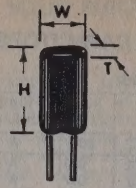
Film and Ceramic Capacitors

Type 1FT Epoxy-Coated Film

Low-cost, epoxy-coated polyester Film Capacitors for tight fits in printed wiring boards. Good for replacement in domestic and imported entertainment devices. Cap. tol. ±10m.



Stock No.	Type No.	µF	W	H	T	5-20	25-45	50-95	100-Up
14F3003	1FT-D10	.001	13/64	27/64	5/64				
14F3004	1FT-D15	.0015	13/64	27/64	5/64				
14F3005	1FT-D22	.0022	13/64	27/64	5/64	.15	.11	.08	.06
14F3006	1FT-D33	.0033	13/64	27/64	5/64				
14F3007	1FT-D39	.0039	13/64	27/64	7/64				
14F3008	1FT-D47	.0047	13/64	27/64	7/64				
14F3009	1FT-D56	.0056	13/64	27/64	7/64				
14F3027	1FT-D68	.0068	13/64	27/64	7/64	.15	.11	.08	.06
14F3010	1FT-D82	.0082	7/32	27/64	1/8				
14F3015	1FT-S10	.01	15/64	27/64	1/8				
14F3028	1FT-S15	.015	17/64	27/64	1/8	.15	.11	.08	.06
14F3016	1FT-S22	.022	19/64	27/64	9/64	.15	.11	.08	.06
14F3017	1FT-S27	.027	5/16	7/16	9/64	.18	.13	.10	.08
14F3018	1FT-S33	.033	11/32	7/16	5/32	.18	.13	.10	.08
14F3019	1FT-S39	.039	11/32	29/64	5/32	.18	.13	.10	.08
14F3020	1FT-S47	.047	23/64	29/64	3/16	.21	.16	.12	.10
14F3021	1FT-S56	.056	3/8	29/64	3/16	.24	.17	.14	.11
14F3011	1FT-P10	.1	29/64	1/2	15/64	.27	.19	.15	.12
14F3012	1FT-P22	.22	19/32	41/64	9/32	.42	.30	.24	.19
14F3013	1FT-P33	.33	19/32	27/32	5/16	.60	.42	.34	.28
14F3025	1FT-P39	.39	21/32	7/8	23/64	.81	.57	.47	.38
14F3014	1FT-P47	.47	43/64	7/8	3/8	.81	.57	.47	.38

MINIATURIZED DISC CERAMIC

Tiny ceramic capacitors for by-pass and coupling application. Low self inductance and flat plate construction permits higher self-resonant frequency and high by-pass efficiency in all TV and transistorized circuitry. Designed for continuous operation at 85° C. Dia. .295 to .700. Tol. ±20%.

Stock No.	Type	Volts	µF	5-95	100-Up	100-245	250-495
18F932	TG-D50	100	.005	.18	.12	.10	.09
18F933	TG-S10	100	.01	.18	.13	.11	.09
18F934	TG-S20	100	.02	.21	.16	.14	.12
18F937	TG-S50	100	.05	.78	.57	.48	.43
18F938	TG-P10	100	.1	1.17	.86	.72	.64

TYPE 2DF METALLIZED ORANGE DROP-CAPACITORS

Ideal for color TV replacement. Fits easily into tight spots because of their small size. Extremely high insulation resistance. Insures peak performance at temps. up to +85°. Radial leads are extra long for point-to-point wiring and crimped for printed board insertion. Double dipped in orange epoxy resin, for protection against heat and humidity. Tol. ±10%.

TYPE 2DF-200WVDC

Stock No.	µF	Size	Type	5-20	25-45	50-95	100-Up
18F2914	.22	3/8 x 7/16 x 13/16	2DF-P22	1.14	.80	.68	.60
18F2916	.47	13/16 x 9/16 x 13/16	2DF-P47	1.35	.93	.79	.67
18F2918	1.0	13/16 x 9/16 x 1 1/4	2DF-M1	1.59	1.12	.94	.84
18F2919	1.5	3/8 x 3/8 x 1 1/4	2DF-M1.5	1.83	1.28	1.08	.97
18F2920	2.0	1 3/16 x 1 1/16 x 1 1/4	2DF-M2	2.37	1.65	1.39	1.24
18F2921	2.5	1/16 x 1 3/16 x 1 1/4	2DF-M2.5	2.52	1.76	1.48	1.33
18F2922	3.0	1 5/16 x 1 1/16 x 1 5/8	2DF-M3	2.82	1.97	1.66	1.48
18F2924	4.0	1 1/16 x 1 3/16 x 1 5/8	2DF-M4	4.50	3.16	2.67	2.38
18F2925	4.5	1 1/8 x 7/8 x 1 5/8	2DF-M4.5	4.62	3.24	2.73	2.45
18F2926	5.0	1 1/8 x 7/8 x 1 5/8	2DF-M5	4.89	3.43	2.89	2.59
18F2927	5.5	1 3/16 x 1 5/16 x 1 5/8	2DF-M5.5	5.13	3.59	3.03	2.71

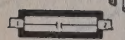
HIGH-VOLTAGE DOORKNOB CERAMIC

Female threads for interchangeable screw-in terminals. Molded plastic, guard rings lengthen surface creepeage path. For bypass, arc suppression uses.

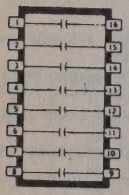
Stock No.	Type	Term	Size	µF	KV	NET
18F2762	20DK-T5	7	1" x 1.125"	500	20	9.90
18F2763	30DK-T5	2	1" x 1.313"	500	20	9.75

DIP MONOLYTHIC® CERAMIC CAPACITORS

- Compatible with DIP ICs
- Ideal for Breadboarding
- Superior Insertion Protection
- Reliable in Severe Environments



TYPE 923C



TYPE 926C

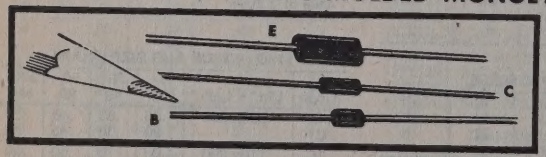
Separate capacitor sections are useful for by-pass and coupling applications. Standard pinspacing of .100" allows end-to-end placement in standard sockets, ideal for breadboard. Rated at 50 WVDC from −55° to 85°C with a tolerance of 10% if the eleventh letter of the type number is "K" and 20% if it is "M". **Series 923** is one section with two pin and **Series 926** is eight section, 16 pins.

NOTE: Width—.260.
Length—923c=.095. 926c=.795.

Size Code	Body Height	Seated Height
B	.135	.175
F	.250	.275

Stock No.	Type	Capac. (µF)	Size Code	EACH 1-49	50-99	100-249	250-499
65F925	923CX7R102K050B	.001	B	.53	.40	.30	.27
65F926	923CX7R103K050B	.01	B	.61	.46	.34	.31
65F927	923CX7R473K050B	.047	B	.79	.59	.45	.40
65F928	923CX7R104K050B	.1	B	1.06	.80	.60	.53
65F929	923CZ5U103M050B	.01	B	.41	.31	.23	.21
65F930	923CZ5U473M050B	.047	B	.44	.33	.25	.22
65F931	923CZ5U104M050B	.1	B	.51	.38	.29	.26
65F932	923CZ5U224M050B	.22	B	.68	.51	.38	.34
65F934	923CZ5U105M050F	1.0	F	1.60	1.20	.90	.80
65F935	926CX7R102K050B	.001	B	4.43	3.32	2.49	2.21
65F936	926CX7R103K050B	.01	B	5.13	3.85	2.89	2.57
65F938	926CX7R104K050B	.1	B	9.28	6.96	5.22	4.64
65F939	926CZ5U103M050B	.01	B	3.42	2.57	1.93	1.71
65F941	926CZ5U104M050B	.1	B	4.37	3.28	2.46	2.18
65F942	926CZ5U224M050B	.22	B	5.96	4.47	3.35	2.98

292 C MOLDED MONOLYTHIC® CERAMIC CAPACITORS



- Indestructible
- Low-Cost and Reliable
- Miniature Size

Case Code	DIMENSIONS D. x L. (inches)	D. x L. (mm)
B	.090 x .160	2.29 x 4.06
C	.090 x .250	2.29 x 6.35
E	.140 x .390	3.56 x 9.91

Axial-leaded capacitors made by spraying alternate layers of ceramic dielectric material and metallic electrodes and then heat-fusing them together. Formulation Z5U general application capacitors, well-suited for by-pass and other filtering jobs, have highest possible cap. in smallest case size.

Stock No.	Type (292CZ5U-)	µF	Size Code	EACH 1-49	50-99	100-249	250-499
65F944	103M050B	0.010	B	.36	.27	.20	.18
65F945	153M050B	0.015	B	.38	.29	.21	.19
65F946	223M050B	0.022	B	.40	.30	.23	.20
65F947	333M050B	0.033	B	.43	.32	.23	.20
65F948	473M050B	0.047	B	.46	.34	.26	.23
65F950	104M050C	0.10	C	.54	.41	.31	.27
65F952	224M050E	0.22	E	.74	.56	.42	.37

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

Ceramic Capacitors

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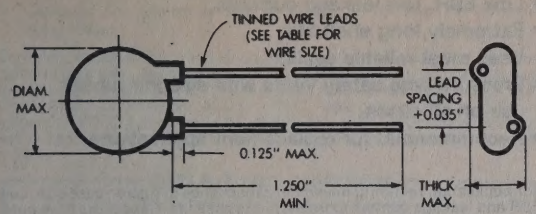
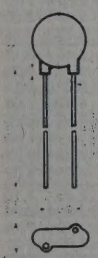
FORMULATION Z5U MONOLYTHIC CERAMIC CAPACITORS



For transistorized circuitry. Provide high capacitance in small physical size. Solid homogeneous blocks are protected against moisture and mechanical damage by a touch resin coating. Well suited for by-pass, filtering application, and in the HF, VHF and UHF ranges through 1000 MHz. Radial leads. ±20% tolerance.

Stk. No.	Type	µF	1-49	50-99	100-249	250-499
81F2060	1C10Z5U103M050B	.01	.20	.15	.12	.10
81F2061	1C10Z5U104M050B	.1	.24	.18	.14	.12
81F2062	1C20Z5U103M050B	.01	.20	.15	.12	.10
17F2165	1C20Z5U104M050B	.1	.24	.18	.14	.12
81F2063	1C20Z5U224M050B	.22	.38	.29	.22	.19
81F2064	1C20Z5U334M050B	.33	.50	.38	.29	.25
81F2065	1C20Z5U474M050B	.47	.54	.41	.31	.27
29F010	1C25Z5U103M050B	.01	.20	.15	.12	.10
29F011	1C25Z5U223M050B	.022	.22	.17	.13	.11
29F012	1C25Z5U333M050B	.033	.24	.18	.14	.12
29F013	1C25Z5U473M050B	.047	.22	.17	.13	.11
29F014	1C25Z5U104M050B	.1	.24	.18	.14	.12
29F016	1C25Z5U224M050B	.22	.38	.29	.22	.19
29F017	1C25Z5U334M050B	.33	.54	.41	.31	.27
29F018	1C25Z5U474M050B	.47	.58	.44	.33	.29
81F2066	2C37Z5U104M050B	.1	.27	.19	.15	.14
29F021	2C37Z5U224M050B	.22	.42	.33	.24	.21
29F022	2C37Z5U334M050B	.33	.76	.57	.43	.38
29F023	2C37Z5U474M050B	.47	.56	.42	.32	.28
29F024	2C37Z5U684M050B	.68	.93	.70	.53	.47
29F025	2C37Z5U105M050B	1.0	1.11	.83	.63	.56
29F026	2C37Z5U155M050B	1.5	1.75	1.31	.99	.88
29F027	3C37Z5U225M050B	2.2				

HYPERCON® HIGH-CAPACITANCE REDUCED TITANATE DISCS



- EIA Class 3—Specifically designed to meet the small size, high capacitance demands of solid-state transistorized or other low voltage circuitry.
- Especially intended for bypass, coupling and filtering applications where dielectric losses and high insulation resistance are not of major importance.
- Meet requirements of EIA Temperature Characteristic Y5P, allowing a maximum capacitance change of ±10% over the temperature range of −30°C to +85°C.
- ALL TYPES 25 VDC.
- Covered with tough insulting resin coating for excellent mechancial and moisture protection.

25WVDC, CAP. TOL. +50, −20%

Stock Number	Type	µF	Size D. × T. (In.)	5-95	100-245	250-495	500-995
13F3600	HY-725	.022	.290 × .156	.24	.15	.13	.10
13F3601	HY-730	.033	.350 × .156	.27	.16	.14	.11
13F3602	HY-735	.047	.410 × .156	.27	.17	.15	.11
13F3603	HY-740	.068	.410 × .156	.27	.17	.15	.11
13F3604	HY-750	.1	.480 × .156	.33	.20	.17	.13
13F3605	HY-765	.15	.610 × .156	.42	.26	.23	.17
25 WVDC, CAP. TOL. = 20%							
14F3002	HY-715	.01	.250 × .156	.24	.15	.13	.10
13F3609	HY-820	.01	.250 × .156	.21	.12	.11	.08
13F3610	HY-825	.022	.290 × .156	.24	.15	.13	.10
13F3611	HY-830	.033	.350 × .156	.24	.15	.14	.10
13F3612	HY-835	.047	.410 × .156	.30	.18	.16	.12
13F3613	HY-840	.068	.410 × .156	.30	.18	.16	.12
13F3614	HY-850	.1	.480 × .156	.33	.20	.18	.14
81F5733	HY865	.15	.610 × .156	.51	.32	.28	.21
25 WVDC, CAP. TOL, +80, −20%							
18F1987	HY-520	.01	.250 × .156	.18	.11	.10	.08
18F1988	HY-525	.022	.290 × .156	.24	.14	.12	.09
18F1989	HY-530	.037	.350 × .156	.24	.14	.12	.09
18F1990	HY-535	.047	.410 × .156	.27	.16	.14	.11
14F3000	HY-538	.22	.670 × .156	.27	.16	.14	.11
47F113	HY-540	.068	.410 × .156	.27	.16	.14	.11
18F1991	HY-550	.1	.480 × .156	.30	.18	.16	.12
81F5734	HY-565	.15	.610 × .156	.48	.29	.26	.20

Sold only in multiples of 5.

SERIES 5GA CERAMIC CAPACITORS

- General purpose—Designed for non-critical coupling, bypass, and filter applications as well as frequency discriminating circuits. Suited for all types of entertainment, communications, industrial, and medical equipment.
- Will meet or exceed requirements of EIA Temperature Characteristic Z5U. Max. capacitance change −56%, +22% over temperature range of +10°C to +85°C.
- Tough moisture-proof insulating coating assures good performance under severe conditions of moisture/humidity. Operating Temperature Range: −55°C to 85°C.

SERIES 5GA 500WVDC ±20%

Stk. No.	Type	µF	5-49	100-245	250-495	500-995
18F2711	5GA-D10	.001	.18	.11	.10	.08
18F2712	5GA-D12	.0012	.18	.11	.10	.08
18F2714	5GA-D15	.0015	.18	.11	.10	.08
18F2715	5GA-D18	.0018	.18	.11	.10	.08
18F2716	5GA-D20	.002	.18	.11	.10	.08
18F2717	5GA-D22	.0022	.18	.11	.10	.08
18F2718	5GA-D25	.0025	.18	.12	.10	.08
18F2719	5GA-D27	.0027	.18	.12	.10	.08
18F2720	5GA-D30	.003	.18	.12	.10	.08
18F2721	5GA-D33	.0033	.18	.12	.10	.08
18F2722	5GA-D39	.0039	.18	.12	.10	.08
18F2725	5GA-D47	.0047	.21	.13	.11	.09
18F2726	5GA-D50	.005	.21	.13	.11	.09
18F2727	5GA-S10	.01	.36	.22	.19	.15
18F2728	5GA-S10	.015	.39	.25	.22	.17
18F2729	5GA-S20	.02	.51	.32	.28	.21
18F2730	5GA-S25*	.025	.36	.23	.20	.15
18F1732	5GA-S50*	.05	.63	.39	.34	.26
18F1733	5GA-P10*	.1	1.56	.97	.86	.65
SERIES 5GA 1000WVDC ±20%						
18F2675	5GA-V50	5	.18	.11	.10	.08
18F2676	5GA-V75	7.5	.18	.11	.10	.08
18F2677	5GA-Q10	10	.18	.11	.10	.08
18F2678	5GA-Q12	12	.18	.11	.10	.08
18F2679	5GA-Q15	15	.18	.11	.10	.08
18F2680	5GA-Q20	20	.18	.11	.10	.08
18F2681	5GA-Q22	22	.18	.11	.10	.08
18F2682	5GA-Q25	25	.18	.11	.10	.08
18F2683	5GA-Q27	27	.18	.11	.10	.08
18F2684	5GA-Q30	30	.18	.11	.10	.08
18F2685	5GA-Q33	33	.18	.11	.10	.08
18F2686	5GA-Q39	39	.18	.11	.10	.08
18F2687	5GA-Q47	47	.18	.11	.10	.08
18F2688	5GA-Q50	50	.18	.11	.10	.08
18F2689	5GA-Q56	56	.18	.11	.10	.08
18F2690	5GA-Q68	68	.18	.11	.10	.08
17F2691	5GA-Q75	75	.18	.11	.10	.08
18F2692	5GA-Q82	82	.21	.12	.11	.08
18F2693	5GA-T10	100	.21	.12	.11	.08
18F2694	5GA-T12	120	.21	.12	.11	.08
18F2695	5GA-T15	150	.21	.12	.11	.08
18F2696	5GA-T18	180	.21	.12	.11	.08
18F2697	5GA-T20	200	.21	.12	.11	.08
18F2698	5GA-T22	220	.21	.12	.11	.08
18F2699	5GA-T25	250	.21	.12	.11	.08
18F2700	5GA-T27	270	.21	.12	.11	.08
18F2701	5GA-T30	300	.21	.12	.11	.08
18F2702	5GA-T33	330	.21	.12	.11	.08
18F2703	5GA-T36	360	.21	.12	.11	.08
18F2704	5GA-T39	390	.21	.12	.11	.08
18F2705	5GA-T47	470	.21	.12	.11	.08
18F2706	5GA-T50	500	.21	.12	.11	.08
18F2707	5GA-T56	560	.18	.11	.10	.08
18F2708	5GA-T68	680	.18	.11	.10	.08
18F2709	5GA-T75	750	.18	.11	.10	.08
18F2710	5GA-T82	820	.18	.11	.10	.08
SERIES 5HK 500WVDC +80 −20%						
81F2067	5HKSS10	.01	.24	.15	.13	.10
81F2068	5HKS15	.015	.30	.19	.17	.13
81F1587	5HKS20	.02	.30	.19	.17	.13
81F2069	5HKS25	.025	.33	.21	.18	.14
81F2070	5HKS40	.04	1.11	.68	.61	.46
18F1592	5HKS50	.05	1.17	.73	.65	.49
18F1575	5HKD10	.01	.18	.10	.09	.07
SERIES 5HK 1000WVDC +100 −0%						
81F2071	5HKD10	.001	.18	.10	.09	.07
81F2072	5HKD20	.002	.18	.11	.09	.07
81F2073	5HKD22	.0022	.18	.11	.09	.07
81F2074	5HKD33	.0033	.18	.12	.10	.08
81F2075	5HKD39	.0039	.18	.12	.10	.08
81F2076	5HKD47	.0047	.21	.13	.12	.09
18F1583	5HKD50	.005	.21	.13	.12	.09
81F2077	5HKS10	.01	.36	.22	.19	.15

Sold only in multiples of 5.

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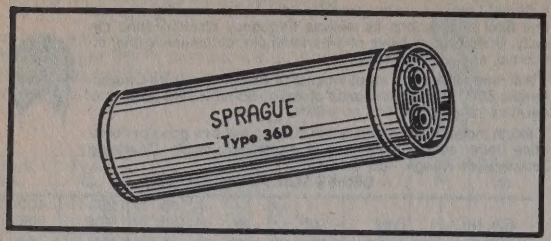
Powerlytic® Capacitors

TYPE 36D POWERLYTIC® ALUMINUM ELECTROLYTICS



- Designed for maximum capacitance.
- Low ESR, low leakage currents.
- Extremely long shelf life.
- Uses most reliable seals.
- Pressure-type safety vents with silicone rubber use on all cases.
- Recommended for replacement applications.

For application requiring maximum capacitance in a given case size. Low ESR and leakage current: extremely long shelf life. Capacitors have outer plastic film insulation. Withstands military environmental conditions including -55° C storage tests. Tolerance 3-50 WV. +75%; to -10%; 75-450 WV +50% to -10%. Capacitors have low-insert terminals.

SIZES FOR 36D CAPACITORS
D. x L. Including plastic outer case

AA	1.453 x 2.25	BC	2.078 x 4.25	CE	2.578 x 5.25
AB	1.453 x 3.25	BD	2.078 x 4.75	CF	2.578 x 5.75
AC	1.453 x 4.25	BE	2.078 x 5.25	DC	3.078 x 4.25
AD	1.453 x 4.75	BF	2.078 x 5.75	DD	3.078 x 4.75
AE	1.453 x 5.25	CB	2.578 x 3.25	DE	3.078 x 5.25
AF	1.453 x 5.75	CC	2.578 x 4.25	DF	3.078 x 5.75
BB	2.078 x 3.25	CD	2.578 x 4.75	DJ	3.078 x 8.75

Stk. No.	Type 36D-	Mfd.	WVDC	Size	1-24	25-49	50-99	100-249
18F2436	602G010AA2A	6,000	10	AA	4.40	3.70	2.12	1.92
18F2437	123G010AB2A	12,000	10	AB	5.22	4.35	2.49	2.26
18F2442	104G010DC2A	100,000	10	DC	16.35	13.63	7.79	7.09
18F2443	164G010DF2A	160,000	10	DF	23.64	19.70	11.27	10.24
18F2444	462G015AA2A	4,600	15	AA	4.44	3.70	2.12	1.92
18F2445	922G015AB2A	9,200	15	AB	5.22	4.35	2.49	2.26
18F2446	133G015AC2A	13,000	15	AC	5.73	4.78	2.73	2.48
27F520	183G015AE2A	18,000	15	AE	6.99	5.83	3.30	3.03
18F2447	213G015BB2A	21,000	15	BB	8.04	6.70	3.83	3.48
18F2448	313G015BC2A	31,000	15	BC	9.57	7.98	4.56	4.15
18F2449	363G015CB2A	36,000	15	CB	10.17	8.48	4.85	4.41
18F2450	543G015CC2A	54,000	15	CC	13.68	11.40	6.52	5.93
18F2452	803G015DC2A	80,000	15	DC	19.17	15.98	9.14	8.31
27F511	104G015DE2A	100,000	15	DE	20.70	17.25	9.87	8.97
27F513	124G015DF2A	120,000	15	DF	23.64	19.70	11.27	10.24
18F2453	272G025AA2A	2,700	25	AA	4.44	3.70	2.12	1.92
18F2454	552G025AB2A	5,500	25	AB	5.22	4.35	2.49	2.26
18F2455	822G025AC2A	8,200	25	AC	5.73	4.78	2.73	2.48
27F562	962G025AD2A	9,600	25	AD	6.54	5.45	2.83	2.62
18F2456	183G025BC2A	18,000	25	BC	9.57	7.98	4.56	4.15
27F531	213G025CB2A	21,000	25	CB	10.17	8.48	4.85	4.41
18F2457	323G025CC2A	32,000	25	CC	13.68	11.40	6.52	5.93
27F541	383G025CD2A	38,000	25	CD	14.37	11.98	6.85	6.23
27F540	473G025DC2A	47,000	25	DC	19.17	15.98	9.14	8.31
27F551	553G025DD2A	55,000	25	DD	19.17	15.98	9.14	8.31
18F2460	713G025DF2A	71,000	25	DF	23.64	19.70	11.27	10.24
27F524	202G030AA2A	2,000	30	AA	4.40	3.70	2.12	1.92
27F542	402G030AB2A	4,000	30	AB	5.22	4.35	2.49	2.26
27F544	602G030AC2A	6,000	30	AC	5.73	4.78	2.73	2.48
27F534	243G030CC2A	24,000	30	CC	13.68	11.40	6.52	5.93
18F2461	363G030DC2A	36,000	30	DC	19.17	15.98	9.14	8.31
27F519	182G040AA2A	1,800	40	AA	4.40	3.70	2.12	1.92
27F539	362G040AB2A	3,600	40	AB	5.22	4.35	2.49	2.26
18F2463	552G040AC2A	5,500	40	AC	5.73	4.78	2.73	2.48
18F2464	842G040BB2A	8,400	40	BB	8.04	6.70	3.83	3.48
18F2465	123G040BC2A	12,000	40	BC	9.57	7.98	4.56	4.15
18F2466	213G040CC2A	21,000	40	CC	13.68	11.40	6.52	5.93
18F2467	253G040CD2A	25,000	40	CD	14.37	11.98	6.85	6.23
27F548	483G040DF2A	48,000	40	DF	23.64	19.70	11.27	10.24
18F2468	132G050AA2A	1,300	50	AA	4.40	3.70	2.12	1.92
18F2469	262G050AB2A	2,600	50	AB	5.22	4.35	2.49	2.26
18F2470	392G050AC2A	3,900	50	AC	5.73	4.78	2.73	2.48
27F549	522G050AE2A	5,200	50	AE	6.99	5.83	3.30	3.03
18F2471	602G050BB2A	6,000	50	BB	8.04	6.70	3.83	3.48
18F2472	902G050BC2A	9,000	50	BC	9.57	7.98	4.56	4.15
27F509	103G050BD2A	10,000	50	BD	11.37	9.48	5.42	4.93
27F512	123G050BE2A	12,000	50	BE	11.07	9.23	5.28	4.80
18F2473	153G050CC2A	15,000	50	CC	13.68	11.40	6.52	5.93
27F529	203G050CE2A	20,000	50	CE	15.42	12.85	7.35	6.68
27F530	223G075DC2A	22,000	50	DC	19.17	15.98	9.14	8.31
27F537	343G050DF2A	34,000	50	DF	23.64	19.70	11.27	10.24
27F518	172G075AB2A	1,700	75	AB	5.49	4.58	2.62	2.38
18F2475	252G075AC2A	2,500	75	AC	6.24	5.20	2.97	2.70
18F2476	392G075BB2A	3,900	75	BB	8.79	7.33	4.19	3.81
18F2477	592G075BC2A	5,900	75	BC	10.53	8.78	5.02	4.56
27F553	672G075CB2A	6,700	75	CB	11.82	9.85	5.63	5.12
27F510	103G075CC2A	10,000	75	CC	14.88	12.40	7.09	6.45
18F2478	113G075CD2A	11,000	75	CD	15.99	13.33	7.62	6.93
27F514	143G075DC2A	14,000	75	DC	19.80	16.50	9.44	8.58
27F517	173G075DD2A	17,000	75	DD	21.84	18.20	10.41	9.46
18F2480	223G075DF2A	22,000	75	DF	26.67	22.23	12.71	11.56
18F2481	451G100AA2A	450	100	AA	4.53	3.78	2.16	1.96
27F561	901G100AB2A	900	100	AB	5.49	4.58	2.62	2.38
18F2482	132G100AC2A	1,300	100	AC	6.24	5.20	2.97	2.70
18F2483	302G100BC2A	3,000	100	BC	10.53	8.78	5.02	4.56
18F2484	532G100CC2A	5,300	100	CC	14.88	12.40	7.09	6.45
27F554	702G100CE2A	7,000	100	CE	17.88	14.90	8.52	7.75
18F248 5	782G100DC2A	7,800	100	DC	19.70	16.50	9.44	8.58
18F2486	301F150AA2A	300	150	AA	4.89	4.08	2.33	2.12
18F2487	901F150AC2A	900	150	AC	7.26	6.05	3.46	3.15
18F2488	142F150BB2A	1,400	150	BB	10.02	8.35	4.78	4.34
18F2489	212F150BC2A	2,100	150	BC	11.79	9.83	5.62	5.11
18F2490	362F150CC2A	3,600	150	CC	17.67	14.73	8.42	7.66
18F2491	532F150DC2A	5,300	150	DC	22.56	18.80	10.75	9.78
27F552	622F150DD2A	6,200	150	DD	26.25	21.88	12.51	11.38
27F557	702F150DE2A	7,000	150	DE	30.21	25.18	14.40	13.09
18F2492	782F150DF2A	7,800	150	DF	32.01	26.68	15.26	13.87
18F2493	251F200AA2A	250	200	AA	4.89	4.08	2.33	2.12
18F2494	431F200AB2A	430	200	AB	6.09	5.08	2.90	2.64
18F2495	641F200AC2A	640	200	AC	7.26	6.05	3.46	3.15
18F2496	142F200BC2A	1,400	200	BC	11.79	9.83	5.62	5.11
18F2498	372F200DC2A	3,700	200	DC	23.37	19.48	11.14	10.13
18F2499	552F200DF2A	5,500	200	DF	32.01	26.68	15.26	13.87
27F538	351F250AB2A	350	250	AB	6.09	5.08	2.90	2.64
18F2500	531F250AC2A	530	250	AC	7.26	6.05	3.46	3.15
27F560	801F250BB2A	800	250	BB	10.02	8.35	4.78	4.34
18F2501	122F250BC2A	1,200	250	BC	11.79	9.83	5.62	5.11
18F2502	302F250DC2A	3,000	250	DC	23.37	19.48	11.14	10.13
27F545	402F250DE2A	4,000	250	DE	30.21	25.18	14.40	13.09
18F2503	452F250DF2A	4,500	250	DF	32.01	26.68	15.26	13.87
18F2504	241F300AB2A	240	300	AB	6.09	5.08	2.90	2.64
27F533	312F300DF2A	3,100	300	DF	32.01	26.68	15.26	13.87
18F2507	950F350AA2A	95	350	AA	4.89	4.08	2.33	2.12
27F522	191F350AB2A	190	350	AB	6.09	5.08	2.90	2.64
27F543	421F350BB2A	420	350	BB	10.02	8.35	4.78	4.34
27F556	651F350BC2A	650	350	BC	11.79	9.83	5.62	5.11
18F2511	112F350CC2A	1,100	350	CC	17.67	14.73	8.42	7.66
18F2512	162F350DC2A	1,600	350	DC	23.37	19.48	11.14	10.13
27F528	192F350DD2A	1,900	350	DD	26.25	21.88	12.51	11.38
27F532	222F350DE2A	2,200	350	DE	30.21	25.18	14.40	13.09
18F2513	252F350DF2A	2,500	350	DF	32.01	26.68	15.26	13.87
18F2514	421F400BC2A	420	400	BC	11.79	9.83	5.62	5.11
18F2515	500F450AA2A	50	450	AA	4.89	4.08	2.33	2.12
18F2516	141F450AC2A	140	450	AC	7.26	6.05	3.46	3.15
18F2517	221F450BB2A	220	450	BB	10.02	8.35	4.78	4.34
18F2518	331F450BC2A	330	450	BC	11.79	9.83	5.62	5.11
18F2519	861F450DC2A	860	450	DC	23.37	19.48	11.14	10.13

MAKE NEWARK YOUR DEPENDABLE ONE-STEP SOURCE FOR EVERYTHING IN INDUSTRIAL ELECTRONICS

NOTE: SEE PAGE 171 FOR TERMINAL BUSHING KIT.

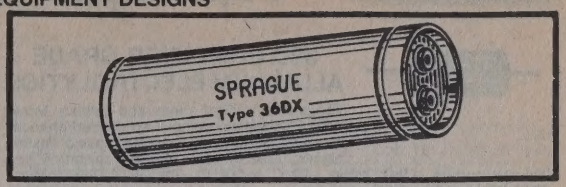
Powerlytic® Capacitors

TYPE 36DX POWERLYTIC® ALUMINUM ELECTROLYTICS RECOMMENDED FOR NEW EQUIPMENT DESIGNS

SPRAGUE
THE MARK OF RELIABILITY
a CK Technologies subsidiary

- Improved Version Of Sprague 36D Series, Up To 50% More Capacitance In A Given Case Size.
- Designed For Operating Life In Excess of 10 Years In Standard Applications

Especially designed and rated for use in computer power supplies, industrial control equipment, energy storage applications, and similar uses. Capacitors listed have outer plastic film insulation, and low insert terminals. Rated for continuous operation at −40 C to +85 C, ripple current: .064 to 30.7 max. amperes RMS @ 120 Hz and 65 C, depending upon capacitance. Pressure safety vent. Tol. 10 to 50 WVDC: −10% +75%; 200–450 WVDC: −10% +50%.

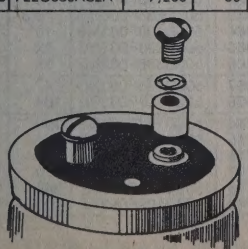


SIZES FOR 36DX CAPACITORS

D. x L. Including plastic outer case

AA	1.453 x 2.25	BC	2.078 x 4.25	CE	2.578 x 5.25
AB	1.453 x 3.25	BD	2.078 x 4.75	CF	2.578 x 5.75
AC	1.453 x 4.25	BE	2.078 x 5.25	DC	3.078 x 4.25
AD	1.453 x 4.75	BF	2.078 x 5.75	DD	3.078 x 4.75
AE	1.453 x 5.25	CB	2.578 x 3.25	DE	3.078 x 5.25
AF	1.453 x 5.75	CC	2.578 x 4.25	DF	3.078 x 5.75
BB	2.078 x 3.25	CD	2.578 x 4.75	DJ	3.078 x 8.75

Stk. No.	Type 36DX	Mfd.	WVDC	Size	1-24	25-49	50-99	100-249
27F485	394G010DJ2A	390,000	10	DJ	53.01	44.18	25.27	22.97
47F1970	752G015AA2A	7,500	15	AA	4.53	3.78	2.16	1.96
47F1971	153G015AB2A	15,000	15	AB	5.70	4.75	2.72	2.47
47F1972	223G015AC2A	22,000	15	AC	6.63	5.53	3.16	2.87
47F1973	343G015AF2A	34,000	15	AF	9.00	7.50	4.29	3.90
47F1974	503G015BC2A	50,000	15	BC	11.73	9.78	5.59	5.08
47F1975	753G015BF2A	75,000	15	BF	15.03	12.53	7.16	6.51
47F1976	833G015CC2A	83,000	15	CC	17.46	14.55	8.32	7.57
47F1977	124G015CF2A	120,000	15	CF	22.20	18.50	10.58	9.62
47F1978	124G015DC2A	120,000	15	DC	22.77	18.98	10.85	9.87
47F1979	184G015DF2A	180,000	15	DF	33.20	26.85	15.36	13.96
47F1980	304G015DJ2A	300,000	15	DJ	53.01	44.18	25.27	22.97
47F1981	452G025AA2A	4,500	25	AA	4.53	3.78	2.16	1.96
47F1982	902G025AB2A	9,000	25	AB	5.70	4.75	2.72	2.47
47F1983	133G025AC2A	13,000	25	AC	6.63	5.53	3.16	2.87
47F1984	203G025AF2A	20,000	25	AF	9.00	7.50	4.29	3.90
47F1985	303G025BC2A	30,000	25	BC	11.73	9.78	5.59	5.08
47F1986	453G025BF2A	45,000	25	BF	15.03	12.53	7.16	6.51
47F1987	503G025CC2A	50,000	25	CC	17.46	14.55	8.32	7.57
47F1988	753G025CF2A	75,000	25	CF	22.20	18.50	10.58	9.62
47F1989	753G025DC2A	75,000	25	DC	22.77	18.98	10.85	9.87
47F1990	114G025DF2A	110,000	25	DF	32.22	26.85	15.36	13.96
47F1991	194G025DJ2A	190,000	25	DJ	53.01	44.18	25.27	22.97
47F2030	402G030AA2A	4,000	30	AA	4.53	3.78	2.16	1.96
47F2031	802G030AB2A	8,000	30	AB	5.70	4.75	2.72	2.47
47F2032	123G030AC2A	12,000	30	AC	6.63	5.53	3.16	2.87
47F2033	183G030AF2A	18,000	30	AF	9.00	7.50	4.29	3.90
47F2034	263G030BC2A	26,000	30	BC	11.73	9.78	5.59	5.08
47F2035	393G030BF2A	39,000	30	BF	15.03	12.53	7.16	6.51
47F2036	443G030CC2A	44,000	30	CC	17.46	14.55	8.32	7.57
47F2037	663G030CF2A	66,000	30	CF	22.20	18.50	10.58	9.62
47F2038	663G030DC2A	66,000	30	DC	22.77	18.98	10.85	9.87
47F2039	973G030DF2A	97,000	30	DF	33.22	26.85	15.36	13.96
47F2040	164G030DJ2A	160,000	30	DJ	53.01	44.18	25.27	22.97
27F2050	292G040AA2A	2,900	40	AA	4.53	3.78	2.16	1.96
47F2051	582G040AB2A	5,800	40	AB	5.70	4.75	2.72	2.47
47F2052	872G040AC2A	8,700	40	AC	6.63	5.53	3.16	2.87
47F2053	133G040AF2A	13,000	40	AF	9.00	7.50	4.29	3.90
47F2054	203G040BC2A	20,000	40	BC	11.73	9.78	5.59	5.08
47F2055	303G040BF2A	30,000	40	BF	15.03	12.53	7.16	6.51
47F2056	343G040CC2A	34,000	40	CC	17.46	14.55	8.32	7.57
47F2057	513G040CF2A	51,000	40	CF	22.20	18.50	10.58	9.62
47F2058	513G040DC2A	51,000	40	DC	22.77	18.98	10.85	9.87
47F2059	763G040DF2A	76,000	40	DF	32.22	26.85	15.36	13.96
47F2060	124G040DJ2A	120,000	40	DJ	53.01	44.18	25.27	22.97
47F2061	242G050AA2A	2,400	50	AA	4.53	3.78	2.16	1.96
47F2062	482G050AB2A	4,800	50	AB	5.70	4.75	2.72	2.47
47F2063	722G050AC2A	7,200	50	AC	6.63	5.53	3.16	2.87
47F2064	113G050AF2A	11,000	50	AF	9.00	7.50	4.29	3.90
47F2065	163G050BC2A	16,000	50	BC	11.73	9.78	5.59	5.08
47F2066	243G050BF2A	24,000	50	BF	15.03	12.53	7.16	6.51
47F2067	273G050CC2A	27,000	50	CC	17.46	14.55	8.32	7.57
47F2068	403G050CF2A	40,000	50	CF	22.20	18.50	10.58	9.62
47F2069	413G050DC2A	41,000	50	DC	22.77	18.98	10.85	9.87
47F2070	613G050DF2A	61,000	50	DF	32.22	26.85	15.36	13.96
47F2071	104G050DJ2A	100,000	50	DJ	53.01	44.18	25.27	22.97
27F452	142G075AA2A	1,400	75	AA	4.92	4.10	2.35	2.13
27F473	282G075AB2A	2,800	75	AB	6.15	5.13	2.93	2.67
47F484	422G075AC2A	4,200	75	AC	7.83	6.53	3.73	3.39
27F496	632G075AF2A	6,300	75	AF	10.65	8.88	5.08	4.62
27F446	103G075BC2A	10,000	75	BC	14.55	12.13	6.94	6.31
27F454	153G075BF2A	15,000	75	BF	18.75	15.63	8.94	8.13
27F460	173G075CC2A	17,000	75	CC	21.12	17.60	10.07	9.15
27F471	253G075CF2A	25,000	75	CF	29.04	24.20	13.84	12.58
27F472	253G075DC2A	25,000	75	DC	30.03	25.03	14.31	13.01
27F487	373G075DF2A	37,000	75	DF	40.77	33.98	19.43	17.67
27F494	603G075DJ2A	60,000	75	DJ	66.93	55.78	31.90	29.00
27F502	851G100AA2A	850	100	AA	4.92	4.10	2.35	2.13
27F458	172G100AB2A	1,700	100	AB	6.15	5.13	2.93	2.67
27F469	262G100AC2A	2,600	100	AC	7.83	6.53	3.73	3.39
27F490	582G100BC2A	5,800	100	BC	14.55	12.13	6.94	6.31
27F504	872G100BF2A	8,700	100	BF	18.75	15.63	8.94	8.13
27F508	982G100CC2A	9,800	100	CC	21.12	17.60	10.07	9.15
27F455	153G100CF2A	15,000	100	CF	29.04	24.20	13.84	12.58
27F459	153G100DC2A	15,000	100	DC	30.03	25.03	14.31	13.01
27F464	213G100DF2A	21,000	100	DF	40.77	33.98	19.43	17.67
27F481	363G100DJ2A	36,000	100	DJ	66.93	55.78	31.90	29.00
27F475	301F200AA2A	300	200	AA	5.28	4.40	2.52	2.29
27F492	591F200AB2A	590	200	AB	6.45	5.38	3.08	2.80
27F501	851F200AC2A	850	200	AC	8.07	6.73	3.85	3.50
27F451	142F200BB2A	1,400	200	BB	11.49	9.58	5.48	4.98
27F462	202F200BC2A	2,000	200	BC	14.28	11.90	6.81	6.19
27F474	292F200BF2A	2,900	200	BF	18.45	15.38	8.80	8.00
27F477	342F200CC2A	3,400	200	CC	22.83	19.03	10.88	9.89
27F493	492F200CF2A	4,900	200	CF	29.76	24.80	14.19	12.90
27F503	742F200DF2A	7,400	200	DF	41.22	34.35	19.65	17.86
27F447	123F200DJ2A	12,000	200	DJ	65.70	54.75	31.32	28.47
27F467	251F250AA2A	250	250	AA	5.28	4.40	2.52	2.29
27F488	501F250AB2A	500	250	AB	6.45	5.38	3.08	2.80
27F498	741F250AC2A	740	250	AC	8.07	6.73	3.85	3.50
27F563	122F250BB2A	1,200	250	BB	11.49	9.58	5.48	4.98
27F468	252F250BF2A	2,500	250	BF	18.45	15.38	8.80	8.00
27F478	292F250CC2A	2,900	250	CC	22.83	19.03	10.88	9.89
27F486	422F250CF2A	4,200	250	CF	29.76	24.80	14.19	12.90
27F495	632F250DF2A	6,300	250	DF	41.22	34.35	19.65	17.86
27F445	103F250DJ2A	10,000	250	DJ	65.70	54.75	31.32	28.47
27F482	381F350AC2A	380	350	AC	8.07	6.73	3.85	3.50
27F505	881F350BC2A	880	350	BC	14.28	11.90	6.81	6.19
27f449	132F350BF2A	1,300	350	BF	18.45	15.38	8.80	8.00
27F453	152F350CC2A	1,500	350	CC	22.83	19.03	10.88	9.89
27F465	222F350CF2A	2,200	350	CF	29.76	24.80	14.19	12.90
27F476	332F350DF2A	3,300	350	DF	41.22	34.35	19.65	17.86
27F497	512F350DJ2A	5,100	350	DJ	65.70	54.75	31.32	28.47
27F499	800F450AA2A	80	450	AA	5.28	4.40	2.52	2.29
27F457	161F450AB2A	160	450	AB	6.45	5.38	3.08	2.80
27F480	351F450AF2A	350	450	AF	9.84	8.20	4.69	4.26
27F483	381F450BB2A	380	450	BB	11.49	9.58	5.48	4.98
27F489	541F450BC2A	540	450	BC	14.28	11.90	6.81	6.19
27F500	801F450BF2A	800	450	BF	18.45	15.38	8.80	8.00
27F450	132F450CF2A	1,300	450	CF	29.76	24.80	14.19	12.90
27F463	202F450DF2A	2,000	450	DF	41.22	34.35	19.65	17.86
27F479	312F450DJ2A	3,100	450	DJ	65.70	54.75	31.32	28.47



TERMINAL BUSHINGS FOR POWER SUPPLY ELECTROLYTIC CAPACITORS

Convert low screw-insert terminals to high screw-insert terminals on power supply 'lytic capacitors. Made from aluminum and especially tooled to close tolerance dimensions, assuring proper electrical connection between terminal and adaptor, eliminating resistance between these two elements. The additional 3/16" length on terminals is often required on bus board applications. Packaged 2 to an envelope, complete with washers and screws.

Stock No.	Type	Description	Diameter	Price
81F1111	75-327	Use with types 36D/36DX, 32DR, 602D	Restricted: 1 3/8" / 602D:2	.24

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Electrolytic Capacitors

39D COMPUTER GRADE ALUMINUM ELECTROLYTICS

Welds at all critical anode and cathode terminals. End-seals are improved molded phenolic for unusually long life. Insulated case of flexible plastic. Low effective series resistance and leakage current. Oper. temp: -20°C to 85°C. Tol. -10+75% through 75WVDC and -10+50% for higher.

6 WVDC, 8 VDC SURGE

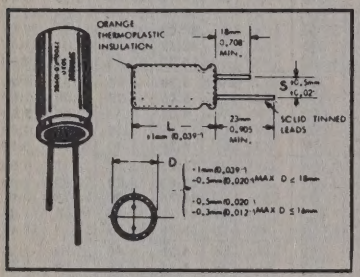
Stk. No.	Type	Mfd.	Size	1-24	25-49	50-99	100-499
18F2622	39D408G006GP4	4,000	GP	3.05	1.52	1.33	.99
18F2624	39D109G006JS4	10,000	JS	4.27	2.13	1.87	1.39
10 WVDC, 12 VDC SURGE							
18F2625	39D507G010EJ4	500	EJ	2.31	1.16	1.01	.75
18F2626	39D108G010FJ4	1,000	FJ	2.52	1.26	1.10	.82
18F2627	39D168G010FL4	1,600	FL	2.76	1.38	1.21	.90
18F2628	39D258G010GL4	2,500	GL	2.92	1.46	1.28	.95
18F2629	39D508G010HP4	5,000	HP	3.31	1.65	1.45	1.08
18F2630	39D109G010JT4	10,000	JT	4.66	2.33	2.04	1.51
15 WVDC, 18 VDC SURGE							
18F2631	39D607G015EL4	600	EL	2.36	1.18	1.03	.77
18F2632	39D128G015FL4	1,200	FL	2.76	1.38	1.21	.90
18F2633	39D258G015GP4	2,500	GP	3.05	1.52	1.33	.99
18F2634	39D408G015JL4	4,000	JL	3.31	1.65	1.45	1.08
18F2635	39D808G015JT4	8,000	JT	4.66	2.33	2.04	1.51
25 WVDC, 30 VDC SURGE							
18F2636	39D207G025EJ4	200	EJ	2.31	1.16	1.01	.75
18F2637	39D507G025HE4	500	HE	2.73	1.37	1.20	.89
18F2638	39D108G025GL4	1,000	GL	2.92	1.46	1.28	.95
18F2639	39D228G025HP4	2,200	HP	3.31	1.65	1.45	1.08
18F2640	39D408G025JS4	4,000	JS	4.27	2.13	1.87	1.39

SIZE CHART FOR TYPE 39D

EE	.562×1.25	GL	.812×2.75	JE	1.062×1.25
EJ	.562×1.75	GP	.812×2.75	JL	1.062×2.25
EL	.562×2.25	HE	.937×1.25	JP	1.062×2.75
FJ	.687×1.75	HL	.937×2.25	JS	1.062×3.25
FL	.687×2.25	HP	.937×2.75	JT	1.062×3.75
FP	.687×2.75	HS	.937×3.25		

30 WVDC, 40 VDC SURGE

Stk. No.	Type	Mfd.	Size	1-24	25-49	50-99	100-499
18F2642	39D157G030EJ4	150	EJ	2.31	1.16	1.01	.75
18F2643	39D257G030EL4	250	EL	2.36	1.18	1.03	.77
18F2644	39D507G030FL4	500	FL	2.76	1.38	1.21	.90
18F2645	39D118G030GP4	1,100	GP	3.05	1.52	1.33	.99
18F2646	39D218G030HS4	2,100	HS	3.69	1.85	1.62	1.20
18F031	39D308G030JS4	3,100	JS	4.27	2.13	1.87	1.39
50 WVDC, 65 VDC SURGE							
18F2647	39D506G050EE4	50	EE	2.25	1.12	.98	.73
18F2648	39D107G050EJ4	100	EJ	2.31	1.16	1.01	.75
18F2649	39D157G050EL4	150	EL	2.36	1.18	1.03	.77
18F2650	39D257G050HE4	250	HE	2.73	1.37	1.20	.89
18F2651	39D507G050GL4	500	GL	2.92	1.46	1.28	.95
18F2652	39D118G050HP4	1,100	HP	3.31	1.65	1.45	1.08
18F2653	39D238G050JT4	2,300	JT	4.66	2.33	2.04	1.51
150 VDC, 175 VDC SURGE							
18F2654	39D256F150EJ4	25	EJ	2.36	1.18	1.03	.77
18F2655	39D506F150FJ4	50	FJ	2.58	1.29	1.13	.84
18F2656	39D107F150FP4	100	FP	2.85	1.43	1.25	.93
18F2657	39D257F150HP4	250	HP	3.40	1.70	1.49	1.11
18F2658	39D537F150JT4	530	JT	4.82	2.41	2.11	1.57
250 WVDC, 300 VDC SURGE							
18F2659	39D206F250EL4	20	EL	2.41	1.20	1.05	.78
18F2660	39D506F250JE4	50	JE	2.86	1.43	1.25	.93
18F2661	39D107F250HL4	100	HL	3.25	1.63	1.42	1.06
18F2662	39D207F250JP4	200	JP	3.83	1.92	1.68	1.25
18F2663	39D307F250JT4	300	JT	4.82	2.41	2.11	1.57
450 WVDC, 1525 VDC SURGE							
18F2670	39D505F450EL4	5	EL	2.41	1.20	1.05	.78
18F2671	39D106F450FL4	10	FL	2.82	1.41	1.23	.92
18F2672	39D206F450GL4	20	GL	2.99	1.49	1.31	.97
18F2673	39D506F450JP4	50	JP	3.83	1.92	1.68	1.25
18F2674	39D756F450JT4	75	JT	4.82	2.41	2.11	1.57



503D VERTI-LYTIC® MINIATURE ELECTROLYTICS

Type 503D, Low cost capacitors expressly intended for vertical installation on high-density printed wiring boards. Used for coupling, decoupling, bypass, and filtering circuits in entertainment devices. Excellent capacitance, ESR, low leakage current, oper. temp. range -49°C +85°C.

Size And Price Chart

Code	In Inches D	In Inches L	1-49	50-99	100-499	500-999
DK	.512	.984	.64	.43	.30	.25
KA	.197	.433	.30	.19	.14	.11
LA	.236	.433	.33	.22	.16	.12
MB	.315	.492	.40	.26	.19	.15
NB	.394	.492	.45	.29	.22	.16
NC	.394	.630	.52	.33	.25	.19
ND	.394	.787	.57	.37	.27	.21
PD	.512	.787	.82	.53	.39	.30
PE	.512	.984	.95	.61	.46	.34
QE	.630	.984	1.16	.74	.55	.42
QF	.630	1.240	1.37	.88	.65	.49
QG	.630	1.400	1.54	.99	.74	.55
SJ	.709	1.610	3.31	2.13	1.58	1.14
TJ	.866	1.610	4.11	2.65	1.96	1.47

0-6.3 WVDC, 8 V SURGE

Stk. No.	Type	µF	Code
15F2790	503D227F6R3NB	220	NB
15F2791	503D337F6R3NC	330	NC
47F1902	503D477F6R3ND	470	CG
15F2792	503D228F6R3QE	2200	QE
15F2793	503D338F6R3QG	3300	3QG
81F1732	503D478F6R3SJ	4700	SJ
81F1733	503D688F6R3TJ	6800	TJ
81F1734	503D109F6R3UJ	10,000	UJ
0-10 WVDC, 13 V SURGE			
15F2794	503D226F010KA	22	KA
15F2795	503D476F10 LA	47	LA
47F1907	503D107F10 (MB)	100	CB
47F1908	503D227F010(NC)	220	CD
47F1909	503D337F10 (ND)	330	CG
47F1911	503D687F010(PD)	680	DK
47F1912	503D108F010(PE)	1000	EK
15F2796	503D158F010QE	1500	QE
81F1735	503D228F010QF	2200	QF
81F1736	503D338F010SH	3300	SH
81F1737	503D478F010TJ	4700	TJ
81F1738	503D109F010UK	10,000	UK
0-16 WVDC, 20 V SURGE			
47F1914	503D106F016KA	10	HS
47F1915	503D226F016LA	22	AS
47F1916	503D476F016MB	47	BB
47F1917	507D686F016MB	68	CB
47F1918	503D107F016NB	100	CD
47F1919	503D227F016ND	220	CG
47F1920	503D337F016PD	330	DG
47F1921	503D447F016PD	470	DK
47F1922	503D687F016PE	680	EK

0-16 WVDC, 20 V SURGE

Stk. No.	Type	µF	Code
47F1923	503D108F016QE	1000	ER
15F2797	503D158F016QF	1500	QF
81F1739	503D228F0165H	2200	SH
81F1740	503D688F016UK	6800	UK
0-25 WVDC, 32 V SURGE			
47F1930	503D685F025KA	6.8	AS
15F2798	503D156F025LA	15	LA
47F1933	503D336F025MB	33	BB
47F1935	503D686F025NB	68	CD
47F1936	503D107F025NC	100	CG
15F2799	503D157F025ND	150	ND
47F1937	503D227F025PD	220	DG
47F1938	503D337F025PE	330	DK
47F1940	503D687F025QE	680	ER
47F1941	503D108F025QG	1000	EU
0-35 WVDC, 44 V SURGE			
15F2803	503D475F035KA	4.7	KA
15F2804	503D106F035LA	10	LA
15F2805	503D226F035MB	22	MB
47F1943	503D336F035MB	33	CB
47F1944	503D476F035NB	47	CD
15F2806	503D686F035NC	68	NC
15F2807	503D157F035PD	150	PD
47F1945	503D227F035PE	220	DK
47F1946	503D337F035QE	330	EK
47F1947	503D477F035QE	470	ER
47F1948	503D687F035QG	680	EU
15F2808	503D158F035SJ	1500	SJ

0-50 WVDC, 63 V SURGE

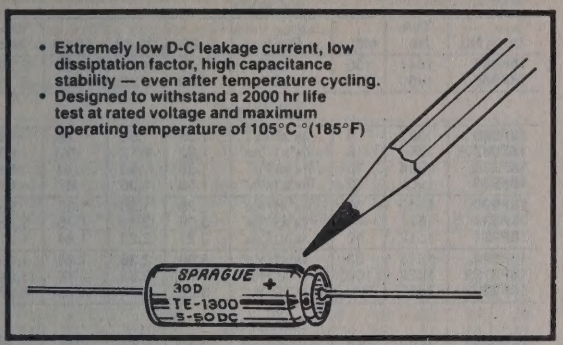
Stk. No.	Type	µF	Code
15F2809	503D685F050LA	6.8	LA
15F2810	503D156F050MB	15	MB
15F2811	503D226F050NB	22	NB
15F2812	503D476F050NC	47	NC
47F1953	503D107F050PD	100	DG
47F1954	503D227F050QE	220	EK
47F1955	503D337F050QF	330	ER
47F1956	503D477F050QG	470	ET
81F1742	503D687F050SH	680	SH
81F1743	503D108F050SJ	1000	SJ
0-63 WVDC, 73 V SURGE			
47F1957	503D474F063KA	.47	HS
47F1958	503D684F063KA	.68	HS
47F1959	503D105F063KA	1.0	HS
47F1960	503D225F063KA	2.2	AS
47F1961	503D335F063KA	3.3	AS
47F1962	503D475F063LA	4.7	BB
47F1963	503D685F063MB	6.8	BB
47F1964	503D106F063MB	10	BB
47F1965	503D226F063NC	22	CB
47F1966	503D336F063NC	33	CG
47F1967	503D476F063ND	47	CG
47F1969	503D107F063PE	100	DK
81F1744	503D157F063QE	150	QE
81F1745	503D227F063QF	220	QF
81F1746	503D337F063QG	330	QG
81F1747	503D477F063SH	470	SH
81F1748	503D687F063SJ	680	SJ
81F1749	503D108F063TJ	1000	TJ

TE Miniature Electrolytics

TYPE TE LITTL-LYTICS

SPRAGUE
THE MARK OF RELIABILITY
a GK Technologies subsidiary

- Extremely low D-C leakage current, low dissipation factor, high capacitance stability — even after temperature cycling.
- Designed to withstand a 2000 hr life test at rated voltage and maximum operating temperature of 105°C °(185°F)



Exact replacement for Type 30D. For industrial and entertainment equipment applications with either transistor or modified electron-tube circuits. Temp. range –40° to + 105C. TOlerance: –10% + 75% except (*) –10% + 50%.

Case Sizes

Key	Size	Key	Size	Key	Size
BA	.266 × .547	CC	.328 × .859	DD	.391 × .984
BB	.266 × .734	DB	.391 × .734	DF	.391 × 1.297
CB	.328 × .734	DC	.391 × .859	DG	.391 × 1.547

Stk. No.	Type	Mfd.	WV DC	D × L	5-20	25-45	50-95	100-245
18F2929	TE1058	50	3	BA	1.11	.64	.51	.37
18F544	TE1059.5	100	3	CB	1.20	.70	.56	.40
17F1900	TE1066	300	3	DC	1.29	.75	.60	.43
18F1548	TE1068	500	3	DF	1.44	.83	.67	.48
18F503	TE1080	1	6	BA				
18F504	TE1081	2	6	BA				
18F507	TE1084	5	6	BA				
18F509	TE1087	10	6	BA	1.08	.63	.50	.36
18F510	TE1089	15	6	BA				
18F807	TE1090	20	6	BA				
18F511	TE1091	25	6	BB	1.11	.64	.51	.37
18F808	TE1093	35	6	BB	1.11	.64	.51	.37
18F816	TE1100	50	6	BB	1.11	.64	.51	.37
18F2933	TE1102	100	6	CC	1.26	.74	.59	.42
18F810	TE1103	150	6	DC	1.29	.75	.60	.43
18F811	TE1004	200	6	DC	1.29	.75	.60	.43
18F812	TE1005	250	6	DD	1.29	.75	.60	.43
18F813	TE1106	300	6	DF	1.29	.75	.60	.43
18F007	TE1107	400	6	DF	1.44	.83	.67	.48
18F1904	TE1107.5	500	6	DG	1.53	.89	.71	.51
18F1903	TE1108.5	600	6	DG	1.53	.89	.71	.51
18F817	TE1120	1	12	BA				
18F818	TE1121	2	12	BA				
18F819	TE1122	3	12	BA				
18F820	TE1123	4	12	BA				
18F815	TE1127	5	12	BA	1.08	.63	.50	.36
18F821	TE1127.1	6	12	BA				
18F822	TE1127.3	8	12	BA				
18F2934	TE1128	10	12	BA				
18F823	TE1129	25	12	BA				
18F824	TE1130	20	12	BB	1.11	.64	.51	.37
18F825	TE1131	25	12	BB	1.11	.64	.51	.37
18F827	TE1133	50	12	CB	1.20	.70	.40	.34
18F009	TE1133.5	60	12	CB	1.20	.70	.40	.34
18F828	TE1134	75	12	CC	1.26	.74	.59	.42
18F829	TE1135	100	12	CC	1.26	.74	.59	.42
18F830	TE1136	150	12	DD	1.29	.75	.60	.43
18F831	TE1137	200	12	DF	1.44	.83	.67	.48
18F832	TE1138	250	12	DF	1.44	.83	.67	.48
18F014	TE1140	390	12	DG	1.53	.89	.71	.51
18F833	TE1148	1	16	BA	1.08	.63	.50	.36
18F834	TE1149	2	16	BA	1.08	.63	.50	.36
18F835	TE1150	3	16	BA	1.08	.63	.50	.36
18F520	TE1151	4	16	BA	1.08	.63	.50	.36
18F836	TE1152	5	16	BA	1.08	.63	.50	.36
18F837	TE1153	6	16	BA	1.08	.63	.50	.36
18F838	TE1154	8	16	BA	1.08	.63	.50	.36
18F521	TE1155	10	16	BA	1.08	.63	.50	.36
18F839	TE1156	15	16	BB	1.10	.64	.51	.37
18F522	TE1157	20	16	BB	1.10	.64	.51	.37
18F840	TE1157.1	25	16	BB	1.10	.64	.51	.37
18F523	TE1158	30	16	CB	1.20	.70	.56	.40
18F841	TE1159	35	16	CB	1.20	.70	.56	.40
18F842	TE1160	50	16	CB	1.20	.70	.56	.40
18F843	TE1161	75	16	CC	1.26	.74	.59	.42
18F844	TE1162	100	16	DC	1.29	.75	.60	.43
18F845	TE1163	150	16	DD	1.29	.75	.60	.43
18F846	TE1164	200	16	DF	1.44	.83	.67	.48
17F1906	TE1164.5	250	16	DF	1.44	.83	.67	.48
18F020	TE1166	350	16	DG	1.53	.89	.71	.51
18F847	TE1200	1	25	BA	1.08	.63	.50	.36
18F848	TE1201	2	25	BA	1.08	.63	.50	.36
18F849	TE1201.1	3	25	BA	1.08	.63	.50	.36
18F850	TE1201.2	4	25	BA	1.08	.63	.50	.36
18F524	TE1202	5	25	BA	1.08	.63	.50	.36
18F525	TE1203	6	25	BA	1.08	.63	.50	.36
18F851	TE1203.5	8	25	BA	1.08	.63	.50	.36
18F526	TE1204	10	25	BB	1.11	.64	.51	.37
18F527	TE1205	15	25	BB	1.11	.64	.51	.37
17F1907	TE1206	20	20	CB	1.20	.70	.56	.40
18F852	TE1207	25	25	CB	1.20	.70	.56	.40
18F021	TE1207.5	30	25	CB	1.20	.70	.56	.40
18F853	TE1208	35	25	CB	1.20	.70	.56	.40
18F854	TE1209	50	25	CC	1.26	.74	.59	.42
18F855	TE1210	75	25	DC	1.29	.75	.60	.43
18F856	TE1211	100	25	DD	1.29	.75	.60	.43
18F022	TE1212	150	25	DF	1.44	.83	.67	.48
18F023	TE1213	200	25	DG	1.53	.89	.71	.51
18F857	TE1300	1	50	BA	1.08	.63	.50	.36
18F858	TE1301	2	50	BA	1.08	.63	.50	.36
18F859	TE1302	3	50	BA	1.08	.63	.50	.36
18F860	TE1302.1	4	50	BA	1.08	.63	.50	.36
18F529	TE1303	5	50	BB	1.11	.64	.51	.37
18F861	TE1303.1	6	50	BB	1.11	.64	.51	.37
18F862	TE1303.3	8	50	BB	1.11	.64	.51	.37
18F530	TE1304	10	50	CB	1.20	.70	.56	.40
18F863	TE1304.2	15	50	CB	1.20	.70	.56	.40
18F531	TE1305	20	50	CC	1.26	.74	.59	.42
18F024	TE1305.5	25	50	CC	1.26	.74	.59	.42
18F864	TE1306	35	50	DC	1.29	.75	.60	.43
18F865	TE1307	50	50	DD	1.29	.75	.60	.43
18F025	TE1308	75	50	DF	1.44	.83	.67	.48
18F026	TE1309	100	50	DG	1.53	.89	.71	.51
18F866	TE1400	1	100	BA	1.08	.63	.50	.36
18F867	TE1401	2	100	BB	1.11	.64	.51	.37
18F868	TE1402	3	100	CB	1.20	.70	.56	.40
18F869	TE1403	4	100	CB	1.20	.70	.56	.40
18F870	TE1404	5	100	CC	1.26	.74	.59	.42
18F871	TE1405	6	100	CC	1.26	.74	.59	.42
18F872	TE1406	8	100	DC	1.29	.75	.60	.43
18F873	TE1407	10	100	DC	1.29	.75	.60	.43
18F874	TE1408	15	100	DD	1.29	.75	.60	.43
18F875	TE1409	20	100	DF	1.44	.83	.67	.48
18F027	TE1410	25	100	DG	1.53	.89	.71	.51
18F028	TE1411	30	100	DG	1.53	.89	.71	.51
18F876	TE1500	1	150	BA	1.08	.63	.50	.36
18F877	TE1501	2	150	BB	1.11	.64	.51	.37
18F878	TE1502	3	150	CB	1.20	.70	.56	.40
18F879	TE1503	4	150	CC	1.26	.74	.59	.42
18F880	TE1504	5	150	CC	1.26	.74	.59	.42
18F881	TE1505	6	150	DC	1.29	.75	.60	.43
18F029	TE1505.5	7	150	DC	1.29	.75	.60	.43
18F882	TE1506	8	150	DC	1.29	.75	.60	.43
18F883	TE1507	10	150	DD	1.29	.75	.60	.43
18F2936	TE1508	15	150	DF	1.44	.83	.67	.48
18F030	TE1509	20	150	DG	1.53	.89	.71	.51

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

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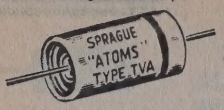
TVA Atom Electrolytics



- WITHSTANDS HIGH RIPPLE CURRENTS, TEMPERATURES, SURGE VOLTAGES
- LOW LEAKAGE CURRENTS
- LONG SHELF LIFE

Smallest dependable standard tubular. Ideal for replacement applications in many consumer type electronic devices. Capacitors to 475V operate up to 85°C. Higher voltage units designed for 65°C operation. Metal case construction with thermoplastic outer sleeve. All units listed are polarized except 400 WVDC. Avg. wt. 3 oz.

6

SINGLE UNITS 6 WVDC

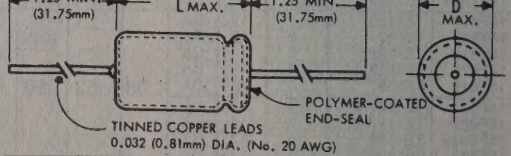
Stock No.	TVA No.	Mfd.	D X L	1-24	25-49	50-99	100-249
18F957	1102	250	3/8"x3 1/32"	1.20	.84	.69	.49
18F958	1103	500	3/8"x1 17/32"	1.23	.86	.71	.51
18F959	1104	1000	1/2"x1 9/32"	1.47	1.02	.84	.60
18F960	1105	1500	1/2"x1 17/32"	1.29	.89	.73	.52
18F151	1106	2000	1/2"x1 25/32"	1.77	1.23	1.01	.72
16 WVDC							
18F964	1160	100	3/8"x2 7/32"	1.17	.80	.66	.47
18F965	1161	250	3/8"x1 9/32"	1.23	.86	.71	.51
18F966	1162	500	7/16"x1 17/32"	1.47	1.02	.84	.60
18F228	1163	1000	1/2"x1 13/16"	1.29	.89	.73	.52
18F2132	1170	2000	13/16"x1 21/32"	2.07	1.44	1.18	.84
18F2904	1175	3000	7/8"x1 29/32"	3.33	2.32	1.91	1.36
25 WVDC							
18F154	1204	10	1/4"x2 3/32"	1.02	.71	.59	.42
18F2133	1204.5	20	5/16"x2 3/32"	1.05	.73	.60	.43
18F155	1205	25	5/16"x2 3/32"	1.05	.73	.60	.43
18F156	1206	50	5/16"x2 7/32"	1.17	.80	.66	.47
18F157	1207	100	3/8"x3 1/32"	1.20	.84	.69	.49
18F2905	1207.5	150	3/8"x1 9/32"	1.23	.85	.70	.50
18F969	1208	250	7/16"x1 9/32"	1.38	.95	.78	.56
18F159	1209	500	1/2"x1 9/16"	1.29	.89	.73	.52
18F2134	1211	1000	13/16"x1 21/32"	1.77	1.23	1.01	.72
50 WVDC							
18F970	1300	1	1/4"x1 7/32"	1.02	.71	.59	.42
18F971	1301	2	1/4"x1 7/32"	1.02	.71	.59	.42
18F972	1303	5	1/4"x2 3/32"	1.02	.71	.59	.42
18F163	1304	10	5/16"x2 3/32"	1.05	.73	.60	.43
18F2136	1305	15	5/16"x2 3/32"	1.05	.73	.60	.43
18F973	1305.5	20	5/16"x2 7/32"	1.17	.80	.66	.47
18F164	1306	25	5/16"x2 7/32"	1.17	.80	.66	.47
18F165	1308	50	3/8"x3 1/32"	1.23	.85	.70	.50
18F166	1310	100	3/8"x1 17/32"	1.23	.86	.71	.51
18F974	1311	150	7/16"x1 17/32"	1.38	.95	.78	.56
18F229	1312	250	1/2"x5/16"	1.29	.89	.73	.52
18F975	1315	500	3/4"x1 21/32"	2.07	1.44	1.18	.84
18F2966	1316	1000	15/16"x1 29/32"	3.54	2.47	2.04	1.45
18F2967	1318	1500	15/16"x2 5/32"	3.96	2.75	2.26	1.61
150 WVDC							
18F2137	1400	1	1/4"x1 7/32"	1.08	.76	.63	.44
18F976	1402	4	5/16"x2 7/32"	1.32	.92	.76	.54
18F977	1403	5	5/16"x2 7/32"	1.32	.92	.76	.54
18F978	1405	8	3/8"x1 29/32"	1.35	.94	.77	.55
18F222	1406	10	3/8"x3 1/32"	1.35	.95	.78	.56
18F980	1409	16	3/8"x1 17/32"	1.50	1.05	.86	.61
18F175	1410	20	3/8"x1 17/32"	1.62	1.12	.92	.66
18F981	1411	25	7/16"x1 9/32"	1.38	.96	.79	.56
18F167	1412	30	7/16"x1 17/32"	1.53	1.06	.87	.62
18F176	1413	40	1/2"x1 17/32"	1.83	1.27	1.05	.75
18F230	1414	50	1/2"x1 13/16"	2.10	1.47	1.21	.86
18F223	1415	60	13/16"x1 13/32"	2.28	1.58	1.30	.93
18F168	1418	80	7/8"x1 13/32"	3.06	2.12	1.75	1.25
18F231	1420	100	7/8"x1 21/32"	3.30	2.31	1.90	1.35
18F224	1422	150	7/8"x2 5/32"	3.54	2.47	2.03	1.45
18F982	1423	200	1"x2 5/32"	3.99	2.78	2.29	1.63
18F2138	1424	250	1 1/8"x2 5/32"	6.93	4.84	3.98	2.84
18F983	1425	300	1 1/8"x2 11/16"	5.31	3.70	3.05	2.17

200 WVDC

Stock No.	TVA No.	Mfd.	D x L	1-24	25-49	50-99	100-249
18F984	1447	150	1"x2 5/32"	16.75	4.71	3.88	2.76
18F985	1480	200	1 1/8"x2 11/16"	7.80	5.38	4.47	3.19
250 WVDC							
18F986	1501	4	3/8"x3 1/32"	1.35	.95	.78	.56
18F987	1503	8	7/16"x1 17/32"	1.62	1.12	.92	.66
18F232	1504	10	7/16"x1 9/32"	1.38	.96	.79	.56
18F988	1505	12	7/16"x1 17/32"	1.53	1.06	.87	.62
18F990	1510	30	13/16"x1 13/32"	2.28	1.58	1.30	.93
18F234	1511	40	7/8"x1 13/32"	3.06	2.12	1.75	1.25
18F991	1512	50	7/8"x1 21/32"	3.21	2.23	1.84	1.31
18F992	1513	60	7/8"x1 29/32"	3.39	2.36	1.94	1.38
18F2139	1522	100	1"x1 29/32"	3.78	2.62	2.16	1.54
18F2907	1528	200	1 1/4"x2 11/16"	8.25	5.70	4.73	3.37
300 WVDC							
18F2908	1576	150	1 1/4"x2 11/16"	9.42	6.51	5.35	3.85
18F2142	1578	200	1 1/4"x3 5/32"	9.57	6.60	5.43	3.91
350 WVDC							
18F994	1601	4	3/8"x1 9/32"	1.50	1.05	.86	.61
18F995	1603	8	7/16"x1 17/32"	1.53	1.06	.87	.62
18F996	1604	10	1/2"x1 9/16"	1.83	1.27	1.05	.75
18F998	1607	16	1/2"x1 13/16"	2.10	1.47	1.21	.86
18F999	1608	20	3/4"x1 21/32"	2.28	1.58	1.30	.93
18F1531	1613	60	15/16"x2 5/32"	3.69	2.57	2.12	1.51
18F2144	1620	100	1"x2 21/32"	4.77	3.32	2.73	1.95
18F2909	1622	150	1 1/4"x2 11/16"	7.86	5.42	4.50	3.21
18F2910	1624	200	1 1/4"x3 5/32"	9.75	6.73	5.53	3.99
400 WVDC (Nonpolarized)							
18F2143	1652	10	1/2"x1 13/16"	1.83	1.27	1.05	.75
450 WVDC							
18F1533	1700	1	3/8"x2 7/32"	1.35	.94	.77	.55
18F1534	1701	2	3/8"x1 9/32"	1.50	1.05	.86	.61
18F1535	1702	4	7/16"x1 17/32"	1.53	1.06	.87	.62
18F2146	1703	5	1/2"x1 5/16"	1.77	1.23	1.02	.73
18F225	1704	8	1/2"x1 13/16"	2.10	1.47	1.21	.86
18F169	1705	10	1/2"x1 13/16"	2.28	1.58	1.30	.93
18F1536	1706	12	3/4"x1 21/32"	2.28	1.58	1.30	.93
18F170	1709	20	13/16"x2 5/32"	3.75	2.61	2.15	1.53
18F171	1711	30	1"x1 29/32"	4.02	2.80	2.31	1.64
18F172	1712	40	1 5/16"x2 13/32"	4.08	2.84	2.34	1.67
18F226	1713	50	1 1/16"x2 5/32"	5.55	3.86	3.17	2.26
18F227	1714	60	1 1/8"x2 5/32"	5.73	3.98	3.28	2.34
18F235	1716	80	1"x3 21/32"	5.40	3.76	3.10	2.21
18F1537	1718	100	1 1/4"x3 5/32"	7.95	5.48	4.55	3.24
18F2911	1719	150	1 3/8"x3 11/16"	10.74	7.42	6.10	4.39
18F2912	1720	200	1 3/8"x4 5/32"	11.28	7.79	6.41	4.61
500 WVDC							
18F236	1902	8	3/4"x1 21/32"	3.93	2.73	2.25	1.60
18F238	1906	20	7/8"x2 5/32"	4.53	3.14	2.59	1.85
18F2147	1908	40	1"x2 13/32"	5.40	3.76	3.10	2.21
600 WVDC							
18F240	1962	8	1 1/16"x2 7/8"	7.50	5.17	4.29	3.06
18F241	1963	10	1 1/16"x3 3/16"	8.43	5.82	4.84	3.45
18F242	1965	16	1 1/16"x4 3/16"	9.42	6.51	5.35	3.85
18F243	1966	20	1 1/16"x3 7/8"	9.90	6.82	5.61	4.04

TYPE 630D EXTRALYTIC® ELECTROLYTICS FOR TIMING CIRCUITS

- Extremely Low Leakage
- Meets 2000 Hour Life Test
- Tight Tolerance Values
- All Welded Construction



These aluminum electrolytics are specifically designed for use in long-interval timing circuits. They feature extremely low leakage current levels and an unusually tight tolerance of only ±10%. These premium grade units offer capacitance values needed for commonly used R-C timing circuits. Excellent shelf and life characteristics over the temperature range of −55°C to +125°C. Reliable welded connections with an outer plastic film insulation and polymer-coated end-seals. The maximum leakage ranges from 1.0μA to 5.0 μA; the maximum ESR ranges from 13.3 ohms to 0.3 ohms. Working Voltage: 25 VDC.

Stock No.	Type	μF	Size, Inches D x L	1-9	10-24	25-49	50-99
17F2237	630D100	10	0.270 x 0.812	1.57	1.26	.79	.63
17F2238	630D101	25	0.322 x 0.812	1.58	1.26	.79	.64
17F2239	630D102	50	0.322 x 0.937	1.62	1.30	.81	.64
17F2240	630D103	100	0.395 x 1.062	1.65	1.32	.83	.66
17F2241	630D104	250	0.395 x 1.625	1.96	1.57	.98	.79
17F2242	630D105	500	0.505 x 1.875	3.28	2.62	1.64	1.31

Electrolytic Capacitors

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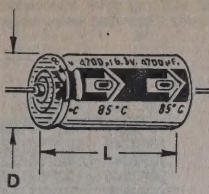
TYPE 501D MINILYTIC® ALUMINUM ELECTROLYTICS

cont.

- **Capacitance tolerance, −10, +50%**

Model 501D. For entertainment and commercial applications requiring miniature tubular electrolytics with good operating life. Intended for use in coupling, decoupling, bypass, and filtering circuits in radios, automobile receivers, portable tape recorders, commercial amplifiers and similar applications. Capacitance tolerance, −10, +50%. Designed for operation over temperature range of −40°C to +85°C. Very low equivalent series resistance and leakage current. Supplied with outer thermoplastic sleeve over aluminum case.



- **Very low ESR**

0-6.3 WVDC

Stock No.	Type No.	In Inches D	L	µF	1-24	25-49	50-99	100-299
15F000	501D157F6R3MM	.314	.630	150	.51	.43	.33	.25
15F001	501D477F6R3NP	.394	.827	470	.60	.50	.39	.29
15F004	501D228F6R3QS	.630	1.240	2200	1.50	1.24	.96	.71
15F006	501D688F6R3TV	.866	1.570	6800	4.29	3.57	2.75	2.04

0-10 WVDC

15F009	501D336F010LL	.236	.472	33	.42	.34	.26	.20
15F010	501D476F010LL	.236	.472	47	.42	.34	.26	.20
15F011	501D227F010MN	.314	.787	220	.60	.50	.39	.29
15F012	501D337F010NP	.394	.827	330	.60	.50	.39	.29
15F013	501D477F010NR	.394	1.020	470	.69	.57	.44	.33
15F014	501D108F010PR	.512	1.020	1000	.96	.80	.62	.46
15F015	501D338F010QT	.630	1.630	3300	2.34	1.95	1.51	1.12

0-16 WVDC

15F018	501D226F016LL	.236	.472	22	.42	.34	.26	.20
15F019	501D336F016LM	.236	.630	33	.42	.35	.27	.20
15F020	501D686F016MM	.314	.630	68	.51	.42	.32	.24
15F021	501D107F016MM	.314	.630	100	.51	.43	.33	.25
15F022	501D157F016MN	.314	.787	150	.60	.50	.39	.29
15F023	501D227F016NP	.394	.827	220	.60	.50	.39	.29
15F024	501D337F016NR	.394	1.020	330	.78	.66	.51	.38
15F025	501D687F016PR	.512	1.020	680	.78	.66	.51	.38
15F026	501D108F016PS	.512	1.240	1000	1.50	1.24	.96	.71
15F027	501D158F016QS	.630	1.240	1500	1.89	1.58	1.22	.90
15F028	501D228F016QT	.630	1.630	2200	2.16	1.79	1.38	1.02

0-25 WVDC

15F032	501D156F025LL	.236	.472	15	.42	.34	.26	.20
15F033	501D226F025LM	.236	.630	22	.42	.35	.27	.20
15F034	501D476F025MM	.314	.630	47	.51	.42	.32	.24
15F035	501D686F025MN	.314	.787	68	.51	.43	.33	.25
15F036	501D107F025MN	.314	.787	100	.60	.50	.39	.29
15F037	501D157F025NP	.394	.827	150	.60	.50	.39	.29
15F038	501D227F025NR	.394	1.020	220	.69	.57	.44	.33
15F039	501D477F025PR	.512	1.020	470	.96	.80	.62	.46
15F040	501D687F025PS	.512	1.240	680	1.50	1.25	.97	.72
15F041	501D108F025QS	.630	1.240	1000	1.89	1.58	1.22	.90
15F042	501D158F025QT	.630	1.630	1500	3.27	2.72	2.10	1.56

0-35 WVDC

15F047	501D106F035LL	.236	.472	10	.42	.34	.26	.20
15F049	501D336F035MM	.314	.630	33	.51	.42	.32	.24
15F050	501D476F035MN	.314	.787	47	.51	.43	.33	.25
15F051	501D686F035NP	.394	.827	68	.60	.50	.39	.29
15F052	501D107F035NP	.394	.827	100	.60	.50	.39	.29
15F053	501D157F035NR	.393	1.020	150	.78	.66	.51	.38
15F054	501D337F035PR	.512	1.020	330	.96	.80	.62	.46
15F055	501D477F035PS	.512	1.240	470	1.50	1.25	.97	.72
15F056	501D687F035QS	.630	1.240	680	1.89	1.58	1.22	.90
15F057	501D108F035QT	.630	1.630	1000	2.16	1.79	1.38	1.02
15F058	501D158F035SV	.709	1.570	1500	3.78	3.15	2.43	1.80
15F059	501D228F035TV	.866	1.570	2200	4.56	3.81	2.94	2.18

0-50 WVDC

15F062	501D226F050MM	.314	.630	22	.51	.42	.32	.24
15F065	501D108F050SV	.798	1.570	1000	4.11	3.43	2.65	1.96
15F066	501D158F050TV	.866	2.040	1500	6.27	5.17	4.03	2.98

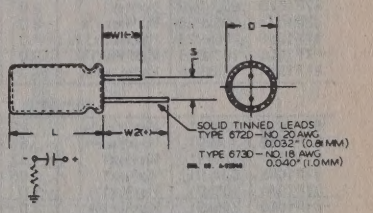
0-63 WVDC

15F069	501D474F063LL	.236	.472	.47				
15F070	501D684F063LL	.236	.472	.68				
15F071	501D105F063LL	.236	.472	1.0	.42	.34	.26	.20
15F072	501D155F063LL	.236	.472	1.5				
15F073	501D225F063LL	.236	.472	2.2				
15F074	501D335F063LL	.236	.472	3.3	.42	.34	.26	.20
15F075	501D475F063LL	.236	.472	4.7	.42	.34	.26	.20
15F076	501D685F063LM	.236	.630	6.8	.42	.35	.27	.20
15F077	501D106F063MM	.314	.630	10	.51	.42	.32	.24
15F079	501D226F063MN	.314	.787	22	.51	.43	.33	.25
15F080	501D336F063NP	.394	.827	33	.60	.50	.39	.29
15F081	501D476F063NP	.394	.827	47	.60	.50	.39	.29
15F082	501D686F063NR	.394	1.020	68	.78	.66	.51	.38
15F083	501D107F063NR	.394	1.020	100	.96	.80	.62	.46
15F084	501D157F063PR	.512	1.020	150	.96	.80	.62	.46
15F085	501D227F063PR	.512	1.020	220	1.50	1.25	.97	.72
15F086	501D337F063QS	.630	1.240	330	1.89	1.58	1.22	.90
15F087	501D477F063QS	.630	1.240	470	2.34	1.95	1.51	1.12
15F088	501D687F036QT	.630	1.630	680	3.09	2.57	1.99	1.47
15F089	501D108F063TV	.866	1.570	1000	4.71	3.92	3.02	2.24

TYPE 672D, 673D
EXTRALYTIC® ALUMINUM CAPACITORS

Designed for use in high frequency applications. High capacitance combined with low inductance max. 25nH and low ESR make these very useful for bus bar decoupling in date processing applications. High ripple current capability, low impedence values. Operating range from −55°C to 105°C. Capacitance tolerance −10, +100%. Outer plastic-film insulation with polymer coated single end-seal.

Price Code	D	L	1-9	10-29	30-49	50-99
CC	0.413	0.677	1.70	1.36	1.02	.85
CD	0.413	0.740	1.75	1.40	1.05	.88
CG	0.413	0.927	1.80	1.44	1.08	.90
DM	0.500	1.165	2.15	1.72	1.29	1.08
DT	0.500	1.437	2.20	1.76	1.32	1.10
DS	0.500	1.790	2.30	1.84	1.38	1.15
EK	0.635	1.124	2.45	1.96	1.47	1.23
ET	0.635	1.437	2.60	2.08	1.56	1.30
JE	1.010	1.140	6.70	5.36	4.02	3.35
JJ	1.010	1.640	7.45	5.96	4.47	3.73
JL	1.010	2.140	7.95	6.36	4.77	3.98
HE	0.885	1.140	6.10	4.88	3.66	3.05
HJ	0.885	1.640	6.55	5.24	3.93	3.28



6.3 WVDC, 9 VDC SURGE

Stock No.	Type	µF	Price & Size code
81F1750	672D157H6R3CD5C	150	CD
18F255	672D227H6R3CG5C	220	CG
18F256	672D687H6R3DM5C	680	DM
81F1751	672D108H6R3EK5C	1000	EK
15F2777	672D128H6R3ET5C	1200	ET
81F1752	672D158H6R3ET5C	1500	ET
81F1753	673D228H6R3JE5C	2200	JE

12 WVDC, 16 VDC SURGE

18F260	672D107H012CC5C	100	CC
18F263	672D477H012DM5C	470	DM
15F2278	672D108H012ET5C	1000	ET
81F1756	673D158H012JE5C	1500	JE
81F1757	673D338H012JJ5C	3300	JJ

15 WVDC, 20 VDC SURGE

15F2779	672D107H015CD5C	100	CD
18F267	672D157H015CG5C	150	CG
81F1758	672D477H015DT5C	470	DT
81F1759	672D687H015EK5C	680	EK
15F2780	672D827H015ET5C	820	ET
81F1760	672D108H015ET5C	1000	ET
81F1761	673D158H015JE5C	1500	JE
81F1762	673D228H015HJ5C	2200	HJ
81F1763	673D338H015JJ5C	3300	JJ
81F1764	673D478H015JL5C	4700	JL

20 WVDC, 30 VDC SURGE

Stock No.	Type	µF	Price & Size code
81F1765	672D686H020CD5C	68	CD
18F273	672D107H020CG5C	100	CG
15F2781	672D337H020DM5C	330	DM
81F1766	672D477H020EK5C	470	EK
15F2782	672D567H020ET5C	560	ET
81F1767	672D687H020ET5C	680	ET
81F1768	673D108H020JE5C	1000	JE
81F1769	673D228H020JJ5C	2200	JJ

25 WVDC, 35 VDC SURGE

18F275	672D476H025CC5C	47	CC
18F276	672D686H025CD5C	68	CD
18F278	672D337H025DT5C	330	DT
15F2785	672D477H025ET5C	470	ET
81F1770	673D687H025HE5C	680	HE
81F1771	673D108H025JE5C	1000	JE
81F1772	673D158H025HJ5C	1500	HJ

50 WVDC, 75 VDC SURGE

18F288	672D226H050CD5C	22	CD
81F1773	672D107H050DT5C	100	DT
81F1774	672D157H050EK5C	150	EK
15F2787	672D187H050ET5C	180	ET
81F1775	672D227H050ET5C	220	ET
81F1776	673D337H050HE5C	330	HE
81F1777	673D477H050JE5C	470	JE
81F1778	673D687H050HJ5C	680	HJ

60 WDC, 85VDC SURGE

Stock No.	Type	µF	Price & Size code
81F1779	672D156H060CD5C	15	CD
18F294	672D226H060CG5C	22	CG
18F295	672D686H060DM5C	68	DM
81F1780	672D107H060EK5C	100	EK
15F2788	672D127H060ET5C	120	ET
81F1781	672D157H060ET5C	150	ET
81F1782	673D227H060JE5C	220	JE
81F1783	673D477H060JJ5C	470	JJ
81F1784	673D687H060JL5C	680	JL

100 WVDC, 150 VDC SURGE

18F298	672D475H100CC5C	4.7	CC
18F299	672D685H100CD5C	6.8	CD
81F1785	672D336H100EK5C	33	EK
81F1786	672D686H100ET5C	68	ET
81F1787	673D107H100JE5C	100	JE

200 WVDC, 250 VDC SURGE

81F1788	673D276H200HE5C	27	HE
81F1789	673D566H200HJ5C	56	HJ
81F1790	673D686H200JJ5C	68	JJ
81F1791	673D127H200JL5C	120	JL

250 WVDC, 300 VDC SURGE

81F1792	673D226H250HE5C	22	HE
81F1793	673D336H250JE5C	33	JE
81F1794	673D396H250HJ5C	39	HJ
81F1795	673D107H250JL5C	100	JL

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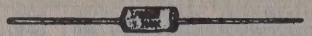
Filmite "E" Capacitors

192P "PACER"—MINIATURE "FILMITE E" CAPACITORS

Miniature size for commercial and industrial applications. Controlled dimensions for automatic insertion equipment installing on P.C. boards. Operating temp. range −55°C to +85°C. Tolerance ±10%. Shpg. wt. 2 oz.



80 VOLTS DC

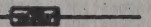
Stock No.	Type	Mfd.	Size	Price Each 5-20	25-45	50-95	100-245
18F2520	192P2229R8	.0022	9/64x5/16"				
18F2521	192P2729R8	.0027	9/64x5/16"				
18F2522	192P3329R8	.0033	9/64x5/16"				
18F2523	192P3929R8	.0039	9/64x5/16"	.51	.32	.25	.22
18F2524	192P4729R8	.0047	9/64x5/16"				
18F2525	192P5629R8	.0056	11/64x3/8"				
18F2526	192P6829R8	.0068	11/64x3/8"				
18F2527	192P8229R8	.0082	11/64x3/8"				
18F2528	192P1039R8	.01	11/64x3/8"	.48	.31	.24	.21
18F2529	192P1239R8	.012	11/64x3/8"	.54	.33	.25	.22
18F2530	192P1539R8	.015	11/64x3/8"	.57	.35	.27	.24
18F2531	192P1839R8	.018	11/64x3/8"	.57	.36	.28	.24
18F2532	192P2239R8	.022	11/64x3/8"	.57	.36	.28	.24
18F2533	192P2739R8	.027	7/32x7/16"	.60	.37	.29	.25
18F2534	192P3339R8	.033	7/32x7/16"	.60	.37	.29	.25
18F2535	192P3939R8	.039	7/32x9/16"	.60	.38	.30	.26
18F2536	192P4739R8	.047	7/32x9/16"	.63	.39	.30	.26
18F2537	192P5639R8	.056	15/64x9/16"	.63	.40	.31	.27
18F2538	192P6839R8	.068	15/64x9/16"	.69	.42	.33	.28
18F2539	192P8239R8	.082	19/64x1/2"	.72	.44	.34	.29
18F2540	192P1049R8	.1	19/64x1/2"	.72	.45	.35	.30
18F2541	192P1249R8	.12	19/64x5/8"	.84	.53	.41	.36
18F2542	192P1549R8	.15	19/64x5/8"	.90	.57	.44	.38
18F2543	192P1849R8	.18	21/64x5/8"	.99	.62	.49	.42
18F2544	192P2249R8	.22	21/64x5/8"	1.11	.68	.53	.46
18F2545	192P2749R8	.27	21/64x7/8"	1.17	.73	.57	.49
18F2546	192P3349R8	.33	21/64x7/8"	1.23	.77	.60	.52
18F2547	192P3949R8	.39	21/64x1 3/16"	1.32	.82	.64	.55

200 VOLTS DC

Stk. No.	Type	Mfd.	D x L	Price Each 5-20	25-45	50-95	100-245
18F2242	192P47192	.00047	9/64x5/16"	.51	.32	.25	.21
18F2243	192P56192	.00056	9/64x5/16"				
18F2244	192P68192	.00068	9/64x5/16"	.48	.29	.23	.20
18F2245	192P82192	.00082	9/64x5/16"				
18F2246	192P10292	.001	9/64x5/16"	.42	.25	.20	.17
18F2247	192P12292	.0012	9/64x5/16"	.42	.25	.20	.17
18F2248	192P15292	.0015	9/64x5/16"	.42	.25	.20	.17
18F2249	192P18292	.0018	11/64x5/16"	.42	.25	.20	.17
18F2250	192P22292	.0022	11/64x5/16"	.42	.25	.20	.17
18F2251	192P27292	.0027	11/64x5/16"	.42	.25	.20	.17
18F2252	192P33292	.0033	11/64x5/16"	.42	.25	.20	.17
18F2253	192P39292	.0039	11/64x7/16"	.42	.26	.20	.17
18F2254	192P47292	.0047	11/64x7/16"	.42	.26	.20	.17
18F2255	192P56292	.0056	11/64x7/16"	.42	.26	.20	.18
18F2256	192P68292	.0068	11/64x7/16"	.42	.26	.20	.18
18F2257	192P82292	.0082	11/64x1/2"	.45	.28	.22	.19
18F2226	192P10392	.01	11/64x1/2"	.48	.29	.23	.20
18F2227	192P12392	.012	7/32x7/16"	.48	.29	.23	.20
18F2228	192P15392	.015	7/32x7/16"	.48	.30	.23	.20
18F2229	192P18392	.018	7/32x9/16"	.48	.30	.24	.20
18F2230	192P22392	.022	7/32x9/16"	.48	.31	.24	.21
18F2231	192P27392	.027	15/64x9/16"	.54	.33	.25	.22
18F2232	192P33392	.033	15/64x9/16"	.57	.34	.27	.23
18F2234	192P47392	.047	19/64x1/2"	.63	.38	.30	.26
18F2235	192P56392	.056	19/64x5/8"	.66	.40	.31	.27
18F2236	192P68392	.068	19/64x5/8"	.69	.43	.33	.29
18F2237	192P82392	.082	21/64x5/8"	.72	.45	.35	.30
18F2238	192P10492	.1	21/64x5/8"	.75	.47	.37	.31
18F2239	192P12492	.12	21/64x7/8"	.78	.49	.38	.33
18F2240	192P15492	.15	21/64x7/8"	.90	.56	.44	.37
18F2241	192P22492	.22	21/64x1 3/16"	1.05	.66	.51	.44

TYPE 431P METFILM® E CAPACITOR

Construction gives benefits over metal encased molded or wax coated cardboard case tubulars of comparable ratings. Axial lead polyester film ca capacitor section protected from moisture by a wrap of polyester film tape. Operating temp. range: −55 C to +25 C.



50 WDC

Stk. No.	Type 431P	Size	Mfd.	Price Each 5-20	25-45	50-95	100-up
47F1573	205x925	3/16x9/16x1	2.0	3.04	2.28	1.33	1.07
47F1574	305x925	3/16x19/32x1 1/4	3.0	3.44	2.58	1.51	1.21
81F1053	705x925	15/32x1 1/16x1 3/4	7.0	5.88	4.41	2.58	2.06
47F1598	106x925	9/16x25/32x1 3/4	10.0	6.60	4.95	2.89	2.31
81F1054	156x925	1/2x1 3/16x1 3/4	15.0	10.20	7.65	4.47	3.57

100 WDC

81F1055	224x91	3/16x1 1/32x5/8	.22	1.68	1.26	.74	.59
81F1056	334x91	13/64x9/32x3/4	.33	1.92	1.44	.84	.68
81F1057	474x91	1/4x9/32x1	.47	2.08	1.56	.91	.73
81F1058	684x91	1/4x9/32x1	.68	2.40	1.80	1.05	.84
81F1059	105x91	3/16x3/8x1 1/4	1.0	2.64	1.98	1.16	.93
81F1060	205x91	9/32x5/8x1 1/4	2.0	2.84	2.13	1.25	1.00
81F1061	305x91	5/16x1 1/16x1 1/4	3.0	3.32	2.49	1.46	1.17
81F1062	705x91	1/2x29/32x1 3/4	7.0	5.84	4.38	2.56	2.05
81F1063	106x91	15/32x29/32x2 1/4	10.0	7.68	5.76	3.36	2.69
81F1064	156x91	9/16x1 5/16x2 3/4	15.0	10.80	8.10	4.73	3.78

200 WDC

47F1577	104x92	9/16x5/16x3/4	.1	1.24	.93	.55	.44

200 WDC (Cont.)

47F1578	224x92	1/4x1 3/32x3/4	.22	1.44	1.08	.63	.51
81F1065	334x92	7/32x1 3/32x1	.33	1.48	1.11	.65	.52
47F1579	474x92	7/32x1 3/32x1 1/4	.47	1.64	1.23	.72	.58
47F1580	684x92	5/16x1 7/32x1	.68	1.88	1.41	.83	.66
47F1581	105x92	5/16x1 7/32x1 1/4	1.0	2.12	1.59	.93	.75
47F1582	205x92	3/8x9/16x1 3/4	2.0	2.84	2.13	1.25	1.00
47F1583	305x92	19/32x21/32x1 3/4	3.0	3.48	2.61	1.53	1.22
47F1584	405x92	17/32x3/4x1 3/4	4.0	4.08	3.06	1.79	1.43
47F1585	705x92	3/4x15/16x1 3/4	7.0	6.16	4.62	2.70	2.16
47F1586	106x92	23/32x1x2 1/4	10.0	8.08	6.06	3.54	2.83
47F1587	126x92	23/32x1x2 1/2	12.0	9.76	7.32	4.27	3.42

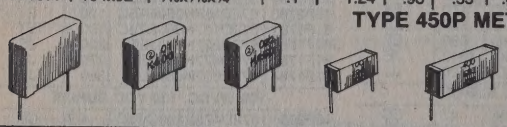
400 WDC

47F1588	333x94	7/32x1 1/32x3/4	.033	1.32	.99	.58	.47
47F1589	204x94	9/32x7/16x1	.1	1.44	1.08	.63	.51
47F1590	474x94	3/8x9/16x1 3/4	.47	1.80	1.35	.79	.63
81F1066	105x94	1/2x23/32x2	1.0	2.60	1.95	1.14	.91
81F1067	205x94	1/2x27/32x2 1/4	2.0	5.20	3.90	2.28	1.82
81F1068	305x94	1/2x7/8x2 3/4	3.0	6.60	4.95	2.89	2.31

600 WDC

81F1069	103x96	3/16x5/16x3/4	.01	1.28	.96	.56	.45
47F1591	223x96	1/4x13/32x3/4	.022	1.40	1.05	.62	.49
47F1592	333x96	7/32x3/8x1	.033	1.40	1.05	.62	.49
81F1070	473x96	7/32x3/8x1 1/4	.047	1.44	1.08	.63	.51
81F1071	683x96	5/16x1/2x1	.068	1.48	1.11	.65	.52
47F1593	104x96	3/8x19/32x1	.1	1.60	1.20	.70	.56
47F1594	474x96	9/16x9/4x1 3/4	.47	2.28	1.71	1.00	.80
47F1595	105x96	3/4x31/32x2	1.0	4.44	3.33	1.95	1.56

TYPE 450P METALLIZED POLYESTER



Stacked film capacitors inc. premolded box enclosure provides superior resistance to cleaning solvents and humidity. Operating temp. range: —40°C to +85°C; to +105°C with 30% volt.derating.

Case Code	Dimensions W	H	L	S
D	.158	.355	.414	.295
G	.177	.355	.512	.394
J	.217	.433	.512	.394
L	.217	.433	.709	.591

Stock No.	Type 450P-	µF	Size Code	1-24	25-49	50-99	100-499
81F1073	473X9100FD	.047	D	.32	.26	.21	.18
81F1074	683X9100FD	.068	D	.32	.26	.21	.18
81F1075	104X9100FD	.10	D	.37	.29	.24	.20
81F1076	154X9100JG	.15	G	.44	.35	.28	.24
81F1077	224X9100JG	.22	G	.50	.40	.32	.27
81F1078	334X9100JJ	.33	J	.65	.51	.42	.35
81F1079	474X9100ML	.47	L	.77	.61	.50	.42
81F1080	684X9100ML	.68	L	.96	.75	.62	.51
81F1081	223X9250FD	.022	D	.30	.23	.19	.16
81F1082	333X9250FD	.033	D	.30	.24	.19	.16
81F1083	473X9250JG	.047	G	.32	.25	.21	.17

Stock No.	Type 450P-	µF	Size Code	1-24	25-49	50-99	100-499
81F1084	683X9150JG	.068	G	.34	.27	.22	.18
81F1085	104X9150JJ	.10	J	.35	.28	.23	.19
81F1086	154X9250ML	.15	L	.43	.34	.28	.23
81F1087	224X9250ML	.22	L	.43	.34	.28	.17
81F1089	103X9400FD	.01	D	.37	.29	.24	.20
81F1090	153X9400FD	.015	D	.50	.39	.32	.27
81F1091	223X9400JG	.022	G	.53	.42	.34	.29
81F1092	333X9400JG	.033	G	.55	.44	.36	.30
81F1093	473X9400JJ	.047	J	.58	.46	.37	.31
81F1094	683X9400ML	.068	L	.70	.55	.45	.38
81F1095	104X9400ML	.10	L	.75	.59	.49	.41

Orange Drop Capacitors

SPRAGUE
THE MARK OF RELIABILITY
a **QK Technologies** subsidiary

SIZE CHART

A 9/16 x 3/8 x 3/4	K 2 1/64 x 1 5/64 x 4 5/64	U 2 33/32 x 3/8 x 1 3/16	CC 2 1/32 x 2 7/64 x 1 3/16
B 2 1/32 x 7/16 x 3/4	L 1 1/32 x 1/4 x 4 5/64	V 3/4 x 2 7/64 x 1 3/16	DD 1 31/64 x 3 1/64 x 1 3/16
C 4 7/64 x 3 1/64 x 3/4	M 3/8 x 9/32 x 4 5/64	W 2 9/32 x 1 9/32 x 1 3/16	EE 1 x 4 7/64 x 1 3/16
D 1 31/64 x 3 5/64 x 3/4	N 1 7/32 x 2 1/64 x 4 5/64	X 2 9/32 x 2 7/64 x 1 3/16	FF 6 1/64 x 2 1/32 x 1 3/16
E 5 7/64 x 3 1/64 x 1 3/16	P 9/16 x 1 5/64 x 1 3/16	Y 2 7/32 x 1/2 x 1 3/16	GG 1 9/32 x 9/16 x 1 3/16
F 2 9/32 x 1 9/32 x 1 3/16	R 1 9/32 x 1/4 x 1 3/16	Z 1 5/64 x 2 9/32 x 1 3/16	HH 2 7/32 x 1 7/32 x 1 3/16
H 6 3/64 x 4 7/64 x 1 3/16	S 3/8 x 9/32 x 1 3/16	AA 1 9/32 x 9/32 x 1 3/16	KK 5 7/64 x 9/16 x 1 3/16
J 3/16 x 1 3/16 x 4 5/64	T 4 1/64 x 3/16 x 1 3/16	BB 2 1/32 x 1 1/32 x 1 3/16	

FILMITE® "E" ORANGE DROP CAPACITORS

Capacitors are wound from polyester film and thin gauge foil and are coated with epoxy. Capacitance tolerance is ±10%. Temp. range −55°C to 85°C. Insulation res 25000 megohm-microfarads at 25°C. Life test 250 hrs. at 85°C.

TYPE 225P 100 VOLTS DC

Stock No.	Type	Size	Mfd.	1-24	25-49	50-99	100-249
18F 2561	225P10291WD3	J	.001	.40	.18	.16	.15
18F2562	225P12291WD3	J	.0012	.40	.18	.16	.15
18F2563	225P15291WD3	J	.0015	.40	.18	.16	.15
18F2564	225P18291WD3	J	.0018	.40	.18	.16	.15
18F2565	225P22291WD3	J	.0022	.41	.18	.17	.16
18F2566	225P27291WD3	J	.0027	.41	.18	.17	.16
18F2567	225P33291WD3	J	.0033	.41	.18	.17	.16
18F2568	225P39291WD3	J	.0039	.41	.18	.17	.16
18F2569	225P47291WD3	J	.0047	.41	.18	.17	.16
18F2570	225P56291WD3	J	.0056	.41	.18	.17	.16
18F2571	225P68291WD3	J	.0068	.41	.18	.17	.16
18F2572	225P82291WD3	J	.0082	.41	.18	.17	.16
18F2573	225P10391WD3	J	.01	.40	.18	.16	.15
18F2574	225P12391WD3	J	.012	.40	.18	.16	.15
18F2575	225P15391WD3	J	.015	.40	.18	.16	.15
18F2576	225P18391WD3	J	.018	.40	.18	.16	.15
18F2577	225P22391WD3	J	.022	.40	.18	.16	.15
18F2578	225P27391WD3	K	.027	.40	.18	.16	.15
18F2579	225P33391WD3	K	.033	.40	.18	.16	.15
18F2580	225P39391WD3	L	.039	.45	.20	.18	.17
18F2581	225P47391WD3	L	.047	.45	.20	.18	.17
18F2582	225P56391WD3	M	.056	.47	.21	.19	.18
18F2583	225P68391WD3	M	.068	.47	.21	.19	.18
18F2584	225P82391WD3	N	.082	.47	.21	.19	.18
18F2585	225P10491WD3	N	.1	.47	.21	.19	.18
47F2000	225P12491XD3	A	.12	.63	.28	.26	.24
47F2001	225P15491XD3	A	.15	.63	.28	.26	.24
47F2002	225P18491XD3	B	.18	.74	.32	.30	.28
47F2003	225P22491XD3	B	.22	.74	.32	.30	.28
47F2004	225P27491XD3	C	.27	.89	.39	.36	.34
47F2005	225P33491XD3	C	.33	.89	.39	.36	.34
47F2006	225P39491XD3	D	.39	1.42	.62	.57	.53
47F2007	225P47491XD3	D	.47	1.42	.62	.57	.53
47F152	225P56491YD3	E	.56	1.74	.76	.70	.65
47F153	225P68491YD3	F	.68	1.74	.76	.70	.65
47F154	225P82491YD3	FF	.82	2.16	.95	.87	.81
47F155	225P10591YD3	H	1.0	2.16	.95	.87	.81

TYPE 225P 200 VOLTS DC

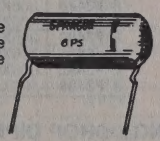
Stock No.	Type	Size	Mfd.	1-24	25-49	50-99	100-249
47F156	225P10292XD3	P	.001	.48	.21	.19	.18
47F158	225P22292XD3	P	.0022				
47F159	225P33292XD3	P	.0033				
47F160	225P47292XD3	P	.0047				
47F161	225P68292XD3	R	.0068				
47F162	225P10392XD3	R	.01				
47F163	225P15392XD3	R	.015	.53	.24	.22	.20
47F164	225P22392XD3	R	.022	.54	.24	.22	.21
47F165	225P33392XD3	S	.033	.58	.26	.24	.22
47F166	225P47392XD3	S	.047				
47F167	225P68392XD3	T	.068				
47F168	225P10492XD3	U	.1				
47F169	225P15492XD3	V	.15	.63	.28	.26	.24
47F170	225P22492XD3	W	.22	.74	.33	.30	.28
47F171	225P33492XD3	X	.33	.90	.39	.36	.34
47F133	225P47492YD3	Y	.47	1.44	.63	.58	.54
47F134	225P68492YD3	Z	.68	2.02	.89	.81	.76

TYPE 225P 400 VOLTS DC

Stock No.	Type	Size	Mfd.	1-24	25-49	50-99	100-249
47F135	225P10294XD3	P	.001	.48	.21	.19	.18
47F138	225P33294XD3	P	.0033				
47F139	225P47294XD3	P	.0047				
47F140	225P68294XD3	R	.0068				
47F141	225P10394XD3	R	.01				
47F142	225P15394XD3	R	.015	.50	.22	.20	.19
47F143	225P22394XD3	AA	.022	.50	.22	.20	.19
47F144	225P33394XD3	GG	.033	.58	.26	.24	.22
47F145	225P47394XD3	BB	.047	.58	.26	.24	.22
47F146	225P68394XD3	CC	.068	.63	.28	.26	.24
47F147	225P10494XD3	DD	.1	.74	.32	.30	.28
47F148	225P15494YD3	HH	.15	.90	.39	.36	.34
47F149	225P22494YD3	KK	.22	1.44	.63	.58	.54
47F150	225P33494YD3	EE	.33	2.02	.89	.81	.76
47F151	225P47494YD3	Z	.47	3.91	1.71	1.57	1.47

ORANGE DROP® DIPPED TUBULARS

Polyester film dielectric. Crimped-wire leads. Black stripe identifies outside foil. Double dipped in a bright orange epoxy resin—beats heat and humidity. Capacitance tolerance is ±10%. Temp. range −40°C to +85°C.



TYPE 2PS—200 VOLTS DC

Stock No.	Type	Size	Mfd.	5-20	25-45	50-95	100-245
18F1612	2PS-S20	3/8 x 7/8	.02	.57	.31	.25	.20
18F1613	2PS-S22	2 25/64 x 7/8	.022	.57	.31	.25	.20
18F1614	2PS-S47	2 3/64 x 7/8	.047	.69	.37	.30	.24
18F1615	2PS-S50	15/32 x 7/8	.05	.72	.40	.32	.26
18F1616	2PS-P10	31/64 x 13/16	.1	.81	.44	.35	.29
18F1617	2PS-P15	9/16 x 13/16	.15	.93	.51	.41	.33
18F1618	2PS-P20	19/32 x 1 15/16	.2	1.02	.56	.45	.36
18F1619	2PS-P22	39/64 x 1 5/16	.22	1.02	.56	.45	.36
18F1620	2PS-P25	5/8 x 1 5/16	.25	1.32	.73	.59	.47
18F1621	2PS-P33	5/8 x 1 5/8	.33	1.32	.73	.59	.47
18F1622	2PS-P47	45/64 x 1 5/8	.47	1.77	.97	.79	.63
18F1623	2PS-P50	23/32 x 1 5/8	.5	1.77	.97	.79	.63

TYPE 4PS—400 VOLTS AC

Stock No.	Type	Size	Mfd.	5-20	25-45	50-95	100-245
18F1624	4PS-S10	13/32 x 11/16	.01	.57	.31	.25	.20
18F1626	4PS-S20	13/32 x 7/8	.02	.63	.34	.28	.22
18F1627	4PS-S22	27/64 x 7/8	.022	.63	.34	.28	.22
18F1630	4PS-S33	15/32 x 7/8	.033	.69	.37	.30	.24
18F1632	4PS-S47	29/64 x 13/16	.047	.75	.41	.33	.27
18F1633	4PS-S50	29/64 x 13/16	.05	.81	.44	.35	.29
18F1635	4PS-S68	33/64 x 13/16	.068	.81	.44	.35	.29
18F1637	4PS-P10	37/64 x 13/16	.1	.92	.50	.41	.33
18F1638	4PS-P15	39/64 x 1 5/16	.15	1.02	.56	.45	.36
18F1639	4PS-P20	19/32 x 1 5/8	.2	1.41	.77	.62	.50
18F1640	4PS-P22	39/64 x 1 5/8	.22	1.41	.77	.62	.50
18F1641	4PS-P25	41/64 x 1 5/8	.25	1.59	.87	.71	.57

TYPE 6PS—600 VOLTS DC

Stock No.	Type	Size	Mfd.	Price Each 5-20	25-45	50-95	100-245
18F1642	6PS-D10	21/64 x 11/16	.001	.54	.30	.24	.19
18F1644	6PS-D15	21/64 x 11/16	.0015				
18F1646	6PS-D20	21/64 x 11/16	.002				
18F1647	6PS-D22	21/64 x 11/16	.0022				
18F1648	6PS-D25	21/64 x 11/16	.0025				
18F1651	6PS-D33	23/64 x 11/16	.0033	.54	.30	.24	.19
18F1652	6PS-D39	3/8 x 11/16	.0039	.57	.32	.26	.21
18F1654	6PS-D47	25/64 x 11/16	.0047	.57	.32	.26	.21
18F1655	6PS-D50	25/64 x 11/16	.005	.57	.32	.26	.21
18F1658	6PS-D68	13/32 x 11/16	.0068	.57	.32	.26	.21
18F1659	6PS-D75	23/64 x 7/8	.0075	.63	.35	.28	.23
18F1661	6PS-D82	3/8 x 7/8	.0082	.63	.35	.28	.23
18F1662	6PS-S10	25/64 x 7/8	.01	.63	.35	.28	.23
18F1664	6PS-S15	27/64 x 7/8	.015	.66	.37	.30	.24
18F1665	6PS-S20	31/64 x 7/8	.02	.75	.41	.33	.27
18F1666	6PS-S22	31/64 x 7/8	.022	.75	.41	.33	.27
18F1667	6PS-S25	17/32 7/8	.025	.81	.45	.36	.29
18F1670	SPS-S33	19/32 x 13/16	.033	.81	.45	.36	.29
18F1672	6PS-S39	31/64 x 13/16	.039	.96	.53	.43	.35
18F1674	6PS-S47	17/32 x 13/16	.047	.96	.53	.43	.35
18F1675	6PS-S50	17/32 x 13/16	.05	1.05	.58	.47	.38
18F1678	6PS-S68	37/64 x 13/16	.068	1.05	.58	.47	.38
18F1680	6PS-S82	37/64 x 15/16	.082	1.14	.63	.51	.41
18F1681	6PS-P10	5/8 x 15/16	.1	1.14	.63	.51	.41
18F1682	6PS-P15	43/64 x 15/8	.15	1.65	.90	.73	.59
18F1683	6PS-P20	3/4 x 15/8	.2	2.31	1.27	1.03	.83
18F1684	6PS-P22	25/32 x 15/8	.22	2.31	1.27	1.03	.83
18F1685	6PS-P25	13/16 x 15/8	.25	2.40	1.32	1.06	.86

TYPE 10PS—1000VOLTS DC

Stock No.	Type	Size	Mfd.	Price Each 5-20	25-45	50-95	100-245
18F1686	10PS-D10	21/64 x 11/16	.001	.69	.38	.31	.25
18F1689	10PS-D22	3/8 x 11/16	.0022	.69	.38	.31	.25
18F1693	10PS-D50	11/32 x 7/8	.005	.84	.46	.37	.30
81F1096	10PS-S10	39/64 x 29/32	.01	.90	.50	.40	.32
81F1097	10PS-P10	55/64 x 1 39/64	1.	2.13	1.17	.94	.76

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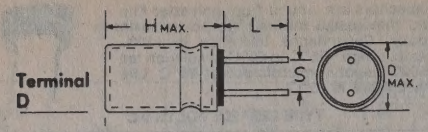
Electrolytic & Film Capacitors

510D MINIATURE ALUMINUM ELECTROLYTICS



Price Code Fig. 1									
Code	D	H	S	1-9	10-24	25-49	50-99	100-249	249-up
AA	0.256	0.597	0.100	.94	.72	.46	.33	.23	.16
BB	0.335	0.638	0.138	1.10	.84	.53	.39	.27	.19
CC	0.414	0.650	0.200	1.26	.97	.61	.45	.31	.21
Fig. 2									
CD	0.414	0.784	0.200	1.44	1.11	.70	.51	.36	.24
CG	0.414	0.945	0.200	1.53	1.18	.74	.54	.38	.26

510D—10 WDDC 15 VDC surge

Stock No.	Type 510D	µF	Code
81F3447	336M010AA3D	33	AA
81F3448	686M010BB3D	68	BB
81F3449	107M020CC3d	100	CC
81F3450	157M010CD3F	150	CD
81F3451	227M010CG3F	220	CG

16 WVDC 20 VDC surge

81F3452	226M016AA3D	22	AA
81F3453	476M016BB3D	47	BB
81F3454	686M016CC3D	68	CC
81F3455	107M016CD3F	100	CD
81F3456	157M016CG3F	150	CG

25 WVDC 35VDC surge

81F3457	156M025AA3D	15	AA
81F3458	336M025BB3D	33	BB
81F3459	686M025CD3F	68	CD
81F3460	107M025CG3F	100	CG

Operating temp.: −40 C to +105 C. Cap.: ±20%. Dissipation factor: @120Hz, ±25 C, 6 to 18% max., with typical values 50% of limits. Leakage current: 1 to 5 µA max. Impedance: Max. @ 20kHz., 0.5 to 13.5Ω; @ 100 kHz., 0.46 to 6.0 Ω.

35 WVDC 45 VDC surge

Stock No.	Type 510D	µF	Code
81F3461	106M035AA3D	10	AA
81F3462	226M035BB3D	22	BB
81F3463	336M035CC3D	33	CC
81F3464	476M035CC3D	47	CC

50 WVDC 65 VDC surge

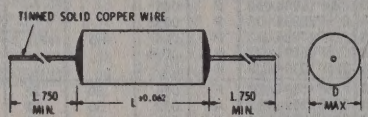
81F3465	685M050AA3D	6.8	AA
81F3466	156M050BB3D	15	BB
81F3467	226M050CC3D	22	CC

Ripple current: Max. rms current limits @ 120 Hz., 0.025 to 0.260 amperes; @ 20 to 100kHz., 0.060 to 0.325 amperes. Failure rate: @ full rated voltage @ +85 C, rate is better or equal to 0.05% per 1000 hrs. @ 60% confidence. Oper. life: 10 years in normal conditions.

63 WVDC 80 VDC surge

Stock No.	Type 510D	µF	Code
81F3468	105M063AA3D	1.0	AA
81F3469	155M063AA3D	1.5	AA
81F3470	225M063AA3D	2.2	AA
81F3471	335M063AA3D	3.3	AA
81F3472	475M063AA3D	4.7	AA
81F3473	685M063BB3D	6.8	BB
81F3474	106M063BB3D	10	BB
81F3475	156M063CC3D	15	CC

TYPE 735P WHITE JACKET METFILM "L" CAPACITORS



Operating temp.: −55 C to +105 C. Cap. tolerance: ±10% and ±5%. Insulation resistance: Min. product of insulation resistance, expressed in megaohms, and capacitance, expressed in micro-Farads, shall be 200,000 megaohm-microfarads, and in no case shall the insulation resistance exceed 400,000 megaohms.

Dimensions (in inches)					
Code	Dia.	Length	Code	Dia.	Length
A	0.531	0.750	J	0.747	1.500
B	0.596	0.938	K	0.862	1.750
C	0.717	0.938	L	1.030	2.250
D	0.733	1.250	M	1.440	2.250
E	0.898	1.500	N	0.713	1.500
F	1.0	2.25	O	0.895	1.75
G	1.2	2.25	P	1.086	1.75
H	0.512	1.25	Q	1.192	2.25
I	0.698	1.25	R	1.668	2.25

Stock No.	Type 735P	µF	WV DC	Code	1-24	25-49	50-99	100-249
81F3476	105X9100NJL	1	100	A	4.95	3.63	2.97	2.48
81F3477	205X9100PLL	2	100	B	6.15	4.51	3.69	3.08
81F3478	305X9100SLL	3	100	C	7.65	5.61	4.59	3.83
81F3479	505X9100SPL	5	100	D	9.75	7.15	5.85	4.88
81F3480	106X9100USL	10	100	E	12.30	9.02	7.38	6.15
81F3481	206X9100WVL	20	100	F	25.35	18.59	15.21	12.68
81F3482	306X9100YVL	30	100	G	34.95	25.63	20.97	17.48
81F3483	105X9200NPL	1	200	H	3.60	2.64	2.16	1.80
81F3484	205X9200RPL	2	200	I	4.80	3.52	2.88	2.40

Stock No.	Type 735P	µF	WV DC	Code	1-24	25-49	50-99	100-249
81F3485	305X9200SSL	3	200	J	5.70	4.18	3.42	2.85
81F3486	505X9200UTL	5	200	K	7.65	5.61	4.59	3.83
81F3487	106X9200WVL	10	200	L	13.35	9.79	8.01	6.68
81F3488	206X9200ZVL	20	200	M	19.05	13.97	11.43	9.53
81F3489	105X9400SSL	1	400	N	4.20	3.08	2.52	2.10
81F3490	205X9400UTL	2	400	O	5.40	3.96	3.24	2.70
81F3491	305X9400WTL	3	400	P	6.15	4.51	3.69	3.08
81F3492	505X9400XVL	5	400	Q	9.45	6.93	5.67	4.73
81F3493	106X9400ZVL	10	400	R	15.30	11.22	9.18	7.65

TYPE 715P FILMITE® 'L' ORANGE DROP DIPPED TUBULARS

- Linear negative temperature coefficient
- High AC current flow
- Flame-retardant epoxy coating

Polypropylene film capacitors are ideal where high AC current flow is needed. Negative temperature coefficient of 180 ppm/°C allows for high circuit stability compensation. Tolerance of ±5% from 25°C to 105°C. Leads are 1.250" long and crimped for constant spacing.

SIZE CHART D x L

A .400 x .750	G .550 x 1.300	P .750 x 1.700
B .450 x .750	H .600 x 1.300	Q .800 x 1.700
C .450 x .950	K .650 x 1.300	R .850 x 1.700
D .500 x .950	L .700 x 1.300	S .900 x 1.700
E .500 x 1.300	M .700 x 1.700	T .950 x 1.700
F .550 x .950	N .750 x 1.300	

Stk. No.	Type	µF	Size	1-24	25-49	50-99	100-249
17F2202	715P10354JD3	.01	A	.51	.41	.24	.19
17F2203	715P15354JD3	.015	B	.57	.46	.27	.22
17F2204	715P33354KD3	.033	D	.66	.54	.32	.26
17F2205	715P15454LD3	.15	K	.99	.82	.48	.39
17F2206	715P22454MD3	.22	M	1.11	.91	.53	.43
17F2207	715P33454MD3	.33	Q	1.56	1.28	.75	.60
17F2208	715P47454MD3	.47	S	1.77	1.48	.87	.69

600 WVDC

15F2700	715P10256JD3	.001	A	.45	.37	.22	.18
15F2702	715P22256JD3	.0022	A	.45	.37	.22	.18
15F2703	715P33256JD3	.0033	A	.48	.39	.23	.19
15F2704	715P47256JD3	.0047	B	.48	.39	.23	.19
15F2705	715P68256JD3	.0068	B	.51	.41	.24	.19
15F2706	715P10356KD3	.01	C	.57	.47	.28	.22
15F2707	715P15356KD3	.015	D	.57	.47	.28	.22
15F2708	715P22356KD3	.022	F	.63	.51	.30	.24
15F1709	715P47356LD3	.047	H	.81	.68	.40	.32
15F2710	715P68356LD3	.068	K	.99	.82	.48	.39
15F2711	715P10456LD3	.1	N	1.10	.93	.55	.44
15F2712	715P15456MD3	.15	P	1.56	1.28	.75	.60
15F2713	715P22456MD3	.22	R	1.77	1.48	.87	.69

800 WVDC

Stk. No.	Type	µF	Size	1-24	25-49	50-99	100-249
17F2209	715P15358LD3	.015	G	.81	.68	.40	.32
17F2211	715P33358LD3	.033	L	1.26	1.05	.62	.49
17F2212	715P68358MD3	.068	Q	1.56	1.28	.75	.60
17F2213	715P10458MD3	.1	S	2.13	1.76	1.03	.82

1200 WVDC

17F2215	715P473512MD3	.047	R	1.77	1.48	.87	.69

1600 WVDC

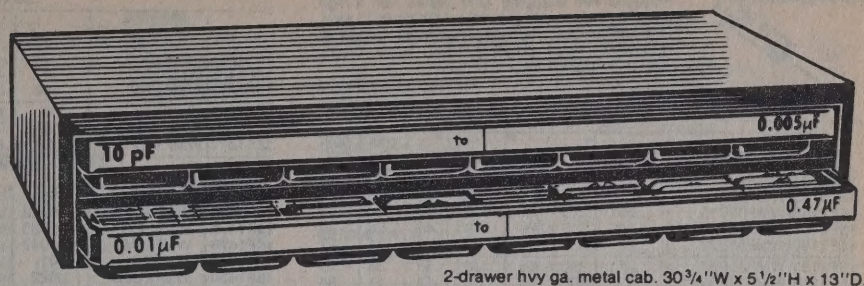
15F2714	715P222516LD3	.0022	E	.81	.68	.40	.32
15F2715	715P332516LD3	.0033	G	.93	.78	.45	.36
15F2716	715P472516LD3	.0047	H	.93	.78	.45	.36
15F2717	715P682516LD3	.0068	K	.99	.82	.48	.39
15F2718	715P103516LD3	.01	L	1.26	1.04	.61	.49
15F2719	715P153516MD3	.015	P	1.47	1.22	.71	.57
15F2720	715P223516MD3	.022	R	2.13	1.76	1.03	.82
15F2721	715P333516MD3	.033	T	2.58	2.15	1.26	1.01

PRICES SUBJECT TO CHANGE. SEE PAGE 4.

Capacitor Assortments

SPRAGUE
THE MARK OF RELIABILITY
a GK Technologies subsidiary

- **Handy assortments of capacitor types and values.**
- **Ideal for lab, school, R&D, and MTCE dept. use.**
- **All cabinet drawers/compartments prelabeled for quick reference.**
- **All cabinets stockable with like types.**



2-drawer hvy ga. metal cab. 30¾"W x 5½"H x 13"D.

J-141 Assortment: Type TE "Litti-Lytic" Aluminum Electrolytics
Contains 200 type TE miniature, axial-leaded, metal encased aluminum electrolytic capacitors. 5 each of 40 of popular values supplied. Packed in 2-drawer cabinet as shown. Contents:

Qty.	WVDC	uF Range	Qty.	WVDC	uF Range
15	3	100-500	55	25	1-100
10	6	200-300	50	50	1-50
25	12	5-250	100	100	10-20
25	16	10-200	150	150	5-10

47F1399. NET 153.85

KT-11 Assortment COPY TO COME.

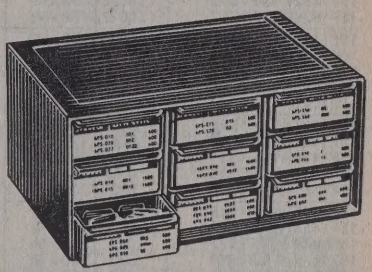
Qty.	WVDC	μF	Qty.	WVDC	μF
12	10	4-33	51	25	10-33
8	15	22-150	49	35	.1-47
9	20	10-100	5	50	.41-1

81F9193. NET 188.90

KE-11 Assortment: Type TE "Litti-Lytic" Aluminum Electrolytics
Contains 61 type TE miniature, axial leaded, metal encased aluminum electrolytic capacitors. 1, 2, 3, or 5 of 27 popular values in 9 drawer cabinet.

Qty.	WVDC	F Range	Qty.	WVDC	F Range
1	6	100	24	25	1-200
6	12	10-100	16	50	1-100
14	16	5-200			

13F106. NET 53.15



9-drawer plastic cabinet. 9⅛"W x 4⅜"H x 6½"D.

KF-32 Assortment: Type PS "Orange Drop" Dipped Tubulars
139 "Orange Drop" epoxy resin dipped radial-leaded tubular capacitors. Lots of 2, 3, 8 or 10 per value in 15-drawer cabinet shown. Contents:

Qty.	Type	# of Values	WVDC	uF Range
103	6PS	21	600	.001-.47
36	16PS	12	1600	.001-.05

13F107. NET 77.35

KF-35 Assortment: Type 192P "Pacer" "Filmite E" Films
72 "Pacer" foil film axial-leaded capacitors. Lots of 2, 3 or 5 per value packed in 9-drawer cabinet shown. Contents:

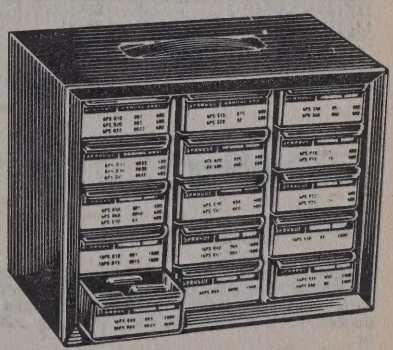
Qty.	# of Values	WVDC	F Range
37	14	80	.0022-.22
35	13	200	.00083-.1

13F108. NET 38.25

KE-21 Assortment: Type EV "Verti-Lytic" Aluminum Electrolytics
Contains 102 Type EV (same as 503D) radial leaded aluminum electrolytic capacitors. 1, 3 or 5 of 42 popular values in 15 drawer cabinet. Contents:

Qty.	WVDC	F Range	Qty.	WVDC	F Range
1	0-6.3	470	23	0-35	4.6-470
6	0-10	100 & 1000	9	0-50	6.8-470
31	0-16	10-1000	13	0-63	.47-100
19	0-20	33-1000			

13F109. NET 46.85



15-drawer metal cabinet. 10"W x 4⅜"H x 6½"D.

KF-37 Assortment: Type FT "Verit-Film" Polyester Films
110 FT epoxy-coated polyester film radial-leaded capacitors. 5 each of 22 popular values in 9-drawer cabinet shown. Contents:

Qty.	WVDC	F Range
110	100	.001 - .47

13F110. NET 25.15

See Capacitor Index
at the beginning of this section for info on specific capacitor types.

Cornell-Dubilier Capacitors

WMF POLYESTER DIELECTRIC FILM ENCASED

Polyester film wrapping. End sealed with a high density thermo-setting plastic. Minuscule in size. High resistance to humidity. Full rated voltage @ 85C, 50% rated voltage @ 125C. Temp. range: −55 to + 125°C. Tol.: ± 10%.

50 WVDC

Stk. No.	Type	Mfd.	D×L (in.)	1-24	25-99	100-499	500-999
15F2104	WMF05P1	.1	.250×13/16	.75	.45	.29	.24
15F2105	WMF05P12	.12	.275×13/16	.76	.46	.29	.25
15F2106	WMF05P15	.15	.285×13/16	.78	.47	.30	.25
15F2107	WMF05P18	.18	.315×13/16	.79	.48	.30	.26
15F2108	WMF05P22	.22	.330×13/16	.82	.49	.31	.27
15F2109	WMF05P27	.27	.390×13/16	.93	.56	.36	.30
15F2110	WMF05P33	.33	.400×13/16	1.07	.64	.41	.34
15F2111	WMF05P39	.39	.375×1 1/16	1.23	.74	.47	.40
15F2112	WMF05P47	.47	.375×1 1/16	1.42	.85	.54	.46
15F2113	WMF05P5	.50	.395×1 1/16	1.47	.88	.56	.47
15F2114	WMF05P56	.56	.450×1 1/16	1.65	.99	.63	.53
15F2115	WMF05P68	.68	.490×1 1/16	1.71	1.03	.65	.55
15F2116	WMF05P82	.82	.505×1 1/16	1.80	1.08	.69	.58
15F2117	WMF05W1	1.0	.500×1 3/8	2.05	1.23	.78	.66
15F2118	WMF05W2	2.0	.600×1 5/8	3.37	2.03	1.28	1.08
15F2119	WMF05W3	3.0	.730×1 7/8	4.47	2.69	1.70	1.43
15F2120	WMF05W4	4.0	.760×1 7/8	5.56	3.34	2.12	1.78
15F2121	WMF05W5	5.0	.850×1 7/8	6.93	4.16	2.64	2.22

100WVDC

15F1450	WMF1D1	.001	.156×1/2				
15F1837	WMF1D12	.0012	.156×1/2				
15F1451	WMF1D15	.0015	.156×1/2				
15F1452	WMF1D22	.0022	.156×1/2				
15F1839	WMF1D27	.0027	.156×1/2				
15F1453	WMF1D33	.0033	.156×1/2				
15F1840	WMF1D39	.0039	.156×1/2				
15F1454	WMF1D47	.0047	.156×1/2				
15F1841	WMF1D50	.005	.156×1/2				
15F1842	WMF1D56	.0056	.156×1/2				
15F1455	WMF1D68	.0068	.175×1/2	.60	.36	.23	.20
15F1843	WMF1D82	.0082	.175×1/2				
15F1456	WMF1S1	.01	.200×1/2				
15F1844	WMF1S12	.012	.215×1/2				
15F1457	WMF1S15	.015	.235×1/2				
15F1845	WMF1S18	.018	.255×1/2				
15F1458	WMF1S22	.022	.275×5/8				
15F1846	WMF1S27	.027	.300×5/8				
15F1459	WMF1S33	.033	.300×5/8				
15F1847	WMF1S39	.039	.245×3/4				
15F1460	WMF1S47	.047	.265×3/4	.62	.37	.24	.20
15F1848	WMF1S5	.05	.270×3/4	.63	.38	.24	.20
15F1849	WMF1S56	.056	.270×3/4	.64	.39	.25	.21
15F1461	WMF1S68	.068	.280×3/4	.65	.39	.25	.21
15F1850	WMF1S82	.082	.270×7/8	.67	.40	.26	.22
15F1462	WMF1P1	.1	.290×7/8	.68	.41	.26	.22
15F1463	WMF1P15	.15	.335×7/8	.71	.43	.27	.23
15F1464	WMF1P22	.22	.385x1	.74	.45	.29	.24

100 WVDC 100 WVDC (cont.)

Stk. No.	Type	Mfd.	D×L (in.)	1-24	25-99	100-499	500-999
15F1465	WMF1P33	.33	.415×1 1/8	.97	.58	.37	.31
15F1466	WMF1P47	.47	.475×1 1/4	1.29	.78	.49	.42
15F1467	WMF1P68	.68	.570×1 1/4	1.70	1.02	.65	.55
15F1468	WMF1W1	1.0	.625×1 1/2	1.86	1.12	.71	.60
15F1470	WMF1W1P5	1.5	.715×1 5/8	2.93	1.76	1.12	.94
15F1471	WMF1W2	2.0	.800×1 3/4	3.26	1.96	1.24	1.05

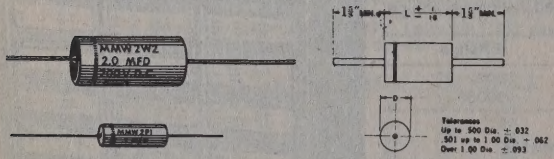
200 WVDC

15F1472	WMF2D1	.001	.156×1/2				
15F1474	WMF2D22	.0022	.156×1/2				
15F1475	WMF2D33	.0033	.160×1/2	.60	.36	.23	.20
15F1476	WMF2D47	.0047	.170×1/2				
15F1478	WMF2S1	.01	.230×1/2				
15F1480	WMF2S22	.022	.275×5/8				
15F1481	WMF2S33	.033	.270×3/4	.64	.39	.25	.21
15F1482	WMF2S47	.047	.320×3/4	.67	.40	.26	.22
15F1483	WMF2S68	.068	.350×3/4	.69	.42	.27	.23
15F1484	WMF2P1	.1	.410×7/8	.80	.48	.31	.26
15F1485	WMF2P15	.15	.500×7/8	.90	.54	.34	.29
15F1486	WMF2P22	.22	.500×1 1/8	1.12	.67	.43	.36
15F1487	WMF2P33	.33	.550×1 1/8	1.40	.84	.53	.45
15F1488	WMF2P47	.47	.600×1 1/4	1.70	1.02	.65	.55
15F1489	WMF2P68	.68	.650×1 5/8	2.42	1.45	.92	.78
15F1490	WMF2W1	1.0	.750×1 3/4	3.06	1.84	1.17	.98
15F1493	WMF2W2	2.0	.980×1 7/8	4.15	2.49	1.58	1.33
15F1498	WMF4D47	.0047	.200×5/8	.67	.41	.26	.22
15F1500	WMF4S1	.01	.300×5/8	.67	.41	.26	.22
15F1502	WMF4S22	.022	.320×3/4	.68	.41	.26	.22
15F1503	WMF4S33	.033	.350×7/8	.71	.43	.27	.23
15F1504	WMF4S47	.047	.400×7/8	.78	.47	.30	.25
15F1505	WMF4S68	.068	.390×1	.87	.52	.33	.28
15F1506	WMF4P1	.1	.465×1	1.16	70	.44	.37
15F1508	WMF4P22	.22	.565×1 3/8	1.62	.97	.62	.52
15F1510	WMF4P47	.47	.700×1 5/8	2.30	1.38	.88	.74
15F1511	WMF4P68	.68	.790×1 3/4	2.93	1.76	1.11	.94
15F1512	WMF4W1	1.0	.875×2	3.71	2.23	1.41	1.19
15F1513	WMF4W1P25	1.25	.950×2	3.94	2.36	1.50	1.26
15F1514	WMF4W1P5	1.5	.975×2 1/4	4.18	2.51	1.59	1.34
15F1515	WMF4W2	2.0	1.250×2 1/4	6.63	3.98	2.52	2.12

600 WVDC

15F1516	WMF6D1	.001	.170×3/4	.77	.46	.30	.25
15F1520	WMF6D47	.0047	.234×3/4	.77	.46	.30	.25
15F1522	WMF6S1	.01	.290×3/4	.82	.49	.31	.27
15F1524	WMF6S22	.022	.335×7/8	1.24	.75	.47	.40
15F1525	WMF6S33	.033	.350×1	1.50	.90	.57	.48
15F1526	WMF6S47	.047	.415×1	1.62	.97	.62	.52
15F1528	WMF6P1	.1	.520×1 3/8	1.92	1.15	.73	.62
15F1529	WMF6P15	.15	.687×1.437	2.16	1.29	.82	.69
15F1530	WMF6P22	.22	.660×1 5/8	2.42	1.45	.92	.78
15F1936	WMF6P47	.47	.855×2	3.68	2.21	1.40	1.18
15F1930	WMF6P68	.68	.970×2	4.60	2.76	1.75	1.48
15F1931	WMF6W1	1.0	1.165×2 1/2	6.90	3.31	2.10	1.77
15F1934	WMF6W2	2.0	1.460×3	9.02	5.41	3.43	2.89

TYPE MMW METALIZED POLYESTER TUBULARS



Metalized polyester film dielectric section tightly wound and encased in tough film wrapper. Operating temperature range of −55°C to + 85°C at full rated voltage. May be operated to maximum temperature of + 125°C with voltage derated to 50% of the + 85°C value. Tolerance: ± 20%. Average shpg. wt. 3 oz.

50 WVDC

Stock No.	Type No.	Cap. Mfd.	D×L Inches	1-24	25-49	50-99	100-499
67F2127	MMW05P1-20	.1	.170×1 1/16	.89	.67	.52	.45
67F2129	MMW05P22-20	.22	.215×1 1/16	1.07	80	.62	.54
67F2154	MMW05P33-20	.33	.265×1 1/16	1.21	.91	.71	.61
67F2155	MMW05P47-20	.47	.315×1 1/16	1.24	.93	.73	.63
67F2157	MMW05W1-20	1.0	.325×1	1.34	1.01	.78	.67
67F2158	MMW05W1P5-20	1.5	.340×1 1/4	1.81	1.36	1.06	.91
67F2159	MMW05W2-20	2.0	.405×1 1/4	2.18	1.63	1.27	1.09
67F2160	MMW05W3-20	3.0	.500×1 1/4	2.64	1.98	1.54	1.32
67F2162	MMW05W5-20	5.0	.510×1 3/4	3.72	2.79	2.17	1.86

200 WVDC

Stock No.	Type No.	Cap. Mfd.	D×L Inches	1-24	25-49	50-99	100-499
67F2131	MMW2S47	.047	.200×9/16	.82	.62	.48	.41
67F2133	MMW2P1	.1	.240×1 1/16	.89	.67	.52	.45
67F2135	MMW2P22	.22	.340×1 1/16	1.07	.80	.62	.54
67F2163	MMW2P33	.33	.390×1 1/16	1.21	.91	.71	.61
67F2164	MMW2P47	.47	.370×1	1.24	.93	.73	.63
67F2165	MMW2P68	.68	.420×1	1.34	1.01	.78	.67
67F2166	MMW2W1	1.0	.500×1	1.51	1.13	.88	.76

400 WVDC

Stock No.	Type No.	Cap. Mfd.	D×L Inches	1-24	25-49	50-99	100-499
67F2142	MMW4P1	.1	.325×1	.99	.75	.58	.50
67F2170	MMW4P47	.47	.520×1 1/2	1.60	1.20	.93	.80
67F2172	MMW4W1	1.0	.675×1 3/4	2.28	1.71	1.33	1.14
67F2174	MMW4W2	2.0	.950×1 3/4	3.45	2.59	2.01	1.73

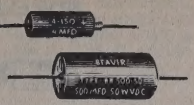
600 WVDC

Stock No.	Type No.	Cap. Mfd.	D×L Inches	1-24	25-49	50-99	100-499
67F2151	MMW6P1	.1	.450×1 1/16	1.14	.85	.66	.57
67F2153	MMW6P22	.22	.575×1 1/4	1.49	1.12	.87	.75
67F2176	MMW6P47	.47	.675×1 3/4	2.23	1.68	1.30	1.12
67F2178	MMW6W1	1.0	.950×1 3/4	3.58	2.69	2.09	1.79

Cornell-Dubilier Capacitors

WBR TUBULAR ALUMINUM ELECTROLYTICS

Compact aluminum cased. All welded construction. Has plastic sleeve, except 600V and 700V which has cardboard. Temp. −40°C to +85°C to 450V



16VCD RATED—20VDC SURGE

Stock No.	Type	Mfd.	D × L	1-24	25-99	100-249	250-499
67F2301	WBR100-16	100	0.322×0.812	1.54	1.18	.65	.54
15F159	WBR250-16	250	0.385×1.062	1.61	1.23	.67	.56
15F160	WBR500-16	500	0.510×1.473	1.69	1.29	.71	.59
15F165	WBR1000-16	1000	0.635×1.723	2.20	1.68	.92	.78
15F166	WBR2000-16	2000	0.760×2.036	2.71	2.08	1.13	95
15F194	WBR3000-16	3000	0.760×2.536	3.45	2.64	1.44	1.20
15F195	WBR4000-16	4000	0.885×2.536	4.66	3.57	1.95	1.63
15F196	WBR5000-16	5000	1.010×2.223	5.45	4.18	2.28	1.90
67F2302	WBR10000-16	10000	1.135×3.598	8.01	6.14	3.35	2.79

25VDCRATED—30VDC SURGE

15F317	WBR10-25	10	0.260×0.562	.97	.74	.41	.34
15F319	WBR25-25	25	0.322×0.687	1.08	.83	.45	.38
15F320	WBR50-25	50	0.322×0.812	1.36	1.04	.57	.48
15F321	WBR100-25	100	0.385×0.812	1.49	1.14	.62	.52
15F162	WBR250-25	250	0.510×1.473	1.75	1.35	.73	.62
15F163	WBR500-25	500	0.635×1.473	2.28	1.74	.95	.80
15F112	WBR1000-25	1000	0.760×1.723	3.77	2.94	1.57	1.31
15F113	WBR2000-25	2000	0.760×2.536	4.64	3.54	1.94	1.61

35VDC RATED—40VDC SURGE

67F2303	WBR100-35	100	0.385×1.062	1.49	1.14	.62	.52
67F2304	WBR150-35	150	0.510×1.098	1.59	1.22	.67	.56
67F2305	WBR300-35	300	0.635×1.098	1.83	1.40	.77	.64
67F2306	WBR500-35	500	0.635×1.473	2.28	1.81	.95	.80
67F2307	WBR1000-35	1000	0.760×1.723	3.77	2.94	1.57	1.31
67F2308	WBR2000-35	2000	0.885×2.536	4.64	3.54	1.94	1.61
67F2309	WBR3000-35	3000	1.010×2.536	5.34	4.09	2.24	1.86
67F2310	WBR5500-35	5500	1.135×3.599	8.86	6.79	3.70	3.09

50VDC RATED—65VDC SURGE

15F322	WBR1-50	1	0.260×0.562	.96	.74	.41	.34
15F323	WBR2-50	2	0.260×0.562	.96	.74	.41	.34
15F325	WBR5-50	5	0.260×0.562	.96	.74	.41	.34
15F326	WBR10-50	10	0.260×0.687	1.08	.83	.45	.38
15F327	WBR25-50	25	0.322×0.812	1.36	1.04	.57	.48
67F2313	WBR50-50	50	0.385×0.812	1.49	1.14	.62	.52
15F164	WBR100-50	100	0.385×0.937	1.63	1.25	.68	.57
15F199	WBR150-50	150	0.510×1.473	1.83	1.40	.77	.64
15F198	WBR250-50	250	0.510×1.473	1.97	1.51	.83	.69
15F197	WBR500-50	500	0.635×1.098	2.42	1.86	1.01	.85
15F114	WBR1000-50	1000	0.635×1.473	3.98	3.05	1.66	1.39
15F536	WBR1500-50	1500	0.760×1.723	5.26	4.03	2.20	1.83
15F537	WBR2000-50	2000	0.885×2.036	6.19	4.74	2.59	2.16
15F347	WBR3000-50	3000	1.010×2.223	8.73	6.69	3.65	3.04
67F2315	WBR5000-50	5000	1.010×2.723	11.82	9.06	4.94	4.12

75VDC RATED—95VDC SURGE

67F2316	WBR150-75	150	0.635×1.473	2.15	1.65	.90	.75
67F2317	WBR275-75	275	0.760×1.723	2.67	2.05	1.12	.93
67F2318	WBR500-75	500	0.885×2.036	3.79	2.90	1.59	1.32
67F2319	WBR1000-75	1000	1.010×2.536	5.68	4.35	2.38	1.98
67F2320	WBR2000-75	2000	1.385×2.598	9.41	7.21	3.93	3.28

150VDC RATED—175VDC SURGE

15F331	WBR8-150	8	0.385×0.812	1.42	1.09	.60	.50
15F332	WBR10-150	10	0.385×0.937	1.49	1.14	.62	.52
15F334	WBR16-150	16	0.385×1.062	1.60	1.23	.67	.56
15F313	WBR20-150	20	0.385×1.312	1.64	1.26	.69	.57
15F862	WBR30-150	30	0.385×1.562	1.79	1.37	.75	.62
15F124	WBR40-150	40	0.635×1.473	1.93	1.48	.81	.67
15F125	WBR50-150	50	0.635×1.473	1.95	1.49	.82	.68
15F126	WBR80-150	80	0.635×1.473	2.18	1.67	.91	.76
15F167	WBR100-150	100	0.760×1.723	2.40	1.84	1.00	.84
15F168	WBR150-150	150	0.760×1.723	2.83	2.17	1.19	.99
15F098	WBR200-150	200	0.885×2.036	3.18	2.44	1.33	1.11
15F118	WBR250-150	250	1.010×1.723	2.87	1.57	1.31	1.16
15F099	WBR300-150	300	1.010×2.223	4.40	3.37	1.84	1.54
67F2330	WBR500-150	500	0.885×1.723	6.40	4.91	2.68	2.23

250VDC RATED—300VDC SURGE

15F993	WBR4-250	4	0.510×1.098	1.55	1.19	.65	.54
15F994	WBR8-250	8	0.510×1.473	1.66	1.27	.69	.58
15F995	WBR12-250	12	0.510×1.473	1.71	1.31	.72	.60
15F115	WBR16-250	16	0.635×1.098	1.82	1.40	.77	.64
15F116	WBR20-250	20	0.760×1.098	1.95	1.49	.82	.68
15F304	WBR30-250	30	0.760×1.473	2.38	1.82	1.00	.83
15F117	WBR40-250	40	0.760×1.473	2.41	1.84	1.01	.84
15F305	WBR50-250	50	0.675×1.723	2.57	1.97	1.08	.90
15F306	WBR60-250	60	0.760×1.723	2.80	2.15	1.17	.98
67F2335	WBR80-250	80	0.760×2.036	2.92	2.24	1.22	1.02
15F119	WBR100-250	100	0.885×1.723	3.16	2.42	1.32	1.10

250VDC RATED—300VDC SURGE (con't.)

Stock No.	Type	Mfd.	D × L (in.)	1-24	25-99	100-249	250-499
67F2336	WBR160-250	160	0.885×2.036	4.45	3.41	1.86	1.55
67F2339	WBR450-250	450	1.385×3.048	9.37	7.18	3.92	3.26

350VDC RATED—400VDC SURGE

15F886	WBR4-350	4	0.510×1.098	2.71	2.08	1.13	.95
15F890	WBR20-350	20	0.760×1.473	3.20	2.45	1.34	1.12
15F892	WBR40-350	40	0.760×1.723	3.68	2.82	1.54	1.29
15F894	WBR60-350	60	0.760×2.536	4.05	3.10	1.69	1.41
15F896	WBR100-350	100	1.010×2.036	5.26	4.03	2.20	1.83
67F2340	WBR160-350	160	1.135×2.536	6.74	5.16	2.82	2.35
15F122	WBR200-350	200	1.010×4.098	7.08	5.42	2.96	2.47

450VDC RATED—525VDC SURGE

15F102	WBR1-450	1	0.635×1.098	2.80	2.15	1.17	.98
15F104	WBR4-450	4	0.635×1.098	2.88	2.20	1.20	1.00
67F2342	WBR5-450	5	0.635×1.098	2.90	2.22	1.21	1.01
15F105	WBR8-450	8	0.760×1.098	3.10	2.37	1.30	1.08
15F106	WBR10-450	10	0.760×1.098	3.17	2.43	1.33	1.11
15F107	WBR12-450	12	0.760×1.098	3.17	2.43	1.33	1.11
15F108	WBR16-450	16	0.760×1.473	3.27	2.51	1.37	1.14
15F109	WBR20-450	20	0.760×1.723	3.46	2.65	1.45	1.21
15F110	WBR30-450	30	0.885×1.723	4.07	3.12	1.70	1.42
15F111	WBR40-450	40	0.885×2.036	4.19	3.21	1.75	1.46
15F147	WBR60-450	60	1.010×2.223	4.75	3.64	1.99	1.66
15F148	WBR80-450	80	1.010×2.723	5.21	3.99	2.18	1.82
15F169	WBR100-450	100	1.010×3.598	6.02	4.61	2.52	2.10
67F2346	WBR225-450	225	1.385×3.661	9.92	7.60	4.15	3.46

500VDC RATED—550VDC SURGE

67F2350	WBR10-500	10	0.635×1.723	3.21	2.46	1.34	1.12
15F101	WBR16-500	16	0.760×1.723	3.40	2.60	1.42	1.19
15F146	WBR30-500	30	0.885×1.723	4.28	3.28	1.79	1.49
67F2352	WBR60-500	60	1.010×2.536	5.04	3.87	2.11	1.76

600VDC RATED—650VDC SURGE

15F183	WBR4-600	4	0.687×2.437	6.02	4.61	2.52	2.10
15F184	WBR20-600	20	0.937×3.687	7.29	5.59	3.05	2.54

700VDC RATED—750VDC SURGE

15F190	WBR10-700	10	0.937×3.187	7.42	5.68	3.10	2.59
15F192	WBR16-700	16	0.937×4.312	7.50	5.75	3.14	2.62

WBR CAP-KIT

The type WBR tubular electrolytic assortment is ideal for prototype shops, laboratory work, and general maintenance. The kit includes one of each of the most popular WBR ratings.

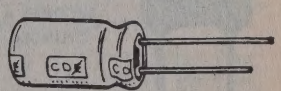
Type	MFD	WVDC	Type	Mfd.	WVDC
WBR1000-16	1000	16	WBR60-150	60	150
WBR10-50	10	50	WBR100-150	100	150
WBR100-50	100	50	WBR160-250	160	250
WBR250-50	250	50	WBR50-450	50	450
WBR500-50	500	50	WBR100-450	100	450
WBR1000-50	1000	50	WBR20-500	20	500
WBR2000-50	2000	50	.....	..	..

15F480. NET 25.40

VERTICAL MINIATURE PRINTED CIRCUIT STYLE

Type PC is a single ended, metal cased aluminum electrolytic. Designed for vertical mounting on printed circuit boards. Continuous duty operation over temperature range of −40°C to +85°C.

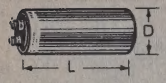
CODE	DIA.	LGTH
A	.406	.562
B	.406	.687
C	.531	.875
D	.531	1.062
E	.656	1.312



Stk. No.	Type	Cap. Mfd.	WVDC	DIM.	1-24	25-99	100-249	250-499
15F935	PC100-10	100	10	A	.41	.31	.21	.17
15F943	PC500-16	500	16	D	.87	.65	.44	.37
15F944	PC1000-16	1000	16	E	1.22	.91	.61	.51
15F945	PC10-25	10	25	A	.29	.22	.15	.13
15F946	PC25-25	25	25	A	.31	.24	.16	.13
15F948	PC50-25	50	25	A	.41	.31	.21	.17
15F950	PC100 25	100	25	B	.52	.39	.26	.22
15F952	PC250-25	250	25	C	.80	.60	.40	.33
15F954	PC200-35	200	35	D	.83	.63	.42	.35
15F956	PC5-50	5	50	A	.29	.22	.15	.13
15F961	PC50-50	50	50	B	.52	.39	.26	.22
15F962	PC100-50	100	50	D	.70	.52	.35	.29

Cornell-Dubilier Capacitors

COMPUTER GRADE HIGH CAPACITANCE —TYPE FAH



Low leakage current, minimum ESR, high 120cps ripple currents, molded terminal block with safety vent seal, provided with screw terminals, plastic insulating sleeve. Oper. Temp. Ranges: –40°C to + 85°C, Tol: 15-50 VDC, –10 + 100%, 75-300 VDC, –10 + 75% 400VDC, –10 + 50%.

Last two digits of CDE No. indicate case size (FAH6500-15-A). Add 1/16" to dia. and 3/8" to lgth. for size including sleeve.

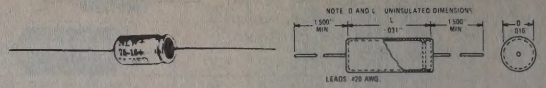
Stk. No.	Type	VDC	µF	1-24	25-49	50-99	100-up
67F2361	FAH12000-15-A2	15	12000	6.15	4.94	3.88	3.17
67F2364	FAH42500-15-B3	15	42500	10.84	8.71	6.86	5.57
67F2366	FAH100000-15-D3	15	100000	22.25	17.91	14.08	11.43
67F2367	FAH3700-25-A1	25	3700	5.32	4.28	3.37	2.74
67F2368	FAH6000-25-A2	25	6000	6.15	4.94	3.88	3.17
67F2369	FAH11000-25-A3	25	11000	6.70	5.39	4.24	3.45
67F2371	FAH39500-25-A2	25	6000	15.74	12.68	9.96	8.10
67F2375	FAH6300-25-A3	40	6300	6.70	5.39	4.24	3.45
67F2376	FAH12000-40-B2	40	12000	8.93	7.21	5.65	4.59
67F2377	FAH14500-40-B3	40	14500	10.84	8.71	6.86	5.57
67F2380	FAH3000-50-A2	50	3000	6.15	4.94	3.88	3.17
67F2381	FAH4500-50-A3	50	4500	6.70	5.39	4.24	3.45
67F2382	FAH7000-50-B2	50	7000	8.93	7.21	5.65	4.59
67F2383	FAH9500-50-B3	50	9500	10.84	8.71	6.86	5.57
67F2384	FAH20000-50-C3	50	20000	15.74	12.68	9.96	8.10
67F2385	FAH23000-50-D3	50	23000	22.25	17.91	14.08	11.43

Stk. No.	Type	VDC	F	1-24	25-49	50-99	100-up
67F2387	FAH2600-75-A3	75	2600	8.38	6.73	5.30	4.31
67F2388	FAH4100-75-B2	75	4100	10.19	8.18	6.44	5.24
67F2389	FAH6500-75-B3	75	6500	13.15	10.56	8.31	6.75
67F2391	FAH1600-75-D3	75	16000	25.97	20.90	16.43	13.34
67F2394	FAH1650-100-A3	100	1650	8.38	6.73	5.30	4.31
67F2397	FAH9000-100-C6	100	9000	23.51	18.90	14.87	12.08
67F2408	FAH1500-200-B3	200	1500	13.15	10.56	8.31	6.75
67F2410	FAH5500-200-D6	200	5500	33.59	27.02	21.24	17.26
67F2416	FAH1050-300-B3	300	1050	13.15	10.56	8.31	6.75
67F2425	FAH500-400-B3	400	500	13.15	10.56	8.31	6.75

CASE CODE AND UNINSULTATED CASE SIZES

Code	Size, In. Dia. x L	Code	Size, In. Dia. x L	Code	Size, In. Dia. x L
A1	13/8 × 21/8	B2	2 × 31/8	C6	21/2 × 55/8
A2	13/8 × 31/8	B3	2 × 41/8	D3	3 × 41/8
A3	13/8 × 41/8	C3	21/2 × 41/8	D6	3 × 55/8

NLW ELECTROLYTIC CAPACITORS

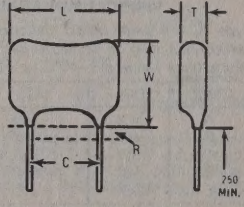


Type NLW. Rugged physical construction. Hermetically sealed aluminum foil electrolytic capacitors. Low leadage currents freedom from shorts. Long shelf and operating life. Suitable for printed circuits. Tinned copper leads with plastic sleeves. Temperature range, -40°C to + 105° Tol. -10% to + 75%.

Stock No.	Type NLW	Cap µF	WV DC	D × L	1-24	25-99	100-249	250-499
15F2091	300-6	300	6	3/8 × 7/8	1.24	.85	.53	.44
15F1029	10-16	10	16	1/4 × 1/2	.80	.55	.34	.28
15F1030	20-16	20	16	1/4 × 1/2	.80	.55	.34	.28
15F1087	25-16	25	16	1/4 × 5/8	.80	.55	.34	.28
15F1063	50-16	50	16	5/16 × 5/8	.91	.62	.39	.32
15F1064	100-16	100	16	5/16 × 3/4	1.19	.82	.51	.42
15F2096	150-16	150	16	3/8 × 3/4	1.24	.85	.53	.44
15F2097	200-16	200	16	3/8 × 7/8	1.30	.88	.55	.45
47F838	300-16	300	16	3/8 × 1 1/4	1.34	.92	.57	.47
47F839	450-16	450	16	3/8 × 1 1/2	1.48	1.01	.63	.52
47F840	1-25	1	25	1/4 × 1/2	.80	.55	.34	.28
47F841	2-25	2	25	1/4 × 1/2	.80	.55	.34	.28
15F2098	3-25	3	25	1/4 × 1/2	.80	.55	.34	.28
47F842	5-25	5	25	1/4 × 1/2	.80	.55	.34	.28
15F1092	8-25	8	25	1/4 × 1/2	.80	.55	.34	.28
15F1034	10-25	10	25	1/4 × 1/2	.80	.55	.34	.28
15F1035	15-25	15	25	1/4 × 1/2	.80	.55	.34	.28
15F1763	25-25	25	25	5/16 × 5/8	.91	.62	.39	.32
15F1094	35-25	35	25	5/16 × 5/8	.91	.62	.39	.32
15F1765	50-25	50	25	5/16 × 3/4	1.14	.78	.49	.40
15F1766	100-25	100	25	3/8 × 3/4	1.24	.85	.53	.44
47F843	150-25	150	25	3/8 × 1	1.30	.88	.55	.45
47F845	250-25	250	25	3/8 × 1 1/2	1.48	1.01	.63	.52
15F1096	1-50	1	50	1/4 × 1/2	.80	.55	.34	.28
15F1097	2-50	2	50	1/4 × 1/2	.80	.55	.34	.28
15F1767	4-50	4	50	1/4 × 1/2	.80	.55	.34	.28
15F1037	5-50	5	50	1/4 × 1/2	.80	.55	.34	.28
15F1038	10-50	10	50	1/4 × 5/8	.91	.62	.39	.32
15F1144	15-50	15	50	5/16 × 5/8	.91	.62	.39	.32
15F1039	20-50	20	50	5/16 × 3/4	1.14	.78	.49	.40
15F1145	25-50	25	50	5/16 × 3/4	1.14	.78	.49	.40
15F1066	30-50	30	50	3/8 × 5/8	1.19	.82	.51	.42
15F2101	35-50	35	50	3/8 × 3/4	1.19	.82	.51	.42
15F1147	40-50	40	50	3/8 × 3/4	1.24	.85	.53	.44
15F1768	50-50	50	50	3/8 × 7/8	1.24	.85	.53	.44
15F1067	75-50	75	50	3/8 × 1	1.30	.88	.55	.45
47F846	100-50	100	50	3/8 × 1 1/4	1.34	.92	.57	.47
15F1040	2-100	2	100	1/4 × 1/2	.91	.62	.39	.32
15F1045	10-100	10	100	3/8 × 3/4	1.19	.82	.51	.42
15F1047	20-100	20	100	3/8 × 1	1.30	.88	.55	.45
15F2102	1-150	1	150	1/4 × 1/2	.91	.62	.39	.32
15F1148	2-150	2	150	1/4 × 5/8	.91	.62	.39	.32
15F1049	5-150	5	150	3/8 × 5/8	1.14	.78	.49	.40
15F1051	8-150	8	150	3/8 × 7/8	1.19	.82	.51	.42
15F1052	10-150	10	150	3/8 × 7/8	1.24	.85	.53	.44
47F850	20-150	20	150	3/8 × 1 1/2	1.38	.94	.59	.48

CD6 Series Dipped Mica Capacitors

MEASURED AT POINT WHERE PHENOLIC CONE BECOMES A CYLINDER



Silver MICA microminiature radial lead capacitors. CD6 type ideal for use in delay lines and IF transformers.

CD6 Dimensions as follows: L: .265 W:.135 T: .095 R: .125 C: 172

Capacitor Tolerance: Third letter from end indicates tol. Example (C)03 = ± 1 pF. C = ± 1 pF, D = ± .5 pF, G = ± 2%, J = ± 5%

300 WVDC

Stk. No.	Type	pF	1-24	25-99	100-499	500-999
15F897	CD6EC820J03	82	.83	.55	.42	.35
15F900	CD6FC101J03	100	.83	.55	.42	.35
15F1722	CD6FC101G03	100	1.30	.87	.65	.54
15F1723	CD6FC111G03	101	1.34	.89	.67	.56
15F901	CD6FC121J03	120	.85	.57	.43	.36
15F1724	CD6FC121G03	120	1.34	.89	.67	.56

500 WVDC

Stk. No.	Type	pF	1-24	25-99	100-499	500-999
15F1700	CD6CD030C03	3	.51	.34	.26	.21
15F1701	CD6CD050C03	5	.51	.34	.26	.21
15F1703	CD6CD120D03	12	1.01	.67	.51	.42
15F1705	CD6CD200J03	20	.57	.38	.29	.24
15F1706	CD6CD220J03	22	.60	.40	.30	.26
15F1707	CD6ED240J03	24	.55	.37	.28	.23
15F1708	CD6ED270J03	27	.60	.40	.30	.26
15F1709	CD6ED300J03	30	.60	.40	.30	.26
15F1710	CD6ED330J03	33	.63	.42	.32	.26
15F1711	CD6ED360J03	36	.63	.42	.32	.26
15F1712	CD6ED390J03	39	.63	.42	.32	.26
15F1713	CD6ED430J03	43	.63	.42	.32	.26
15F1714	CD6ED470J03	47	.63	.42	.32	.26
15F1716	CD6ED560G03	56	1.04	.70	.52	.44
15F1718	CD6ED680G03	68	1.11	.77	.58	.48
15F1719	CD6ED750G03	75	1.15	.77	.58	.48
15F906	CD6CD050D03	5	.84	.56	.42	.35
15F903	CD6CD100D03	10	.84	.56	.42	.35
15F904	CD6CD150J03	15	.83	.55	.42	.35
15F907	CD6CD180J03	18	.83	.55	.42	.35
15F908	CD6ED500J03	50	.67	.45	.34	.28
15F909	CD6ED510J03	51	.67	.45	.34	.28
15F902	CD6ED560J03	56	.67	.45	.34	.28
15F905	CD6ED620J03	62	.67	.45	.34	.28
15F910	CD6ED680J03	68	.73	.49	.37	.31
15F911	CD6ED750J03	75	.73	.49	.37	.31

Cornell-Dubilier Dipped Mica Capacitors

CDE

CD SERIES DIPPED MICA CAPACITORS

Feature multi-coat dipped process to meet rigid humidity requirements. Conform to EIA specs. Meets requirements of MIL-C-5. Tinned copperweld leads. All units meet 10-2000 cycle vibration tests. Operating temp: −55°C to +125°C. Tolerance denoted at end of Type No: J: ±5%; G: ±2%; D: ±0.5 pf. Operating potential 500 WVDC. (*) 300V. (**) 100V.

TYPE CD10-CM04

Stock Number	Type CD10	MIL Type CM04	pF	1-24	25-99	100-499	500-999
81F1098	CD020D03	.....	2				
81F1099	CD030D03	.....	3				
15F1338	CD050D03	CD050D03	5	.48	.32	.24	.20
15F1339	CD100D03	CD100D03	10	.57	.38	.29	.24
15F2600	CD100J03	CD100J03	10	.57	.38	.29	.24
15F1340	CD120J03	CD120J03	12	.40	.27	.20	.17
15F1341	CD150J03	CD150J03	15	.40	.27	.20	.17
15F1342	CD180J03	CD180J03	18	.40	.27	.20	.17
15F863	ED200J03	ED200J03	20	.40	.27	.20	.17
15F1344	ED220J03	ED220J03	22	.40	.27	.20	.17
15F1345	ED240J03	ED240J03	24	.41	.28	.21	.17
15F1346	ED270J03	ED270J03	27	.41	.28	.21	.17
15F1347	ED300J03	ED300J03	30	.41	.28	.21	.17
15F1348	ED330J03	ED330J03	33	.41	.28	.21	.17
81F1100	ED360J03	ED360J03	36				
15F1350	ED390J03	ED390J03	39	.42	.28	.21	.18
81F1101	**ED430J03**	**ED430J03**	**43**				
15F1352	ED470J03	ED470J03	47	.43	.29	.22	.18
81F1102	ED500J03	ED500J03	50				
15F1353	ED510J03	ED510J03	51	.43	.29	.22	.18
15F1354	ED560J03	ED560J03	56	.44	.30	.22	.19
15F1355	ED620J03	ED620J03	62	.44	.30	.22	.19
15F1356	ED680J03	ED680J03	68	.45	.30	.23	.19
81F1103	ED750J03	ED750J03	75				
15F1358	ED820J03	ED820J03	82	.46	.30	.23	.19
15F1360	FD101J03	FD101J03	100	.48	.32	.24	.20
81F1104	FD111J03	FD111J03	110				
15F1362	FD121J03	FD121J03	120	.50	.33	.25	.21
15F1364	FD151J03	FD151J03	150	.59	.39	.30	.25
15F1366	FD181J03	FD181J03	180	.67	.45	.34	.28
15F1367	FD201J03	FD201J03	200	.72	.48	.36	.30
15F1368	FD221J03	FD221J03	220	.75	.50	.38	.36
15F1369	FD241J03	FD241J03	240	.80	.54	.40	.34
81F1105	FD251J03	FD251J03	250				
81F1106	FC301J03	FC301J03	300				
15F2240	FA331J03**	FA331J03	330	.80	.54	.40	.34

TYPE CD15-CM05

Stock Number	Type CD15	MIL Type CM05	pF	1-24	25-99	100-499	500-999
15F884	CD010D03	CD010D03	1	.41	.28	.21	.18
15F867	CD020D03	.....	2	.41	.28	.21	.18
15F866	CD030D03	.....	3	.41	.28	.21	.18
15F1203	CD050D03	CD050D03	5	.41	.28	.21	.18
15F968	CD070D03	CD070D03	7	.41	.28	.21	.18
15F1204	CD100D03	CD100D03	10	.41	.28	.21	.18
15F2601	CD100J03	CD100J03	10	.41	.28	.21	.18
15F889	CD120J03	CD120J03	12	.41	.28	.21	.18
15F2602	CD150J03	CD150J03	15	.41	.28	.21	.18
15F1207	CD180J03	CD180J03	18	.41	.28	.21	.18
15F2603	ED200J03	ED200J03	20	.34	.23	.17	.14
15F1209	ED220J03	ED220J03	22	.34	.23	.17	.14
15F1210	ED240J03	ED240J03	24	.34	.23	.17	.14
15F973	ED270G03	ED270G03	27	.41	.27	.21	.17
15F1211	ED270J03	ED270J03	27	.34	.23	.17	.14
15F1212	ED300J03	ED300J03	30	.34	.23	.17	.14
15F967	ED330G03	ED330G03	33	.41	.27	.21	.17
15F1213	ED330J03	ED330J03	33	.34	.23	.17	.14
15F1214	ED360J03	ED360J03	36	.34	.23	.17	.14
15F972	ED390G03	ED390G03	39	.41	.27	.21	.17
15F1215	ED390J03	ED390J03	39	.34	.23	.17	.14
15F871	ED430J03	ED430J03	43	.34	.23	.17	.14
15F1217	ED470J03	ED470J03	47	.34	.23	.17	.14
15F870	ED500J03	.....	50	.34	.23	.17	.14
15F1219	ED510J03	ED510J03	51	.34	.23	.17	.14
15F978	ED560G03	ED560G03	56	.41	.27	.21	.17
15F1220	ED560J03	ED560J03	56	.34	.23	.17	.14
15F1221	ED620J03	ED620J03	62	.34	.23	.17	.14
15F971	ED680G03	ED680G03	68	.41	.27	.21	.17
15F1222	ED680J03	ED680J03	68	.34	.23	.17	.14
15F1223	ED750J03	ED750J03	75				
15F891	ED820G03	ED820G03	82	.41	.27	.21	.17
15F1224	ED820J03	ED820J03	82	.34	.23	.17	.14
15F876	FD910J03	FD910J03	91	.34	.23	.17	.15
15F979	FD101F03	FD101F03	100	.51	.34	.26	.22
15F872	FD101G03	FD101G03	100	.41	.28	.21	.18
15F1226	FD101J03	FD101J03	100	.34	.23	.17	.15
15F879	FD111J03	FD111J03	110	.37	.25	.19	.16
15F893	FD121G03	FD121G03	120	.45	.30	.23	.19
15F2604	FD12J03	FD121J03	120	.37	.25	.19	.16
15F974	FD151G03	FD151G03	150	.47	.32	.24	.20
15F1230	FD151J03	FD151J03	150	.39	.26	.20	.17
15F883	FD161J03	FD161J03	160	.42	.29	.22	.18
15F1232	FD181J03	FD181J03	180	.46	.31	.23	.19

TYPE CD15-CM05 (Cont'd)

Stock Number	Type CD15	MIL Type CM05	pF	1-24	25-99	100-499	500-999
15F976	FD201G03	FD201G03	200	.54	.36	.27	.23
15F1233	FD201J03	FD201J03	200	.46	.31	.23	.19
15F975	FD221G03	FD221G03	220	.57	.38	.29	.24
15F1234	FD221J03	FD221J03	220	.49	.33	.25	.21
15F1235	FD241J03	FD241J03	240				
15F880	FD251J03	.....	250	.52	.35	.26	.22
15F977	FD271G03	FD271G03	270	.64	.43	.32	.27
15F1237	**FD271J03**	**FD271J03**	**270**				
15F970	FD331G03	FD331G03	330	.75	.50	.38	.32
15F1239	FD331J03	FD331J03	330	.64	.43	.32	.27
15F1240	FD361J03	FD361J03	360	.68	.45	.34	.29
15F1241	FD391J03	FD391J03	390	.70	.47	.36	.29
15F1242	FD431J03	.....	430	.76	.51	.38	.32
15F2605	FD471J03	.....	470	.79	.53	.40	.33
15F2606	FD501J03	.....	500	.85	.57	.43	.36
15F2607	FD511J03	.....	510	.85	.57	.43	.36
15F864	FC561J03*	.....	560	.85	.57	.43	.36
15F969	FC621J03*	.....	620	.91	.61	.46	.38
15F2608	FC681J03*	.....	680	1.00	.67	.50	.42
15F875	FC751J03*	.....	750	1.07	.71	.53	.45
15F2609	FC821J03*	.....	820	1.16	.77	.58	.49
81F1107	FA911J03	.....	910				
15F2610	FA102J03	.....	1000	1.10	.73	.55	.46

TYPE CD19-CM06

Stock Number	Type CD19	MIL Type CM06	pF	1-24	25-99	100-499	500-999
15F1243	FD471J03	FD471J03	470	.57	.38	.29	.24
81F1108	FD501J03	FD501J03	500				
15F1245	FD511J03	FD511J03	510	.57	.38	.29	.24
15F1246	FD561J03	FD561J03	560	.57	.38	.29	.24
15F1247	FD621J03	FD621J03	620	.63	.42	.31	.26
15F1248	FD681J03	FD681J03	680	.63	.42	.31	.26
15F1249	FD751J03	FD751J03	750	.68	.46	.34	.29
15F1250	FD821J03	FD821J03	820	.68	.46	.34	.29
15F1251	FD911J03	FD911J03	910	.74	.49	.37	.31
15F1252	FD102J03	FD102J03	1000	.74	.49	.37	.31
15F1253	FD112J03	FD112J03	1100	.75	.50	.38	.31
15F1254	FD122J03	FD122J03	1200	.75	.50	.38	.31
15F1256	FD152J03	FD152J03	1500	.89	.60	.45	.38
81F1109	FD162J03	FD162J03	1600				
15F1258	FD182J03	FD182J03	1800	1.02	.68	.51	.43
15F1259	FD202J03	FD202J03	2000	1.10	.73	.55	.46
15F1260	FD222J03	FD222J03	2200	1.25	.77	.58	.48
15F1261	FD242J03	FD242J03	2400	1.26	.84	.63	.53
15F1263	FD272J03	FD272J03	2700	1.39	.93	.70	.58
15F1264	FD302J03	FD302J03	3000	1.49	1.00	.75	.63
15F1265	FD332J03	FD332J03	3300	1.62	1.08	.82	.68
15F1267	FD392J03	FD392J03	3900	1.99	1.33	1.00	.83
15F1268	FD432J03	FD432J03	4300	2.19	1.46	1.10	.92
15F1269	FD472J03	FD472J03	4700	2.45	1.63	1.23	1.03
81F1110	FD502J03	.....	5000				
15F1271	FD512J03	FD512J03	5100	2.51	1.68	1.26	1.05

TYPE CD30-CM07

Stock Number	Type CD30	MIL Type CM07	pF	1-99	100-249	250-499	500-999
15F1272	FD562J03	FD562J03	5600	2.27	1.14	1.03	.95
15F1273	FD622J03	FD622J03	6200	2.46	1.23	1.11	1.03
15F1274	FD682J03	FD682J03	6800	2.73	1.37	1.23	1.14
15F1275	FD752J03	FD752J03	7500	2.95	1.48	1.33	1.23
15F1276	FD822J03	FD822J03	8200	3.20	1.60	1.45	1.34
15F1278	FD103J03	FD103J03	0000	3.86	1.94	1.74	1.61

MINIATURE MICA-DIELECTRIC CAPACITORS

100 WVDC

Stock Number	Type	pF	WV DC	1-24	25-99	100-499	500-999
15F982	CD7FA331J03	330	100	1.12	.75	.56	.47
15F1736	CD7FA391G03	390	100	1.84	1.23	.92	.77
15F983	CD7FA391J03	390	100	1.17	.78	.59	.49
15F1738	CD7FA471G03	470	100	1.95	1.30	.98	.82
15F1739	CD7FA511G03	510	100	2.01	1.34	1.01	.84
15F986	CD7FA821J03	820	100	1.84	1.23	.92	.77
15F1746	CD7FA102G03	1000	100	3.51	2.34	1.76	1.46
15F981	CD7FA102J03	1000	100	2.17	1.45	1.09	.91

300 WVDC

15F987	CD7FC201J03	200	300	.86	.58	.43	.36
15F1730	CD7FC221G03	220	300	1.32	.88	.66	.55
15F988	CD7FC221J03	220	300	.91	.61	.46	.38
15F1731	CD7FC241G03	240	300	1.40	.93	.70	.58
15F990	CD7FC301J03	300	300	1.03	.62	.51	.43

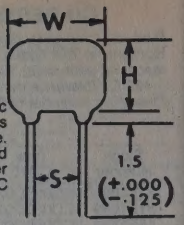
500 WVDC

15F991	CD7FD151J03	150	500	.78	.52	.39	.33
15F992	CD7FD181J03	180	500	.82	.55	.41	.34

Solid Tantalum Capacitors

TDC-TDM DIPPED SOLID TANTALUM CAPACITORS

TDC DIPPED SOLID ELECTROLYTIC TANTALUM CAPACITORS



"Type TDC-TDM Capacitors used for bypass, coupling, timing, and filter circuits in consumer and industrial electronic equipment offer long life electrical stability characteristics of solid tantalum at low cost. Tough epoxy coating provides uniform lead spacing and protection against mechanical damage and moisture, premium performance, minimum size. Operating temperature −55°C to +85°C. TDC offers high CV product with radial stand-off lead spacing of .125 inch and .250 inch. TDM is a low profile rectangular thin body shape. Radial lead spacing is .125 inch and .200 inch in the smaller case size with .250 inch lead spacing in the larger case sizes. Operating temperature −55°C to +85°C. Tolerance TDC ±10%. TDM ±20%.

DIMENSIONS

Case Size	Max. Inches Dia. x Ht.	Lead Dia. in Inches (±.002)	Lead Spacing (±.015)	Case Markings
E	.175 x .350	.020 (#24AWG)	.250	
F	.250 x .500	.020 (#24AWG)	.250	Color Dipped
G	.350 x .650	.025 (#22AWG)	250	Color Dipped

SOLID TANTALUM CAPACITORS

Stock No.	Mfr's. Type TDC-	Cap. µF	WV DC	Case Size	EACH 1-49	50-99	100-499	500-999
81F4031	685K006NLE	6.8	6.3	E	.75	.38	.30	.23
81F4032	476K006NLF	47	6.3	F	.75	.38	.30	.23
81F4033	475K010NLE	4.7	10	E	1.70	.85	.68	.53
81F4034	336K010NLF	33	10	F	5.55	2.78	2.22	1.72
81F4035	107K010WLG	100	10	G	10.55	5.28	4.22	3.27
81F4036	227K010WLG	220	10	G	.75	.38	.30	.23
81F4037	335K015NLE	3.3	15	E	1.70	.85	.68	.53
81F4038	226K015NLF	22	15	F	5.40	2.70	2.16	1.67
81F4039	686K015WLG	68	15	G	10.60	5.30	4.24	3.29
81F4040	157K015WLG	150	15	G	.75	.38	.30	.23
81F4041	225K020NLE	2.2	20	E	1.70	.85	.68	.53
81F4042	156K020NLF	15	20	F	5.55	2.78	2.22	1.72
81F4043	336K020WLG	33	20	G	5.40	2.70	2.16	1.67
81F4044	476K020WLG	47	20	G	8.75	4.38	3.50	2.71
81F4046	107K020WLG	100	20	G	10.25	5.13	4.10	3.18
81F4047	685K025NLF	6.8	25	F	1.60	.80	.64	.50
81F4048	106K025NLF	10	25	F	1.70	.85	.68	.53
81F4049	226K025NLF	22	25	F	4.15	2.08	1.66	1.29
81F4050	686K025WLG	68	25	G	10.75	5.38	4.30	3.33
81F4051	105K035NLE	1	35	E	.75	.38	.30	.23
81F4052	155K035NLE	1.5	35	E	1.40	.70	.56	.43
81F4053	225K035NLE	2.2	35	E	1.60	.80	.64	.50
81F4054	335K035NLF	3.3	35	F	1.70	.85	.68	.53
81F4055	475K035NLF	4.7	35	F	1.70	.85	.68	.53
81F4056	685K035NLF	6.8	35	F	1.70	.85	.68	.53
81F4057	106K035NLF	10	35	F	2.80	1.40	1.12	.87
81F4058	156K035NLF	15	35	F	3.75	1.88	1.50	1.16
81F4059	226K035WLG	22	35	G	5.55	2.78	2.22	1.72
81F4060	336K035WLG	33	35	G	9.75	4.88	3.90	3.02
81F4061	476K035WLG	47	35	G	10.75	5.38	4.30	3.33
81F4062	104K050NLE	.10	50	E	.80	.40	.32	.25
81F4063	224K050NLE	.22	50	E	.80	.40	.32	.25
81F4064	334K050NLE	.33	50	E	.80	.40	.32	.25
81F4065	474K050NLE	.47	50	E	.80	.40	.32	.25
81F4066	684K050NLE	.68	50	E	.80	.40	.32	.25
81F4067	105K050NLE	1.0	50	E	.80	.40	.32	.25
81F4068	225K050NLF	2.2	50	F	1.75	.88	.70	.54
81F4069	106K050WLG	10	50	G	6.10	3.05	2.44	1.89
81F4070	156K050WLG	15	50	G	6.40	3.20	2.56	1.98
81F4071	226K050WLG	22	50	G	11.15	5.58	4.46	3.36

TDM Epoxy Dipped Solid Tantalum Capacitors

EPOXY-COATED SOLID TANTALUM CAPACITOR KITS

MALLOBINS—Attractive 15 drawer plastic cabinets are stackable and keep all of your parts instantly available and fully identified. Clear plastic drawers are custom partitioned to keep parts where they belong. Contain a variety of carefully selected assortments of popular Mallory components keyed to current market trends. Size 7½"H x 9⅛"W x 6½" D.

TDC151A MALLOBIN

Qty.	WVDC	µF	Qty.	WVDC	µF Range
5	10	220	10	25	10-22
5	15	150	15	35	2.2-47
5	20	100	35	50	.1-22

TDM 151 MALLOBIN

Qty.	WVDC	µF	Qty.	WVDC	µF Range
6	15	150	18	35	4.7-47
6	20	100	54	50	.1-22
6	25	68			

81F9276 Type TDC151D ..... Net. 96.23
81F9277 Type TDM151 ..... Net. 104.48

TDM DIMENSIONS

	Width (W)	Height (H)	Thickness (1)	Lead Information Spacing (S)	Lead Information Dia.
1	.275	.275	.180	.125	.020
2	.325	.325	.210	.200	.020
3	.375	.400	.225	.250	.020
4	.400	.400	.250	.250	.020
5	.460	.465	.325	.250	.020
6	.560	.585	.325	.250	.020

6 WVDC: 8 VDC SURGE

Stk. No.	Type	Cap. µF	Case Size	EACH 1-49	50-99	249	499
55F5025	TDM156M0061L	15	1	1.65	.83	.66	.51
55F5026	TDM476M0062L	47	2	1.65	.83	.66	.51

10 WVDC: 13 VDC SURGE

55F5029	TDM126M0101L	12	1	1.65	.83	.66	.51
55F5030	TDM226M0102L	22	2	1.65	.83	.66	.51
55F5031	TDM336M0103L	33	3	1.65	.83	.66	.51
55F5032	TDM227M0106L	220	6	10.80	5.40	4.32	3.35

15 WVDC: 20 VDC SURGE

55F5034	TDM106M0151L	10	1	1.65	.83	.66	.51
55F5035	TDM226M0153L	22	3	1.60	.80	.64	.50
55F5036	TDM686M0155L	68	5	5.80	2.90	2.32	1.80

20 WVDC: 26b VDC SURGE

55F5038	TDM475M0201L	4.7	1	1.65	.83	.66	.51
55F5039	TDM156M0203L	15	3	1.70	.85	.68	.53
55F5040	TDM336M0204L	33	4	5.65	2.83	2.26	1.75
55F5041	TDM476M0205L	47	5	5.65	2.83	2.26	1.75

25 WVDC: 32 VDC SURGE

Stk. No.	Type	Cap. µF	Case Size	EACH 1-49	50-99	100-499	500-Up
55F5045	TDM335M0251L	3.3	1	1.65	.83	.66	.51
55F5046	TDM685M0251L	6.8	1	1.65	.83	.66	.51
55F5047	TDM106M0252L	10	2	1.65	.83	.66	.51
55F5048	TDM226M0253L	22	3	5.15	2.58	2.06	1.60
55F5050	TDM476M0255L	47	5	10.85	5.43	4.34	3.36
55F5052	TDM107M0256L	100	6	13.65	6.83	5.46	4.23

35 WVDC: 46 VDC SURGE

55F5053	TDM155M0351L	1.5	1	1.65	.83	.66	.51
55F5054	TDM225M0351L	2.2	1	1.70	.85	.68	.53
55F5055	TDM335M0351L	3.3	1	1.70	.85	.68	.53
55F5056	TDM475M0332L	4.7	2	1.70	.85	.68	.53
55F5057	TDM685M0352L	6.8	2	1.70	.85	.68	.53
55F5058	TDM106M0353L	10	3	1.70	.85	.68	.53
55F5059	TDM156M0354L	15	4	1.70	.85	.68	.53
55F5060	TDM226M0335L	22	5	6.20	3.10	2.48	1.92
55F5061	TDM336M0355L	33	5	10.10	5.05	4.04	3.13
55F5062	TDM476M0356L	47	6	10.80	5.40	4.32	3.35

50 WVDC: 65 VDC SURGE

55F5063	TDM104M0501L	.10	1	1.70	.85	.68	.53
55F5064	TDM154M0501L	.15	1	1.70	.85	.68	.53
55F5065	TDM224M0501L	.22	1	1.70	.85	.68	.53
55F5066	TDM334M0501L	.33	1	1.70	.85	.68	.53
55F5067	TDM474M0501L	.47	1	1.70	.85	.68	.53
55F5068	TDM684M0501L	.68	1	1.70	.85	.68	.53
55F5069	TDM105M0501L	1.0	1	1.70	.85	.68	.53
55F5070	TDM155M0501L	1.5	1	1.70	.85	.68	.53
55F5071	TDM225M0501L	2.2	1	1.70	.85	.68	.53
55F5072	TDM685M0503L	6.8	.3	4.75	2.38	1.90	1.47
55F5073	TDM106M0504L	10	4	6.10	3.05	2.44	1.89
55F5074	TDM156M0505L	15	5	6.25	3.13	2.50	1.94

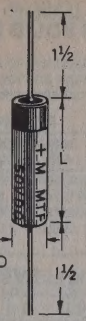
PRICES SUBJECT TO CHANGE. SEE PAGE 4

Wet Slug Tantalum Capacitors

MALLORY

MTP TANTALUM CAPACITORS

Offers greatest capacity of any tantalum type. Meets or exceeds MIL-STD-202 for high freq. vibration, shock, temp. and immersion cycling, moisture resistance, sleeving dielectric strength, and insulation resistance. Increased capacitance and lower ripple current. Same specs as CMT except sealed in silver case with elastomer end seals. Completely insulated. Operating temp. from −55°C to +85°C. Tolerance ±20%.



PRICE AND SIZE LOCATOR

Case Size	Dia. x Lgth. Inches	1-24	25-49	50-99	100-up
A	.115 x .403	3.00	2.45	1.95	1.45
B	.145 x .600	3.82	3.13	2.48	1.85
C	.225 x .778	6.74	5.51	4.37	3.26
D	.115 x .300	2.81	2.30	1.82	1.36

Stk. No.	Mfr's. Type MTP-	Cap. µF	WVDC @ 85°C	Max. D.C.L. at Max. WVDC in µA +25°C	Max. D.C.L. at Max. WVDC in µA +85°C	Max. DF @ 25°C	Code
60F2136	476M006P1A	47	6	2.0	6.0	33	A
60F2261	157M006P1B	150	6	2.0	8.0	37	B
13F314	187M006P1B	180	6	2.0	8.0	37	B
13F315	457M006P1C	450	6	2.0	10.0	50	C
60F2137	477M006P1C	470	6	2.0	10.0	50	C
60F2262	106M010P1D	10	10	2.0	6.0	20	D
60F2263	336M010P1A	33	10	2.0	6.0	30	A
60F2264	107M010P1B	100	10	2.0	8.0	33	B
13F316	127M010P1B	120	10	2.0	8.0	35	B
13F317	307M010P1C	300	10	2.0	10.0	35	C
60F2265	337M010P1C	330	10	2.0	10.0	35	C
60F2266	226M015P1A	22	15	2.0	6.0	33	A
60F2267	686M015P1B	68	15	2.0	8.0	27	B
13F318	806M015P1B	80	15	2.0	8.0	30	B
13F319	207M015P1C	200	15	2.0	10.0	30	C
60F2138	227M015P1C	220	15	2.0	10.0	30	C
60F2268	685M020P1D	6.8	20	2.0	6.0	20	D
60F2269	156M020P1A	15	20	2.0	6.0	25	A
60F2270	476M020P1B	47	20	2.0	8.0	25	B
13F320	606M020P1B	60	20	2.0	8.0	25	B
60F2271	157M020P1C	150	20	2.0	10.0	30	C
13F322	106M030P1A	10	30	2.0	6.0	20	A
13F323	456M030P1B	45	30	2.0	8.0	25	B
13F324	127M030P1C	120	30	2.0	10.0	30	C
60F2272	475M035P1D	4.7	35	2.0	6.0	20	D
60F2139	106M035P1A	10	35	2.0	6.0	20	A
60F2140	107M035P1C	100	35	2.0	10.0	25	C
13F326	685M050P1A	6.8	50	2.0	6.0	20	A
13F327	306M050P1B	30	50	2.0	8.0	20	B
60F2141	336M050P1B	33	50	2.0	8.0	20	B
60F2273	686M050P1C	68	50	2.0	10.0	20	C
13F328	786M050P1C	78	50	2.0	10.0	20	C
60F2274	335M060P1D	3.3	60	2.0	6.0	15	D
60F2277	106M060P1B	10	60	2.0	8.0	20	B
60F2278	156M060P1B	15	60	2.0	8.0	20	B
60F2142	226M060P1B	22	60	2.0	8.0	20	B
60F2144	476M060P1C	47	60	2.0	10.0	20	C
60F3850	686M060P1C	68	60	2.0	10.0	20	C

CMT TANTALUM CAPACITORS

Polar wet slug tantalum capacitor ideal for miniature circuits. This line offers much higher CV product per unit volume than other wet slug and solid types. Sealed in silver plated copper alloy case that is closed on an elastomer end seal. Anode lead-weld joint and end seal are epoxy resin encapsulated. Operating Temperature from −55°C to +85°C. Tolerance ±20%.

PRICE AND SIZE LOCATOR

Case Size	Dia. x Lgth. Inches	1-49	50-99	100-249	100-499
A	.115 x .403	2.81	2.30	1.82	1.36
B	.115 x .300	3.55	2.90	2.30	1.72
C	.145 x 600	5.94	4.86	3.86	2.87
D	.225 x .778	2.67	2.18	1.73	1.29

Stk. No.	Mfr's. Type CMT-	Cap µF	WVDC @ 85°C	MAX DCL at WVDC in µA +25C	MAX DCL at WVDC in µA +85C	Max. DF 25°C	Code
15F619	156M006P1D	15	6	2.0	6.0	22	D
15F620	476M006P1A	47	6	2.0	6.0	38	A
15F621	157M006P1B	150	6	2.0	8.0	39	B
15F622	187M006P1B	180	6	2.0	8.0	40	B
15F623	457M006P1C	450	6	3.0	11.0	54	C
15F624	106M010P1D	10	10	2.0	6.0	20	D
81F4072	*336M010P1A	33	10	2.0	6.0	34	A
15F626	107M010P1B	100	10	2.0	8.0	30	B
15F627	127M010P1B	120	10	2.0	8.0	32	B
15F628	307M010P1C	300	10	3.0	12.0	39	C
81F4073	*226M015P1A	22	15	2.0	6.0	22	A
81F4074	*686M015P1B	68	15	2.0	8.0	30	B
15F631	806M015P1B	80	15	2.0	8.0	30	B
15F632	207M015P1C	200	15	3.0	12.0	30	C
15F633	685M020P1D	6.8	20	2.0	6.0	16	D
15F634	156M020P1A	15	20	2.0	6.0	18	A
81F4075	*476M020P1B	47	20	2.0	8.0	22	B
15F635	606M020P1B	60	20	2.0	8.0	28	B
15F636	157M020P1C	150	20	3.0	12.0	28	C
15F637	605M030P1D	6	30	2.5	6.0	16	D
15F638	106M030P1A	10	30	2.0	6.0	12	A
15F639	456M030P1B	45	30	2.0	8.0	22	B
15F641	127M030P1C	120	30	4.0	15.0	28	C
81F4076	*106M035P1A	10	35	2.0	6.0	15	A
15F644	107M035P1C	100	35	3.5	14.0	28	C
15F645	125M050P1D	1.2	50	1.0	3.0	20	D
15F647	405M050P1D	4	50	1.5	5.0	12	D
15F651	306M050P1B	30	50	2.0	8.0	18	B
15F652	686M050P1C	68	50	3.5	14.0	18	C
15F653	786M050P1C	78	50	4.0	16.0	18	C
15F654	105M060P1D	1	60	1.0	3.0	9	D
15F655	335M060P1D	3.3	60	2.0	6.0	11	D
81F4077	*475M060P1A	4.7	60	2.0	6.0	12	A
18F4078	*685M060P1A	6.8	60	2.0	6.0	12	A
15F657	106M060P1B	10	60	2.0	8.0	14	B
15F658	156M060P1B	15	60	2.0	8.0	16	B
15F659	226M060P1B	22	60	2.0	8.0	18	B
15F660	336M060P1C	33	60	2.0	10.0	14	C
81F4079	*476M060P1C	47	60	3.0	12.0	15	C
15F662	686M060P1C	68	60	4.5	17.0	17	C
15F664	205M060P1D	2	60	1.5	5.0	11	D

*Revised Rating

CTL TANTALUM ELECTROLYTIC CAPACITORS

Miniature, polarized, sintered tantalum anode, liquid electrolyte capacitor. Exhibit high MFD-Volt rating to vol. ratios. Low cost replacement for wet slug tantalum caps. Equivalent to style TLS except come in silver plated copper alloy case. Capacitance tolerance ±20%. Operating temp. from −55°C to +85°C (at full rated voltage); −55°C to +125°C (with proper voltage derating).

Stk. No.	Type CTL-	µF	WV DC	Code
15F665	686M006C1A	68	6	A
15F666	567M006C1C	560	6	C
15F667	476M010C1A	47	10	A
15F668	187M010C1B	180	10	B
15F669	156M015C1A	15	15	A
15F670	127M015C1B	120	15	B
15F671	177M015C1C	170	15	C
15F672	277M015C1C	270	15	C
15F673	106M025C1A	10	25	A
15F674	226M025C1A	22	25	A
15F675	107M025C1B	100	25	B
15F676	187M025C1C	180	25	C
15F677	805M030C1A	8	30	A
15F678	156M030C1A	15	30	A
15F679	406M030C1B	40	30	B
15F680	107M030C1C	100	30	C
15F681	157M030C1C	150	30	C
15F682	505M050C1A	5	50	A
15F683	106M050C1A	10	50	A
15F684	256M050C1B	25	50	B
15F685	476M050C1B	47	50	B
15F686	826M050C1C	82	50	C
15F687	405M060C1A	4	60	A
15F689	506M060C1C	50	60	C
15F691	355M075C1A	3.5	75	A
15F692	685M075C1A	6.8	75	A
15F693	156M075C1B	15	75	B

PRICE AND SIZE LOCATOR

Case Size	Dia. x Lgth. Inches	1-24	25-49	50-99	100-249
A	.219 x .608	3.11	2.53	2.01	1.61
AZ		3.46	2.82	2.24	1.79
B	.312 x .796	5.10	4.16	3.31	2.65
C	.406 x .921	6.94	5.65	4.50	3.60
CZ		8.40	6.84	5.44	4.35
D		5.97	4.86	3.87	3.09

Stk. No.	Type CTL-	µF	WV DC	Code
15F694	336M075C1B	33	75	B
15F695	566M075C1C	56	75	C
15F696	255M100C1A	2.5	100	AZ
15F697	226M100C1B	22	100	D
15F698	436M100C1C	43	100	CZ
15F699	365M125C1A	3.6	125	AZ
15F700	146M125C1B	14	125	D

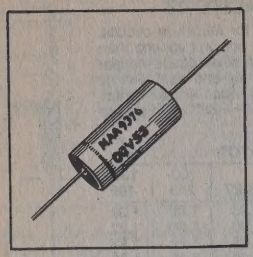
81F4082 MTP 151 Kit 232.50
81F4080 CMT 151 Kit . . . . . 149.92 81F4081 CTL 151 Kit 215.83

6

MALLORY

CSR13 Tantalum Capacitors

TYPE CSR SOLID ELECTROLYTE CAPACITORS



Type CSR13 Solid Electrolyte Tantalum Capacitors to MIL-C-39003/01. Established reliability, low leakage and low impedance. Hermetically sealed with plastic insulating sleeve.

Meet MIL-C-39003 specifications. Life test, 10,000 hours. Temperature range, −55°C. to +125°C. Leads may be welded or soldered: are tinned nickel, type N1 of MIL-STD-1276.

PRICE CHART AND SIZE

Key	WVDC	Dia. x Lgth.	1-49	50-99	100-400	500-Up	Key	WVDC	Dia. x Lgth.	1-49	50-99	100-400	500-Up
A	6	.135x.286	1.00	.50	.40	.31	E	50	.135x.286	1.05	.53	.42	.33
B	TO	.185x.474	1.90	.95	.76	.59	F		.185x.474	1.95	.98	.78	.61
C	35	.289x.686	5.25	2.63	2.10	1.63	G		.289x.686	1.85	.93	.74	.57
D		.351x.786	9.70	4.85	3.88	3.01	H		.351x.786	5.50	2.75	2.20	1.71
							I			10.25	5.13	4.10	3.18

1% FAILURE (M) LEVEL

Stock No.	Type CSR13	MIL-C 39003/01	MFD	WV DC	Key
47F745	B565KM	2241	5.6	6	A
17F1678	B685KM	2242	6.8	6	A
17F1680	B476KM	2244	47	6	B
47F746	B566KM	2246	56	6	B
47F747	B157KM	2247	150	6	C
47F748	B187KM	2249	180	6	C
47F749	B277KM	2250	270	6	D
47F750	B337KM	2251	330	6	D
47F751	C395KM	2253	3.9	10	A
17F1683	C475KM	2254	4.7	10	A
47F752	C276KM	2256	27	10	B
17F1684	C336KM	2257	33	10	B
47F753	C396KM	2259	39	10	B
47F754	C826KM	2260	82	10	C
17F1685	C107KM	2261	100	10	C
47F755	C127KM	2263	120	10	C
47F756	C187KM	2264	180	10	D
17F1686	C227KM	2265	220	10	D
47F757	D275KM	2267	2.7	15	A
17F1687	D335KM	2268	3.3	15	A
47F758	D186KM	2270	18	15	B
47F759	D226KM	2271	22	15	B
47F760	D566KM	2273	56	15	C
47F761	D686KM	2274	68	15	C
47F762	D127KM	2276	120	15	D
17F1689	D157KM	2277	150	15	D
47F763	E125KM	2279	1.2	20	A
17F1690	E155KM	2280	1.5	20	A
47F764	E185KM	2282	1.8	20	A
17F1691	E225KM	2283	2.2	20	A
47F765	E825KM	2285	8.2	20	B
17F1692	E106KM	2286	10	20	B
47F766	E126KM	2288	12	20	B
47F767	E276KM	2291	27	20	C
47F768	E336KM	2292	33	20	C
47F769	E396KM	2294	39	20	C
17F1695	E476KM	2295	47	20	C
47F770	E566KM	2297	56	20	D
17F1696	E686KM	2298	68	20	D
47F7711	E826KM	2300	82	20	D
17F1697	E107KM	2301	100	20	D
47F772	F565KM	2303	5.6	35	B
17F1698	F685KM	2304	6.8	35	B
17F1699	F226KM	2306	22	35	C
47F773	F276KM	2308	27	35	D
17F1655	F336KM	2309	33	35	D
47F774	F396KM	2311	39	35	D
17F1656	F476KM	2312	47	35	D
47F785	G563KM	2334	.056	50	E
47F786	G683KM	2335	.068	50	E
47F787	G823KM	2337	.082	50	E
17F1663	G104KM	2338	.1	50	E
47F788	G124KM	2340	.12	50	E
17F1665	G154KM	2341	.15	50	E
47F789	G184KM	2343	.18	50	E
47F790	G224KM	2344	.22	50	E
47F791	G274KM	2346	.27	50	E
17F1666	G334KM	2347	.33	50	E
47F792	G394KM	2349	.39	50	E
17F1667	G474KM	2350	.47	50	E
17F1668	G684KM	2353	.68	50	E
47F794	G824KM	2355	.82	50	E
17F1669	G105KM	2356	1.0	50	E
47F795	G125KM	2358	1.2	50	F
47F796	G155KM	2359	1.5	50	F
47F797	G185KM	2361	1.8	50	F
17F1671	G225KM	2362	2.2	50	F
47F731	G275KM	2364	2.7	50	F
17F1672	G335KM	2365	3.3	50	F
47F732	G395KM	2367	3.9	50	F
17F1673	G475KM	2368	4.7	50	F
47F733	G565KM	2370	5.6	50	G
17F1674	G685KM	2371	6.8	50	G
47F734	G825KM	2373	8.2	50	H
17F1675	G106KM	2374	10	50	H
47F735	G126KM	2376	12	50	H
47F736	G156KM	2377	15	50	H
47F737	G186KM	2379	18	50	H
17F1677	G226KM	2380	22	50	I

TAC MOLDED SOLID ELECTROLYTIC TANTALUM CAPACITOR

TAC. The TAC Capacitor uses the same dry electrolyte, sintered tantalum anode that is used for high reliability, military type tantalum. The capacitor is housed in a precision molded, high impact resistant case designed to close tolerances for adaptation to high speed automatic insertion applications. Cases are tapered at the positive lead for quick polarity identification. Leads are of high purity nickle with solder coating. Temperature ranges: −50° C to.+85° C (to +125° C with proper voltage derating).

- Small Uniform Size
- Tough Epoxy Case
- Long Shelf Life

PRICE CHART AND SIZE

Key	WVDC	Dia. x Lgth.	1-49	50-99	100-400	500-Up	Key	WVDC	Dia. x Lgth.	1-49	50-99	100-400	500-Up
E	6	.105x.290	1.00	.50	.40	.31	H	6	.137x.340	1.00	.50	.40	.31
F	TO	.105x.290	1.10	.55	.44	.34	I	TO	.187x.530	1.85	.93	.74	.57
F2	50	.105x.290	.95	.48	.38	.30	I2	50	.187x.530	2.40	1.20	.96	.74
G		.137x.340	1.10	.55	.44	.34	J		.187x.530	1.85	.93	.74	.57

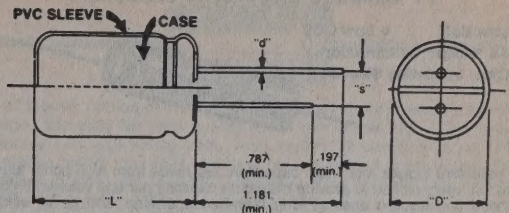
Stk. No.	Type TAC	Mfd	WV DC	Key
17F1625	106K006P02	10	6	F
60F3661	396K006P04	39	6	I
60F3662	476K006P04	47	6	I
60F3663	566K006P04	56	6	I2
17F1619	335K010P02	3.3	10	F2
17F1620	395K010P02	3.9	10	F
17F1621	475K010P02	4.7	10	F
17F1622	565K010P05	5.6	10	F
17F1623	685K010P02	6.8	10	F
60F3593	825K010P05	8.2	10	I
60F3648	156K010P04	15	10	I
60F3651	186K010P04	18	10	I
60F3654	226K010P04	22	10	I
60F3656	276K010P04	27	10	I
60F3658	336K010P04	33	10	I
60F3660	396K010P04	39	10	I2
17F1618	275K015P02	2.7	15	F
60F3570	335K015P03	3.3	15	G
60F3580	475K015P05	4.7	15	I
60F3596	106K015P05	10	15	I
60F3647	156K015P04	15	15	I
60F3650	186K015P04	18	15	I
60F3653	226K015P04	22	15	I
17F1613	105K020P02	1.0	20	F2
17F1614	125K020P02	1.2	20	F2
17F1615	155K020P02	1.5	20	F2
17F1616	185K020P02	1.8	20	F
17F1617	225K020P02	2.2	20	F
60F3569	335K020P05	3.3	20	I
60F3587	685K020P05	6.8	20	I
60F3595	106K020P04	10	20	I
60F3599	126K020P04	12	20	I
60F3646	156K020P04	15	20	I
60F3558	155K025P03	1.5	25	G
60F3562	225K025P03	2.2	25	G
60F3565	275K025P05	2.7	25	I
60F3568	335K025P05	3.3	25	I
60F3573	395K025P05	3.9	25	I
60F3590	825K025P04	8.2	25	I
60F3594	106K025P04	10	25	I
60F3598	126K025P04	12	25	I
17F1610	564K035P02	.56	35	F2
17F1611	684K035P02	.68	35	F2
17F1612	824K035P02	.82	35	F
60F3555	125K035P03	1.2	35	G
60F3564	275K035P05	2.7	35	I
60F3567	335K035P05	3.3	35	I
60F3577	475K035P04	4.7	35	I
60F3581	565K035P04	5.6	35	I
60F3585	685K035P04	6.8	35	I
60F3587	825K035P05	8.2	35	I2
17F1600	823K050P02	.082	50	F
17F1601	104K050P02	.1	50	E
17F1603	154K050P02	.15	50	E
17F1604	184K050P02	.18	50	E
17F1605	224K050P02	.22	50	E
17F1606	274K050P02	.27	50	E
17F1607	334K050P02	.33	50	E
17F1608	394K050P02	.39	50	E
17F1609	474K050P02	.47	50	E
60F3550	564K050P03	.56	50	H
60F3551	684K050P03	.68	50	H
60F3552	824K050P03	.82	50	H
60F3553	105K050P03	1.0	50	H
60F3554	125K050P05	1.2	50	J
60F3557	155K050P04	1.5	50	J
60F3561	225K050P04	2.2	50	J
60F3563	275K050P04	2.7	50	J
60F3566	335K050P04	3.3	50	J
60F3571	395K050P04	3.9	50	J
60F3576	475K050P04	4.7	50	J

TAC 151 Mallobin Kit—Contains 23 molded solid tantalum capacitors with a variety of capacitance values and voltages ideally provided in two handy, stackable 15 drawer cabinets. 6 capacitors of each value are provided.
81F9278 TAC 151 NET 120.15

Electrolytic Capacitors and Kits

MALLORY

VTL MINIATURE SINGLE ENDED ELECTROLYTICS



- **High Density** • **Low Leakage** • **Low ESR** • **PVC Sleeve**
- **Polarity Encoded Leads** • **−40°C to +85°C** • **−10, +30% Tol.**

Miniaturized aluminum electrolytic single ended capacitor which uses a newly developed high quality aluminum foil. Low profile case sizes. Excellent stability over a temperature range of −40°C to +85°C. Capacity tolerance: −10%, +30%. Size is diameter x length.

Stk. No.	Type VTL-	Mfg.	WV DC	Lead Spac	D x L Size(in.)	1-49	50-99	100-249	250-499
14F3268	33S10	33	10	.079	.197x.433	.34	.25	.16	.13
14F3269	100S10	100	10	.098	.236x.433	.38	.29	.18	.15
14F3270	220S10	220	10	.138	.315x.433	.46	.35	.21	.18
14F3271	330S10	330	10	.197	.394x.492	.57	.43	.26	.22
14F3272	22S16	22	16	.079	.197x.433	.34	.25	.16	.13
14F3273	47S16	47	16	.098	.236x.433	.39	.29	.18	.15
14F3274	100S16	100	16	.138	.315x.433	.44	.33	.20	.18
14F3275	220S16	220	16	.197	.394x.492	.61	.46	.28	.24
14F3276	470S16	470	16	.197	.394x.787	.85	.64	.39	.34
14F3277	1000S16	1000	16	.197	.492x.984	1.35	1.01	.62	.54
14F3278	10S25	10	25	.079	.197x.433	.34	.25	.16	.13
14F3279	33S25	33	25	.098	.236x.433	.39	.29	.18	.15
14F3280	47S25	47	25	.098	.236x.433	.40	.30	.19	.16
14F3281	100S25	100	25	.138	.315x.433	.47	.36	.22	.19
14F3282	220S25	220	25	.197	.394x.630	.73	.55	.34	.29
14F3283	330S25	330	25	.197	.394x.787	.91	.69	.42	.36
14F3284	470S25	470	25	.197	.492x.787	1.25	.94	.58	.49

Stk. No.	Type VTL-	Mfd.	WV DC	Lead Spac	D x L Size(in.)	1-49	50-99	100-249	250-499
14F3250	1000S25	1000	25	.295	.630x.984	1.92	1.45	.89	.76
14F3251	33S35	33	35	.098	.236x.433	.41	.31	.19	.16
14F3252	47S35	47	35	.098	.315x.433	.49	.37	.23	.19
14F3253	100S35	100	35	.197	.394x.493	.60	.45	.28	.24
14F3254	220S35	220	35	.197	.394x.787	.90	.67	.42	.36
14F3255	330S35	330	35	.197	.492x.787	1.33	1.00	.61	.53
14F3256	470S35	470	35	.197	.492x.984	1.59	1.20	.74	.63
14F3257	282S50	2.2	50	.079	.197x.433	.34	.25	.16	.13
14F3258	3R3S50	3.3	50	.079	.197x.433	.34	.25	.16	.13
14F3259	10S50	10	50	.079	.197x.433	.36	.27	.17	.14
14F3260	33S50	33	50	.138	.315x.433	.50	.38	.23	.20
14F3261	47S50	47	50	.138	.315x.433	.51	.39	.24	.20
14F3262	100S50	100	50	.197	.394x.630	.72	.54	.33	.29
14F3263	220S50	220	50	.197	.492x.787	1.30	.97	.60	.52
14F3264	330S50	330	50	.197	.492x.984	1.59	1.19	.74	.63
14F3265	470S50	470	50	.295	.630x.984	2.02	1.51	.93	.80
14F3266	22S63	22	63	.138	.315x.433	.55	.41	.25	.22
14F3267	47S63	47	63	.197	.394x.492	.60	.45	.28	.24

THF SOLID ELECTROLYTIC TANTALUM CAPACITORS

THF solid tantalum capacitors offer low impedance to ripple current at frequencies above 1kHz to 100kHz. Configuration sintered anodes provide lower ESR than conventional tantalum capacitors which means lower power losses and results in savings by substituting one THF for up to four CSR 13 capacitors. Operating Temperature Range: −80°C to 125°C.

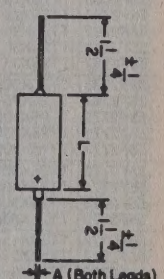
APPLICATIONS: Switching Regulators, High Frequency Power Supplies, By-pass filtering.

Stock No.	Type	WVDC @ 85°C	Cap.	Case Code	Each 1-49	Each 50-99
13F3808	THF276K020P1F	20V	27	F	9.05	4.53
13F3830	THF336K020P1F		33	F	9.30	4.65
13F3809	THF476K020P1F		47	F	9.75	4.88
13F3810	THF566K020P1G		56	G	15.40	7.70
13F3811	THF107K020P1G		100	G	17.75	8.88
13F3812	THF825K035P1F	35V	8.2	F	10.25	5.13
13F3813	THF226K035P1F		22	F	12.50	6.25
13F3814	THF276K035P1G		27	G	16.35	8.18
13F3815	THF476K035P1G		47	G	20.75	10.38
13F3816	THF565K050P1F	50V	5.6	F	10.25	5.13
13F3817	THF186K050P1F		18	F	17.45	8.73
13F3818	THF226K050P1G		22	G	23.05	11.53

THF DIMENSIONS

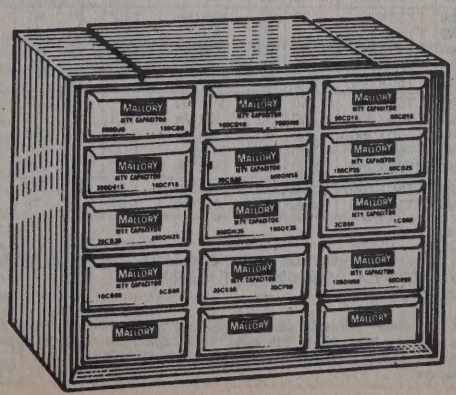
CASE CODE	Uninsulated Case Dimensions		Shrink-Fit Insulated Case Dimensions		
Mallory THF	D +.016 −.010	L ±.031	D +.016 −.001	L ±.031	A +.005 −.001
F	.279	.650	.289	.686	.025
G	.341	.750	.351	.786	.025

Stock No.	Type	WVDC @ 85°C	Cap.	Case Code	Each 1-49	Each 50-99
13F3819	THF157K006PIF	6V	150	F	10.75	5.38
13F3820	THF187K006PIF		180	F	11.65	5.83
13F3821	THF227K006PIG		220	G	18.85	9.43
13F3822	THF337K006PIG		330	G	19.45	9.73
13F3823	THF826K010PIF	10V	82	F	10.25	5.13
13F3824	THF127K010PIF		120	F	11.65	5.83
13F3825	THF187K010PIG		180	G	17.35	8.68
13F3826	THF227K010PIG		220	G	19.45	9.73
13F3827	THF566K015PIF	15V	56	F	10.25	5.13
13F3828	THF686K015PIF		68	F	10.75	5.48
13F3829	THF157K015PIG		150	G	19.45	9.73



LAB SAMPLE KITS

- **Convenient 15-Drawer Stackable Cabinet**
- **Durable Capacitor Construction**
- **Mallobin Quality and Reliability**



VTL-151 Mallobin—Contains 135 VTL capacitors. 45 different values with voltages ranging from 10 to 50 volts. Three capacitors of each value are provided in a handy 15 drawer cabinet which is stackable.
60F2296. NET **49.75**

VPR 151 Mallobin—Contains 45 capacitors. 15 different values 160μf to 4900μf with voltages ranging from 10 to 50 volts. Two capacitors of each value are provided in a handy 15 drawer cabinet which is stackable.
81F9279. NET **69.36**

Type SX301. Mallobin Merchandisers—Two 15 drawer cabinets with popular voltages and values. 73 different values. 210 capacitors total.
20F311. NET **67.23**

TCG 151 Mallobin—Contains 30 capacitors. 15 different values 10μf to 10,000μf with voltages from 10 to 150 volts. Two capacitors of each value are provided in a handy, stackable 15 drawer cabinet.
81F9280. NET **65.35**

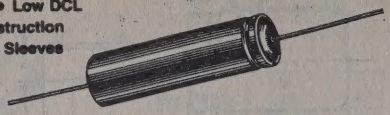
TCX 151 Mallobin—Contains 30 capacitors. 15 different values, from 65μf to 12,000μf. Voltages range from 15 to 75 volts. Two capacitors of each value are provided in a handy, stackable 15 drawer cabinet.
81F9281. NET **75.88**

Miniature Electrolytic Capacitors

MALLORY

TT Miniature Electrolytic Capacitors

- Low ESR
- Low DCL
- All Welded Construction
- Clear Insulating Sleeves



TT miniature tubular aluminum capacitors are made from high purity aluminum foil, deep-etched to provide maximum capacity per unit volume. Etched cathode construction assures long hum-free operation. Utilizes all-welded construction; exhibits exceptionally low DCL and ESR. Supplied in aluminum case with insulating sleeve. Temperature range: −55°C to +85°C (3 through 100 WVDC), −40°C to +85°C on everything else. Tolerance: −10 +75%, 1-100 WVDC; −10 +50%, 100-150 WVDC.

Stock No.	Type	µF	WV DC	Case Size DxL	1-49	50-99	100-249	250-499
55F2735	TT15X10	10	15	¼x⅝	1.17	.70	.47	.41
55F2736	TT15X15	15	15	¼x⅝				
55F2737	TT15X20	20	15	¼x⅝				
55F2738	TT15X25	25	15	¼x⅝				
55F2740	TT15X35	35	15	¼x⅝	1.17	.70	.47	.41
55F2741	TT15X40	40	15	¼x⅝				
55F2742	TT15X50	50	15	¼x⅝				
55F2743	TT15X75	75	15	¼x¾	1.19	.71	.47	.42
55F2744	TT15X100	100	15	5/16x1 1/16	1.02	.61	.41	.36
55F2745	TT15X150	150	15	⅜x¾	1.10	.66	.44	.38
55F2746	TT15X200	200	15	⅜x¾	1.10	.66	.44	.38
55F2747	TT15X260	260	15	⅜x⅞	1.11	.66	.44	.39
55F2748	TT15X350	350	15	⅜x1⅜	1.22	.73	.49	.43
55F2749	TT15X400	400	15	7/16x1	1.25	.75	.50	.44
55F2750	TT15X500	500	15	⅜x1⅜	1.17	.70	.47	.41
55F2752	TT15X800	800	15	7/16x1⅜	1.31	.79	.52	.46
55F2753	TT15X1000	1000	15	½x1¼	1.40	.84	.56	.49
55F2754	TT15X1500	1500	15	⅝x1⅛	1.70	1.02	.68	.59
55F2755	TT25X1	1	25	¼x⅝	1.17	.70	.47	.41
55F2756	TT25X2	2	25	¼x⅝	1.17	.70	.47	.41
55F2757	TT25X3	3	25	¼x⅝	1.17	.70	.47	.41
55F2759	TT25X5	5	25	¼x⅝	1.17	.70	.47	.41
55F2761	TT25X8	8	25	¼x⅝				
55F2762	TT25X10	10	25	¼x⅝				
55F2763	TT25X15	15	25	¼x⅝	1.17	.70	.47	.41
55F2764	TT25X20	20	25	¼x⅝	1.17	.70	.46	.41
55F2765	TT25X25	25	25	¼x⅝	1.17	.70	.47	.41
55F2766	TT25X30	30	25	¼x⅝	1.19	.71	.47	.42
55F2767	TT25X35	35	25	¼x¾	1.19	.71	.47	.42
55F2768	TT25X50	50	25	5/16x1 1/16	1.02	.61	.41	.36
55F2769	TT25X75	75	25	⅜x¾	1.10	.66	.44	.38
55F2770	TT25X100	100	25	⅜x¾	1.10	.66	.44	.38
55F2771	TT25X150	150	25	⅜x1	1.12	.67	.45	.39
55F2772	TT25X200	200	25	⅜x1⅛	1.17	.70	.47	.41
55F2773	TT25X300	300	25	½x1⅛	1.35	.81	.54	.47
55F2774	TT25X400	400	25	7/16x1⅜	1.31	.79	.52	.46
55F2775	TT25X500	500	25	½x1⅜	1.45	.87	.58	.51
55F2776	TT25X600	600	25	½x1⅜	1.45	.87	.58	.51
55F2778	TT50X1	1	50	¼x⅝	1.17	.70	.47	.41
55F2779	TT50X2	2	50	¼x⅝				
55F2780	TT50X3	3	50	¼x⅝				
55F2781	TT50X4	4	50	¼x⅝				
55F2782	TT50X5	5	50	¼x⅝				
55F2783	TT50X6	6	50	¼x⅝	1.17	.70	.47	.41
55F2784	TT50X8	8	50	¼x⅝	1.17	.70	.47	.41
55F2785	TT50X10	10	50	¼x⅝	1.17	.70	.47	.41
55F2786	TT50X15	15	50	5/16x⅝	1.01	.61	.40	.35
55F2787	TT50X20	20	50	5/16x⅝	1.02	.61	.41	.36
55F2788	TT50X25	25	50	5/16x1 1/16	1.02	.61	.41	.36
55F2789	TT50X35	35	50	⅜x¾	1.10	.66	.44	.38
55F2790	TT50X50	50	50	⅜x¾	1.10	.66	.44	.38
55F2791	TT50X75	75	50	⅜x1	1.12	.67	.45	.39
55F2792	TT50X100	100	50	⅜x1⅛	1.17	.70	.47	.41
55F2793	TT50X150	150	50	7/16x1⅛	1.31	.78	.52	.46
55F2794	TT50X200	200	50	½x1⅛	1.35	.81	.54	.47
55F2795	TT50X250	250	50	½x1⅜	1.45	.87	.58	.51
55F2796	TT50X300	300	50	7/16x2	1.50	.90	.60	.53
55F2797	TT50X350	350	50	⅝x1⅜	1.70	1.02	.68	.59
55F2798	TT50X400	400	50	⅝x1¼	1.80	1.08	.72	.63
55F2799	TT50X450	450	50	⅝x1⅜	1.97	1.18	.79	.69

TC151A Mallobin. Assorted axial leaded aluminum electrolytic capacitors with voltages to 600WVDC. Values from 1µF to 5,000µF.
81F9282 Net 36.67

TT151A Mallobin—Contains 30 TT capacitors. 15 different values with voltages ranging from 15 to 50 volts. Two capacitors of each value are provided in a handy 15 drawer cabinet which is stackable.
60F2295. Net 31.27

TC METAL TUBULAR CAPACITORS

- Tolerances from −10% to +100%
- Rated Up to 85°C.

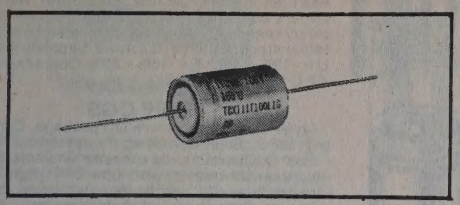
TC Electrolytic with Mylar Sleeve. Single section capacitor with clear mylar insulating sleeve. Sizes shown are for base can, without sleeve. More capacitance and voltage in a similar sized can. Tolerance: −10%, +100%, 0-350V; −10%, +50%, 351 up. Temperature: −20°C to +85°C.

Stock No.	Type	Mfd.	WV DC	Can Size Dia.xLen.	1-24	25-49	50-99	100-249
14F153	TC1505	500	15	⅜x1⅜	1.44	1.08	.72	.63
14F443	TC1501	1000	15	½x1¼	1.76	1.32	.88	.77
16F1689	TC1520	2000	15	⅝x1⅞	2.16	1.62	1.08	.95
14F363	TC1530	3000	15	⅞x1⅝	2.52	1.89	1.26	1.10
14F364	TC1540	4000	15	⅞x1⅞	1.88	1.41	.94	.82
14F365	TC1550	5000	15	⅞x2⅜	3.24	2.43	1.62	1.42
16F1693	TC25025	250	25	7/16x1	1.64	1.23	.82	.72
16F1694	TC2505C	500	25	½x1⅜	2.12	1.59	1.06	.93
16F1695	TC2510	1000	25	⅝x1⅜	3.44	2.58	1.72	1.51
16F1696	TC2515	1500	25	¾x2⅛	2.96	2.22	1.48	1.30
16F1697	TC2520	2000	25	⅞x1⅞	3.48	2.61	1.74	1.52
14F366	TC2530	3000	25	⅞x2⅝	4.20	3.15	2.10	1.84
14F367	TC2540	4000	25	1x2⅝	3.72	2.79	1.86	1.63
14F368	TC2550	5000	25	1x2⅝	5.32	3.99	2.66	2.33
14F164	TC39B	50	50	⅜x¾	1.08	.81	.54	.47
14F185	TC50025C	250	50	½x1⅜	1.64	1.23	.82	.72
16F1701	TC50050C	500	50	⅝x1½	2.12	1.59	1.06	.93
81F4083	TC50100	1000	50	⅞x2⅝	2.49	2.32	2.01	1.66
81F4084	TC50200	2000	50	1x2⅝	3.78	3.49	3.15	2.52
14F371	TC50300	3000	50	1x3⅝	3.99	3.71	3.33	2.66
14F373	TC75101	100	75	⅝x1⅜	1.92	1.44	.96	.84
14F374	TC75251	250	75	¾x1⅝	2.24	1.68	1.12	.98
14F375	TC75501	500	75	⅞x2⅛	3.12	2.34	1.56	1.37
14F376	TC10101	100	100	¾x1⅜	2.20	1.65	1.10	.96
14F377	TC10151	150	100	¾x1⅝	2.32	1.74	1.16	1.02
14F378	TC10251	250	100	⅞x1⅞	2.92	2.19	1.46	1.28
14F379	TC10501	500	100	1x2⅝	3.80	2.85	1.90	1.66
14F380	TC10102	1000	100	1x3⅞	6.72	5.04	3.36	2.94
14F170	TC45A	20	150	⅜x1⅜	1.28	.96	.64	.56
14F171	TC47	30	150	7/16x1⅜	1.92	1.44	.96	.84
14F172	TC48	40	150	7/16x1¾	1.96	1.47	.98	.86
14F173	TC49	50	150	7/16x2	1.96	1.47	.98	.86
16F1703	TC492	80	150	¾x1⅝	2.28	1.71	1.14	1.00
16F1704	TC493	100	150	¾x1⅝	2.40	1.80	1.20	1.05
81F4085	TC496	200	150	⅞x1⅛	2.92	2.19	1.46	1.28
81F4086	TC56	1	250	½x1⅛	1.88	1.41	.94	.82
26F990	TC50X	5	250	½x1⅛	1.92	1.44	.96	.84
16F1707	TC51	8	250	⅝x1⅛	2.00	1.50	1.00	.88
16F1708	TC52	10	250	⅝x1⅛	2.00	1.50	1.00	.88
14F381	TC53	12	250	⅝x1⅛	2.04	1.53	1.02	.89
14F382	TC54	16	250	⅝x1⅜	2.08	1.56	1.04	.91
16F1709	TC55	20	250	¾x1⅛	2.24	1.68	1.12	.98
14F383	TC57	30	250	¾x1⅜	2.32	1.74	1.16	1.02
14F1710	TC58	40	250	¾x1⅝	2.36	1.77	1.18	1.03
14F1711	TC59	50	250	¾x1⅝	2.48	1.86	1.24	1.09
16F1712	TC1265	100	250	⅞x2⅝	3.04	2.28	1.52	1.33
14F385	TC1267	225	250	1x3⅛	4.24	3.18	2.11	1.86
14F386	TC593	150	800	1x3⅛	3.84	2.88	1.92	1.68
14F388	TC595	2	350	½x1⅛	1.92	1.44	.96	.84
14F389	TC61	8	350	⅝x1⅜	2.08	1.56	1.04	.91
16F1714	TC62	10	350	⅝x1⅜	2.12	1.59	1.06	.93
14F390	TC63	12	350	¾x1⅛	2.24	1.68	1.12	.98
14F024	TC65	20	350	¾x1⅜	2.36	1.77	1.18	1.03
14F392	TC67	40	350	⅞x1⅝	2.64	1.98	1.32	1.16
26F991	TC68	60	350	⅞x2⅛	2.92	2.19	1.46	1.28
67F3000	TC69	100	350	⅞x2⅝	3.56	2.67	1.78	1.56
81F4087	TC6942	1	450	½x1⅛	1.92	1.44	.96	.84
14F394	TC695	2	450	⅝x1⅛	1.96	1.47	.98	.86
67F3001	TC697	4	450	⅝x1⅛	2.04	1.53	1.02	.89
14F176	TC70	5	450	¾x1⅛	2.20	1.65	1.10	.96
14F177	TC71	8	450	¾x1⅛	2.28	1.71	1.14	1.00
14F178	TC72	10	450	⅞x1⅜	2.36	1.77	1.18	1.03
14F395	TC73	12	450	⅞x1⅜	2.40	1.80	1.20	1.05
14F396	TC74	16	450	¾x1⅝	2.44	1.83	1.22	1.07
14F180	TC75	20	450	⅞x1⅝	2.56	1.92	1.28	1.12
14F397	TC77	30	450	1x1⅝	3.84	2.13	1.42	1.24
14F182	TC78	40	450	1x2⅛	3.08	2.31	1.54	1.35
14F183	TC79	50	450	1x2⅛	3.28	2.46	1.64	1.44
67F3002	TC795	60	450	1x2⅝	3.64	2.73	1.82	1.59
14F184	TC80	80	450	1x3⅛	4.08	3.06	2.04	1.79
67F3003	TC807	100	450	1x2⅝	1.64	1.23	.82	.72
14F398	TC805	100	450	1⅜x2 13/16	4.92	3.69	2.46	2.15
14F399	TC808	160	450	1⅜x3⅞	6.72	5.04	3.36	2.94

Electrolytic Capacitors

MALLORY

TCX HIGH PERFORMANCE COMPUTER GRADE +105°C



The TCX capacitor is a tubular, axial lead, aluminum electrolytic capacitor. Designed to assure optimum CV product along with outstanding DC leakage current, low ESR, low impedance and temperature stability, very high ripple current capability. A pressure safety vent is formed into the capacitor walla. Reverse voltage should not exceed 1.5 volts. Tolerance: 3–75 WVDC, −10% +75%. Range −55°C to +105°C. Storage: −75°C to +125°C, up to 200,000 feet altitude. Leads are 2½" tinned copper wire, #20 AWG for case diameters of ½" and ⅝", #18 AWG for ¾" and up. Dimensions are inches, diameter by length. Supplied with Mylar® insulated sleeve.

Stock No.	Type TCX	uF	WV DC	Case Size	1-24	25-49	50-99	100-499
17F1908	162U006G1G	1600	6	⅞x1⅜	3.65	2.77	1.84	1.39
17F1911	482U006L1L	4800	6	⅞x1⅝	0.00	0.00	0.00	0.00
17F1917	102U015J1C	1000	15	¾x1⅛	3.94	2.99	1.98	1.50
17F1919	212U015J1L	2100	15	¾x1⅝	4.08	3.10	2.06	1.56
17F1922	462U015L2C	4600	15	⅞x2⅛	4.66	3.54	2.35	1.78
17F1924	822U015N2L	8200	15	1x2⅝	5.47	4.16	2.76	2.09
17F1925	123U015N3L	12000	15	1x3⅝	6.82	5.18	3.44	2.60
17F1926	561U025E2C	560	25	½x2⅛	3.84	2.92	1.94	1.46
17F1927	951U025J1G	950	25	¾x1⅜	4.03	3.07	2.03	1.54
17F1928	122U025N1C	1200	25	1x1⅛	4.46	3.40	2.25	1.70
17F1929	182U025L1L	1800	25	⅞x1⅝	4.42	3.36	2.23	1.68
17F1930	242U025N1L	2400	25	1x1⅝	4.94	3.76	2.49	1.89
17F1931	372U025L2L	3700	25	⅞x2⅝	5.23	3.98	2.64	2.00
17F1932	722U025N3L	7200	25	1x3⅝	6.82	5.18	3.44	2.60
17F1934	471U030J1C	470	30	¾x1⅛	3.94	2.99	1.98	1.50
17F1937	272U030L2L	2700	30	⅞x2⅝	5.23	3.98	2.64	2.00
17F1939	361U040J1C	360	40	¾x1⅛	3.94	2.99	1.98	1.50
17F1941	102U040L1L	1000	40	⅞x1⅝	4.42	3.36	2.23	1.68
17F1943	212U040L2L	2100	40	⅞x2⅝	5.23	3.98	2.64	2.00
17F1944	422U040N3L	4200	40	1x3⅝	6.82	5.18	3.44	2.60
17F1945	111U050E1G	110	50	½x1⅜	3.50	2.67	1.77	1.34
17F1946	251U050G1G	250	50	⅝x1⅜	3.65	2.77	1.84	1.39
17F1947	371U050N1G	370	50	¾x1⅜	4.75	3.61	2.40	1.81
17F1948	501U050G2C	500	50	⅝x2⅛	3.98	3.03	2.01	1.52
17F1950	951U050N1L	950	50	1x1⅝	4.94	3.76	2.49	1.89
17F1952	192U050N2L	1900	50	1x2⅝	5.47	4.16	2.76	2.09
17F1953	282U050N3L	2800	50	1x3⅝	6.82	5.18	3.44	2.60
17F1954	650U075G1C	65	75	⅝x1⅛	3.55	2.70	1.79	1.35
17F1959	371U075J2L	370	75	¾x2⅝	4.75	3.61	2.40	1.81
17F1960	561U075L2L	560	75	⅞x2⅝	5.23	3.98	2.64	2.00
17F1961	741U075N2L	740	75	1x2⅝	5.47	4.16	2.76	2.09
17F1969	311T100L2L	310	100	⅞x2⅝	5.23	3.98	2.64	2.00
81F4098	302U030L3C	3000	30	⅞x3⅛	5.47	4.16	2.76	2.09
81F4099	111T100L1G	110	100	⅞x1⅜	4.22	3.21	2.13	1.61
81F4100	521T100N3C	520	100	1x3⅛	6.00	4.56	3.03	2.29
81F4101	270T150G1C	27	150	⅝x1⅛	3.55	2.70	1.79	1.35
81F4102	850T150J1L	85	150	¾x1⅝	4.08	3.10	2.06	1.56

TCG TUBULAR COMPUTER GRADE

Small tubular version of the Mallory type CG electrolytic capacitor. Meets present demands for high quality performance and high C/V product. Features can wall safety vent, wide variety of container sizes, PVC insulating sleeve, low ESR and long life, all welded construction. Temperature range: −40° to+85°C. Tolerance: 10 to 50 WVDC types, −10% +75%; 150 to 450 WVDC types, −10% +50%.

Stock No.	Type TCG	uF	WV DC	Case Size	1-24	25-49	50-99	100-499
67F3004	102U010D1G	1000	10	7/16x1⅜	1.06	.86	.62	.50
67F3005	252U010L1C	2500	10	⅞x1⅛	2.29	1.86	1.34	1.07
67F3006	502U010N1G	5000	10	1x1⅝	2.64	2.14	1.55	1.24
67F3008	103U010L3C	10000	10	⅞x3⅛	3.33	2.71	1.95	1.56
67F3009	122U015D2A	1200	15	7/16x2	1.14	.92	.67	.53
67F3011	292U015G2L	2900	15	⅝x2⅝	2.56	2.07	1.50	1.20
67F3012	402U015N1L	4000	15	1x1⅝	2.76	2.24	1.61	1.29
67F3013	632U015L2L	6300	15	⅞x2⅝	3.01	2.44	1.76	1.41
67F3014	822U015N2L	8200	15	1x2⅝	3.25	2.63	1.90	1.52
67F3015	103U015N2L	10000	15	1x2⅝	3.42	2.77	2.00	1.60
67F3016	121U025D0N	120	25	7/16x¾	1.08	.88	.64	.51
67F3017	231U025D1A	230	25	7/16x1	1.22	.99	.72	.57
67F3018	501U025D1N	500	25	7/16x1¾	1.33	1.08	.78	.62
67F3019	102U025N1C	1000	25	1x1⅛	2.44	1.98	1.43	1.15
67F3020	222U025J2L	2200	25	¾x2⅝	2.85	2.31	1.67	1.34
67F3021	402U025L3C	4000	25	⅞x3⅛	3.34	2.71	1.95	1.57
67F3025	151U030D1A	150	30	7/16x1	1.22	.99	.72	.57
67F3026	251U030D1G	250	30	7/16x1⅜	1.31	1.06	.77	.61
67F3027	501U030J1C	500	30	¾x1⅛	2.16	1.75	1.27	1.01
67F3028	112U030L1G	1100	30	⅞x1⅜	2.39	1.94	1.40	1.12
67F3029	242U030L2L	2400	30	⅞x2⅝	3.10	2.52	1.82	1.46
67F3030	302U030L3C	3000	30	⅞x3⅛	3.33	2.71	1.95	1.56
67F3031	500U050C0S	50	50	3/8x15/16	1.14	.92	.67	.53
67F3032	101U050E1G	100	50	½x1⅜	1.94	1.57	1.14	.91
67F3033	151U050D1G	150	50	7/16x1⅜	1.31	1.06	.77	.61
67F3034	251U050G1G	250	50	⅝x1⅜	2.01	1.63	1.18	.94
67F3036	501U050N1C	500	50	1x1⅛	2.39	1.94	1.40	1.12
67F3037	601U050L1G	600	50	⅛x1⅜	2.40	1.95	1.41	1.13
67F3038	112U050N2C	1100	50	1x2⅛	3.03	2.46	1.78	1.42
67F3039	122U050L2C	1200	50	⅞x2⅛	2.78	2.26	1.63	1.30
67F3040	232U050N2L	2300	50	1x2⅝	3.49	2.83	2.04	1.64
67F3041	252U050N3C	2500	50	1x3⅛	3.63	2.95	2.13	1.70
67F3045	500T150D1N	50	150	7/16x1¾	1.39	1.13	.82	.65
67F3046	101T150J1L	100	150	¾x1⅝	2.57	2.09	1.51	1.21
67F3047	251T150L2C	250	150	⅞x2⅛	3.19	2.59	1.87	1.50
67F3048	561T150N3C	560	150	1x3⅛	4.10	3.33	2.40	1.93
67F3049	101T250L2C	100	250	⅞x2⅛	3.19	2.59	1.87	1.50
67F3050	201T250N2L	200	250	1x2⅝	3.68	2.99	2.16	1.73
67F3057	200T450G2L	20	450	⅝x2⅝	2.72	2.21	1.60	1.28
67F3058	500T450N2C	50	450	1x2⅛	3.28	2.66	1.92	1.54
81F4088	602U006N1L	6000	6	1x1⅝	2.70	2.19	1.58	1.27
81F4089	412U015N1L	4100	15	1x1⅝	2.79	2.27	1.64	1.31
81F4090	802U015N2L	8000	15	1x2⅝	3.25	2.63	1.90	1.52
81F4091	112U025J1L	1100	25	¾x1⅝	2.27	1.85	1.33	1.07
81F4092	412U025L3C	4100	25	⅞x3⅛	3.37	2.74	1.98	1.58
81F4093	212U030L2L	2100	30	⅞x2⅝	3.01	2.44	1.76	1.41
81F4094	111T150J1L	110	150	¾x1⅝	2.61	2.12	1.53	1.23
81F4095	531T150N3C	530	150	1x3⅛	4.03	3.27	2.36	1.89
81F4096	200T350G1L	20	350	⅝x1⅝	2.54	2.06	1.49	1.19
81F4097	101T350N2C	100	350	1x2⅛	3.28	2.66	1.92	1.54

FP AND WP CAPACITORS

Vertical mounting dry electrolytics for all filter and audio bypass circuits, and TV apps. Includes deep etched anodes & etched cathodes. Hermetically sealed in aluminum cases. Negative can; separate positive term, provided. With mounting washers.

Key	Size	Key	Size	Key	Size	Key	Size
A	1x2½	C	1x1¾	E	1⅜x2	G	1⅜x1¾
B	1x2	D	1⅜x3	F	1⅜x2½	H	1⅜x4

SINGLE SECTION

Stock No.	Type	Mfd.	WV	Size	1-24	25-49	50-99	100-Up
14F243	WP042	3000	15	E	5.79	4.15	3.28	2.39
60F2105	FP042.8	10000	15	D	14.16	10.15	8.02	5.85
14F215	WP059	1000	25	E	4.26	3.05	2.41	1.76
60F2106	FP060.2	2000	25	G	7.20	5.16	4.08	2.98
14F212	WP065	500	50	E	3.87	2.77	2.19	1.60
14F245	WP068	1500	50	E	5.46	3.91	3.09	2.26
60F2110	FP070	2000	50	D	6.87	4.92	3.89	2.84
14F205	FP144	20	450	C	3.06	2.19	1.73	1.27
14F207	FP146	40	450	A	3.39	2.43	1.92	1.40
14F208	FP149	80	450	F	5.13	3.68	2.91	2.12
14F973	FP150	100	450	F	5.55	3.98	3.15	2.29

DUAL SECTION

14F219	FP231	10-10	450-450	C	2.56	1.84	1.47	1.04
14F220	FP234	20-20	450-450	B	2.70	1.93	1.55	1.09
14F223	FP240	50-50	450-450	D	4.35	3.11	2.50	1.75
14F262	FP288	40-40	500-500	F	4.57	3.27	2.62	1.84

TRIPLE SECTION

Stock No.	Type	Mfd.	WV	Size	1-24	25-49	50-99	100-499
14F263	FP311.5	40-40-40	150-150-150	C	3.84	2.75	2.18	1.59
14F275	FP375.8	10-10-10	450-450-450	A	4.14	2.97	2.35	1.71
14F278	FP376.5	20-20-20	450-450-450	E	4.89	3.51	2.77	2.02
14F234	FP377.1	40-40-40	450-450-450	D	6.39	4.58	3.62	2.64

QUADRUPLE SECTION

14F240	FP444	20-20-20-20	450-450-450-450	F	6.33	4.54	3.59	2.62

Note: See Page 187 for TCX and TCG Mallobin Assortment.

PRICES SUBJECT TO CHANGE. SEE PAGE 4.

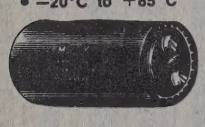
MALLORY

COMPUTER-GRADE ELECTROLYTIC CAPACITORS

Stk. No.	CG-Type	WV Mfd.	DC	DxL in.	1-24	25-49	50-99	100-249
26F631	152U25RC2	1,500	25	125/64x21 1/64	4.00	3.33	2.06	1.73
17F1735	282U25R3C	2,800	25	125/64x31 1/64	5.28	4.40	2.72	2.29
17F1736	452U25U3C	4,500	25	1 3/4x3 1/8	6.67	5.56	3.44	2.89
26F641	63U25V3C	6,000	25	2 1/8x31 1/64	7.80	6.49	4.02	3.37
26F427	852U25V4C	8,500	25	2x4 1/8	8.71	7.25	4.49	3.77
17F1737	1352U25W4C	13,500	25	233/64x41 1/64	13.29	11.06	6.85	5.75
26F431	24U25X4C	20,000	25	3 1/64x41 1/64	18.32	15.26	9.44	7.93
13F3550	323U025W4C	32,000	25	2 1/2x4 1/8	15.47	12.88	7.97	6.70
17F1738	212U35R3C	2,100	35	125/64x31 1/64	5.40	4.50	2.78	2.34
26F630	82U50R2C	800	50	125/64x21 1/64	4.76	3.97	2.45	2.06
17F1743	152U50R3C	1,500	50	125/64x31 1/64	5.28	4.40	2.72	2.29
26F633	23U50R4C	2,000	50	125/64x41 1/64	6.19	5.15	3.19	2.68
17F1744	252U50U3C	2,500	50	149/64x31 1/64	6.82	5.68	3.52	2.95
60F1230	332U50V3C	3,300	50	2 1/64x31 1/64	8.13	6.77	4.19	3.52
26F424	452U50V4C	4,500	50	2 1/64x41 1/64	9.19	7.65	4.74	3.98
17F1745	732U50W4C	7,300	50	233/64x41 1/64	12.83	10.69	6.61	5.55
60F2133	14U50X4C	10,000	50	3 1/64x41 1/64	16.65	13.87	8.58	7.21
26F429	1652U50X5L	16,500	50	3 1/64x543/64	20.44	17.03	10.54	8.85
26F628	62U75R2C	600	75	125/64x21 1/64	4.94	4.12	2.55	2.14
17F1715	13U75R3C	1,000	75	125/64x31 1/64	5.22	4.35	2.69	2.26
26F632	152U75R3C	1,500	75	125/64x21 1/64	5.85	4.88	3.02	2.53
17F1716	23U75U3C	2,000	75	149/64x31 1/64	6.89	5.73	3.55	2.98
26F636	252U75V3C	2,500	75	2 1/64x31 1/64	8.22	6.85	4.24	3.56
26F421	3451U75V4C	3,450	75	2 1/64x31 1/64	9.98	8.31	5.14	4.32
26F643	822U75X4C	8,200	75	3 1/64x41 1/64	16.11	13.41	8.30	6.97
60F2132	1252U75X5L	12,500	75	3 1/64x543/64	26.75	22.88	13.79	11.58
60F2123	42U100R2C	400	100	125/64x21 1/64	5.13	4.27	2.64	2.22
60F2126	13U100R4C	1,000	100	125/64x41 1/64	7.19	5.99	3.70	3.11
26F640	532U100X4C	5,300	100	3 1/64x41 1/64	24.54	20.44	12.65	10.62
13F3551	592U100X4C	5,900	100	3x4 1/8	24.75	20.61	12.75	10.71
26F627	2750U150R2C	275	150	125/64x21 1/64	5.16	4.29	2.66	2.23
17F1721	52U150R3C	500	150	125/64x31 1/64	6.19	5.15	3.19	2.68
26F416	1551U150V4C	1,550	150	2 1/64x41 1/64	11.98	9.98	6.17	5.19
17F1722	252U150W4C	2,500	150	233/64x41 1/64	17.26	14.37	8.89	7.47
26F422	362U150X4C	3,000	150	3 1/64x523/64	24.72	20.59	12.74	10.70
60F2131	562U150X5L	5,600	150	3 1/64x559/64	32.03	26.68	16.51	13.87
60F2125	451T200R4C	450	200	125/64x41 1/64	6.67	5.56	3.44	2.89
26F414	13T200V4C	1,000	200	2 1/64x41 1/64	10.83	9.02	5.58	4.69
26F420	2451T200X4C	2,450	200	3 1/64x41 1/64	21.35	17.78	11.00	9.24
60F2120	141T250R2C	140	250	125/64x21 1/64	5.40	4.50	2.78	2.34
17F1724	2750T250R3C	275	250	125/64x31 1/64	6.13	5.10	3.16	2.65
60F2122	3750T250R4C	375	250	125/64x41 1/64	6.76	5.63	3.49	2.93
26F638	33T250X5L	3,000	250	3 1/64x543/64	29.36	24.45	15.13	12.71
60F2121	12T350R2C	100	350	125/64x21 1/64	5.43	4.52	2.80	2.35
60F2118	251T350R4C	250	350	125/64x41 1/64	7.07	5.89	3.64	3.06
26F411	551T350V4C	550	350	2 1/64x41 1/64	11.68	9.73	6.02	5.06
26F634	23T350X5L	2,000	350	3 1/64x543/64	31.03	25.84	15.99	13.43
26F625	111T450R4C	110	450	125/64x41 1/64	6.34	5.28	3.27	2.74
26F409	241T450V4C	240	450	2 1/64x41 1/64	10.28	8.56	5.30	4.45

TYPE NP NON-POLARIZED
±25% Tol.

• –20°C to +85°C



Plastic case electrolytics for high capacity, low-voltage applications such as dry disc rectifier filters, movie equipment, etc. Two screw terminals. 10 oz. HC types are polarized; NP types are non-polarized.

TYPE NP NON-POLARIZED
±25% Tol.

Stk. No.	Type	Mfd.	WV	Size	1-9	10-24	25-49	50-99
14F136	NP1225A	500	125	1 13/16x4 3/8	13.03	10.86	6.63	5.01
14F134	NP3025	200	300	2 1/16x4 3/8	26.09	21.75	13.27	10.04
14F131	NP4505	50	450	1 13/16x3 3/8	18.59	15.49	9.45	7.15
14F132	NP4510	100	450	2 1/16x4 3/8	26.74	22.29	13.60	10.29

HC CAPACITORS
LO-50V . . . . -10, +150% Tol.; 50-350V . . . . -10, +100% Tol.

Stk. No.	Type	Mfd.	WV DC	Size	1-9	10-24	25-49	50-99
14F108	HC2540A	4000	25	1 13/16x3 3/8	13.03	10.86	6.63	5.01
14F298	HC5040	4000	50	2 1/16x4 3/8	16.03	13.36	8.15	6.17
14F109	HC5005A	500	50	1 7/16x2 3/4	9.54	7.95	4.85	3.67
14F110	HC5010A	1000	50	1 7/16x2 3/4	10.31	8.59	5.24	3.97
14F111	HC5020A	2000	50	1 13/16x3 3/8	12.82	10.69	6.52	4.94
14F997	HC15010	1000	150	2 1/16x4 3/8	20.09	16.75	10.22	7.73
14F112	HC15010A	1000	150	1 13/16x4 3/8	20.17	16.81	10.26	7.76
14F113	HC20005A	500	200	1 13/16x3 3/8	17.13	14.28	8.71	6.59

TYPE CG

Conservatively rated capacitor designed for long operating life (over 10 years in many applications). Features include low leakage current, high ripple current capability, low ESR and pressure sensitive safety vent. PVC insulating sleeve standard 7/32" high terminal posts, use 10-32 screws. Capacity tolerance: U = -10% + 15%; T = -10% + 50%. Operating temp. -40° C to +85° C.

TYPE CGS

Mylar sleeved maximum DC Leakage. Current: @ 25° C, 6ma. Operating Temperature; -40 to +85° C. Operating life exceeds ten years. Pressure sensitive safety vent. Low ESR. High ripple capabilities 7/32" high terminal posts, 10-32 screws. Tolerance: 1-150 working volts DC, -10%. +75%; 200 working volts and up, -10%, +50%. Temperature tolerance and vibration capability same as Type CG Shipping Weight, 3 oz.

15 WORKING VOLTS DC

Stk. No.	CG-Type	Mfd.	Dxl. In.	1-24	25-49	50-99	100-249
60F3669	S552U015BB1	5,500	125/64x21 1/64	4.55	3.79	2.35	1.97
60F3670	S103U015BD1	10,000	125/64x31 1/64	5.25	4.37	2.70	2.27
60F3671	S253U025BF1	15,000	125/64x41 1/64	6.01	5.00	3.10	2.60
17F1793	S233U015DD1	23,000	2 1/64x31 1/64	7.80	6.49	4.02	3.37
60F3672	S343U015DF1	34,000	2 1/64x41 1/64	9.07	7.55	4.67	3.93
60F3673	S503U015D11	50,000	2 1/64x443/64	11.04	9.20	5.69	4.78
60F3674	S803U01FF1	80,000	3 1/64x41 1/64	16.68	13.89	8.60	7.22
60F3675	S104U015FH1	100,000	3 1/64x51 1/64	20.99	17.48	10.82	9.09

25 WORKING VOLTS DC

60F3676	S302U025BB1	3,000	125/64x21 1/64	4.88	4.07	2.52	2.11
60F3677	S562U025BD1	5,600	129/64x31 1/64	5.52	4.60	2.85	2.39
60F3678	S822U025BF1	8,200	125/64x41 1/64	6.10	5.08	3.14	2.64
17F1794	S123U025DD1	12,000	2 1/64x31 1/64	7.64	6.37	3.94	3.31
60F3679	S183U025DF1	18,000	2 1/64x41 1/64	10.19	8.49	5.25	4.41
60F3680	S273U015D11	27,000	2 1/64x543/64	11.89	9.90	6.13	5.15
60F3681	S433U025FF1	43,000	3 1/64x41 1/64	17.53	14.60	9.03	7.59
60F3682	S573U025FH1	57,000	3 1/64x51 1/64	21.53	17.94	11.10	9.32

40 WORKING VOLTS DC

17F1795	S222U040BB1	2,200	125/64x21 1/64	4.88	4.07	2.52	2.11
17F1796	S422U040BD1	4,200	125/64x31 1/64	6.19	5.15	3.19	2.68
17F1797	S622U040BF1	6,200	125/64x41 1/64	6.92	5.76	3.56	2.99
17F1798	S932U040DD1	9,300	2 1/64x31 1/64	8.31	6.92	4.28	3.60
17F1799	S133U040DF1	13,000	2 1/64x41 1/64	10.22	8.51	5.27	4.43
17F1800	S203U040D11	20,000	2 1/64x513/64	12.74	10.61	6.57	5.52
17F1801	S323U040FF1	32,000	3 1/64x41 1/64	17.93	14.93	9.24	7.76
17F1802	S433U040FH1	43,000	3 1/64x51 1/64	25.93	21.60	13.36	11.23
17F1803	S5503U040FJ1	50,000	3 1/64x559/64	26.18	21.80	13.49	11.33

50 WORKING VOLTS DC

60F3683	S162U050BB1	1,600	125/64x21 1/64	4.88	4.07	2.52	2.11
60F3684	S292U050BD1	2,900	125/64x31 1/64	6.16	5.13	3.17	2.67
60F3685	S432U050BF1	4,300	125/64x41 1/64	6.43	5.36	3.31	2.78
60F3686	S652U050DD1	6,500	2 1/64x31 1/64	8.83	7.35	4.55	3.82
60F3687	S962U050DF1	9,600	2 1/64x41 1/64	9.89	8.24	5.10	4.28
60F3688	S143U050D11	14,000	2 1/64x543/64	12.92	10.76	6.66	5.59
60F3690	S303U050FH1	30,000	3 1/64x559/64	23.11	19.25	11.91	10.01

75 WORKING VOLTS DC

60F3691	S821U075BB1	820	125/64x21 1/64	4.76	3.97	2.45	2.06
60F3692	S152U075BD1	1,500	125/64x31 1/64	5.58	4.65	2.88	2.42
60F3693	S232U075BF1	2,300	125/64x41 1/64	6.16	5.13	3.17	2.67
60F3694	S342U075DD1	3,400	2 1/64x31 1/64	8.64	7.20	4.46	3.74
60F3695	S502U075DF1	5,000	2 1/64x41 1/64	11.74	9.78	6.05	5.08
60F3696	S752U075D11	7,500	2 1/64x543/64	13.41	11.17	6.91	5.80
60F3697	S123U075FF1	12,000	3 1/64x41 1/64	22.48	18.72	11.58	9.73

100 WORKING VOLTS DC

60F3700	S122U100BD1	1,200	125/64x31 1/64	6.79	5.66	3.50	2.94
13F3553	S182U100BF1	1,800	125/64x41 1/64	12.25	10.21	6.32	5.31
60F3703	S402U100DF1	4,000	2 1/64x41 1/64	7.40	6.16	3.81	3.20

150 WORKING VOLTS DC

60F3707	S401U150BB1	400	125/64x21 1/64	5.22	4.35	2.69	2.26
60F3708	S112U150BF1	1,100	125/64x41 1/64	8.04	6.69	4.14	3.48
60F3711	S352U150DD1	3,500	2 1/64x543/64	17.44	14.53	8.99	7.55
13F3554	S872U150FJ1	8,700	3 1/64x41 1/64	41.55	34.61	21.41	17.99

250 WORKING VOLTS DC

60F3714	S201T250BB1	200	125/64x21 1/64	5.04	4.19	2.60	2.18
60F3715	S381T250BD1	380	125/64x31 1/64	6.73	5.61	3.47	2.92
60F3716	S551T250BF1	550	125/64x41 1/64	7.37	6.14	3.80	3.19
60F3717	S851T250DD1	850	2 1/64x31 1/64	9.80	8.16	5.05	4.24
60F3718	S122T250DF1	1,200	2 1/64x41 1/64	12.13	10.10	6.25	5.25
60F3721	S392T250FH1	3,900	3 1/64x51 1/64	31.70	26.40	16.33	13.72

450 WORKING VOLTS DC

60F3722	S750T450BB1	75	125/64x21 1/64	5.19	4.32	2.67	2.25
60F3723	S141T450BD1	140	125/64x31 1/64	6.43	5.36	3.31	2.78
60F3724	S321T450DD1	320	2 1/64x31 1/64	10.25	8.54	5.28	4.44
13F3555	S152T450FH1	1,500	3 1/64x51 1/64	34.85	29.02	17.96	15.09

6

Computer-Grade Capacitors

MALLORY

CGR COMPUTER GRADE CAPACITORS

Low ESR, high ripple current power supply filtering capacitor in aluminum can. Low DC leakage current plus high ripple current capability over broad temperature and frequency ranges. Has been successfully utilized as an output capacitor in some high frequency switching regulator power supplies. Ripple capability up to 35.9 amperes at 20kHz at +85°C. Oper. Temp.: −55°C to +85°C. Tolerance: −10% +75%. For Price Quotes on Larger Quantities Contact Newark.

Stk. No.	Type	Cap.	Size	V	1-24	25-49	50-99
13F3672	CGR802U7R5R2C	8,000	1⅜ x 1¼	7.5	11.25	9.38	5.86
13F3673	CGR343U7R5U3C	34,000	1¼ x 3½	7.5	13.41	11.18	6.99
13F3675	CGR473U7R5V3C	47,000	2 x 3½	7.5	18.81	15.68	9.80
13F3678	CGR993U7R5V5L	99,000	2 x 5⅝	7.5	6.66	5.55	3.47
81F4121	CGR883U7R5V5C	88,000	2 x 5½	7.5	17.10	14.25	8.91
81F4122	CGR123U7R5R2C	12,000	1⅜ x 2⅛	7.5	6.72	5.60	3.50
81F4123	CGR323U7R5R4C	32,000	1⅜ x 4⅛	7.5	9.57	7.98	4.99
13F3682	CGR572U012R1N	5,700	1⅛ x 1¾	12	11.04	9.20	5.75
13F3683	CGR183U012V2C	18,000	2 x 2⅛	12	6.72	5.60	3.50
81F4124	CGR233U012R4C	23,000	1⅜ x 4⅛	12	9.78	8.15	5.10
13F3690	CGR772U016R2C	7,700	1⅜ x 2⅛	16	10.95	9.13	5.71
13F3691	CGR163U016U2L	16,000	1¾ x 2⅝	16	9.78	8.15	5.10
13F3692	CGR203U016R4C	20,000	1⅜ x 4⅛	16	13.41	11.18	6.99
13F3693	CGR303U016V3C	30,000	2 x 3½	16	16.35	13.63	8.52
13F3694	CGR423U016V4C	42,000	2 x 4⅛	16	16.92	14.10	8.82
13F3695	CGR463U016U5L	46,000	1¾ x 5⅝	16	20.43	17.03	10.64
13F3696	CGR513U016W3C	51,000	2½ x 3½	16	38.76	32.30	20.19
13F3697	CGR104U016W5L	100,000	2½ x 5⅝	16	46.65	38.88	24.31
13F3698	CGR144U016X5L	140,000	3 x 5⅝	16	00.00	00.00	00.00
81F4125	CGR843U016W4L	84,000	2½ x 1⅝	16	33.90	28.25	17.66
81F4126	CGR143U016R3C	14,000	1⅜ x 3⅛	16	9.48	7.90	4.94
81F4127	CGR113U016R2L	11,000	1⅜ x 2⅝	16	7.41	6.18	3.86
81F4130	CGR462U020R2C	4,600	1⅜ x 2⅛	20	6.66	5.55	3.47
13F3700	CGR103U020R3L	10,000	1⅜ x 3⅝	20	9.48	7.90	4.94
13F3701	CGR133U020V2L	13,000	2 x 2⅝	20	11.16	9.30	5.81
13F3703	CGR303U020W3C	30,000	2½ x 3½	20	18.78	15.65	9.78
13F3706	CGR633U020W5L	63,000	2½ x 5⅝	20	30.06	25.05	15.66
13F3707	CGR883U020X5L	88,000	3 x 5⅝	20	42.42	35.35	22.10
81F4131	CGR153U030V3L	15,000	2 x 3⅝	30	13.41	11.18	6.99
13F3708	CGR222U030R1N	2,200	1⅜ x 1¾	30	6.12	5.10	3.19
13F3709	CGR103U030R4L	10,000	1⅜ x 4⅝	30	10.95	9.13	5.71
13F3710	CGR123U030V3C	12,000	2 x 3⅛	30	12.39	10.33	6.46
13F3711	CGR273U030V51	27,000	2 x 5⅝	30	19.20	16.00	10.00
13F3712	CGR303U030W4C	30,000	2½ x 4⅛	30	22.59	18.83	11.77
13F3714	CGR463U030W5L	46,000	2½ x 5⅝	30	29.40	24.50	15.32
13F3715	CGR633U030X5L	63,000	3 x 5⅝	30	46.65	38.88	24.31
13F3717	CGR742U040R5C	7,400	1⅜ x 5⅛	30	10.50	8.75	5.47
13F3716	CGR142U040R1N	1,400	1⅜ x 1¾	40	6.06	5.05	3.16
81F4132	CGR212U040R2C	2,100	1⅜ x 2⅛	40	6.36	5.30	3.31
81F4133	CGR392U040R3C	3,900	1⅜ x 3⅛	40	7.41	6.18	3.86
13F3718	CGR962U040V3L	9,600	2 x 3⅝	40	12.51	10.43	6.52
13F3723	CGR403U040X5L	40,000	3 x 5⅝	40	38.37	31.98	19.99
13F3720	CGR223U040W4L	22,000	2½ x 4⅝	40	21.24	17.70	11.07
13F3719	CGR173U040V5L	17,000	2 x 5⅝	40	16.32	13.60	8.50
81F4134	CGR562U040R4C	5,600	1⅜ x 4	40	8.85	7.38	4.61
13F3724	CGR102U050R1N	1,000	1⅜ x 1¾	50	5.91	4.93	3.08
13F3725	CGR622U050R5L	6,200	1⅜ x 5⅝	50	10.80	9.00	5.63
13F3726	CGR762U050V3C	7,600	2 x 3⅛	50	13.05	10.88	6.80
13F3727	CGR163U050V5L	16,000	2 x 5⅝	50	17.43	14.53	9.08
13F3728	CGR213U050W4L	21,000	2½ x 4⅝	50	23.04	19.20	12.00
13F3729	CGR273U050W5L	27,000	2½ x 5⅝	50	27.90	23.25	14.54
81F4135	CGR152U050R2C	1,500	1⅜ x 2⅛	50	6.36	5.30	3.31
81F4136	CGR103U050V4C	10,000	2 x 4⅛	50	14.22	11.85	7.41
81F4137	CGR373U050X5L	37,000	3 x 5⅝	50	41.10	34.25	21.41
81F4138	CGR122T075R2L	1,200	1⅜ x 2⅝	75	7.92	6.60	4.13
81F4139	CGR262T075R4L	2,600	1⅜ x 4⅝	75	12.03	10.03	6.27
81F4140	CGR472T075V3L	47,000	2 x 3⅝	7.5	14.46	12.05	7.53
81F4141	CGR113T075X3L	11,000	3 x 3⅝	75	38.37	31.98	19.99
81F4142	CGR153T075X4L	15,000	3 x 4⅝	75	46.65	38.88	24.31
81F4143	CGR551T075R1N	550	1⅜ x 1¾	75	6.66	5.55	3.47
81F4128	CGR452T100W4L	4,500	2½ x 4⅝	100	30.06	25.05	15.66
81F4129	CGR122T100V2L	1,200	2 x 2⅝	100	12.39	10.33	6.46

VPR ALUMINUM ELECTROLYTIC CAPACITORS

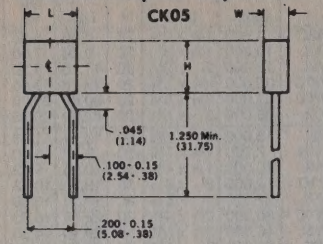
Designed for use in high frequency switching regulators where low impedance and inductance is required. Low ESR and excellent μF stability allows VPR to handle high ripple current at high frequency and make VPR an ideal by pass and coupling capacitor in EDP equipment. Oper. Temp.: −55°C to +105°C. Tol.: −10% +75%. For Price Quotes on Larger Quantities Contact Newark

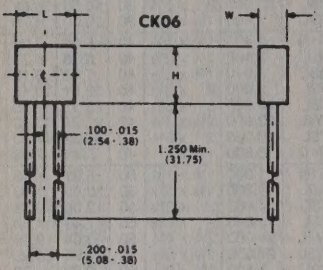
Stock No.	Type	MFD	V	Size (In.)	1-24	25-49	50-99
13F3730	VPR881U6R3E1A	880	6.3	½ x 1	2.00	1.20	1.00
13F3731	VPR132U6R3E1E	1,300	6.3	½ x 1¼	2.05	1.23	1.03
13F3732	VPR292U6R3J1L	2,900	6.3	¾ x 1⅝	5.50	3.30	2.75
13F3733	VPR412U6R3L1L	4,100	6.3	⅞ x 1⅝	6.10	3.66	3.05
13F3734	VPR562U6R3N1L	5,600	6.3	1 x 1⅝	6.95	4.17	3.48
13F3736	VPR103U6R3L3C	10,000	6.3	⅞ x 3⅛	7.45	4.47	3.73
13F3737	VPR183U6R3N3L	18,000	6.3	1 x 3⅝	8.80	5.28	4.40
81F4104	VPR572U6R3J2L	5,700	6.3	¾ x2⅝	6.20	3.72	3.10
13F3738	VPR781U7R5E1A	780	7.5	½ x 1	2.00	1.20	1.00
13F3739	VPR172U7R5E1L	1,700	7.5	½ x 1⅝	2.15	1.29	1.08
13F3740	VPR262U7R5J1L	2,600	7.5	¾ x 1⅝	5.50	3.30	2.75
13F3741	VPR372U7R5L1L	3,700	7.5	⅞ x 1⅝	6.10	3.66	3.05
13F3742	VPR492U7R5N1L	4,900	7.5	1 x 1⅝	6.95	4.17	3.48
13F3745	VPR163U7R5N3L	16,000	7.5	1 x 3⅝	8.80	5.28	4.40
81F4105	VPR782U7R5N2C	7,800	7.5	1 x 2⅛	7.45	4.47	3.73
13F3747	VPR142U010E1L	1,400	10	½ x 1⅝	2.15	1.29	1.08
13F3748	VPR212U010J1L	2,100	10	¾ x 1⅝	5.50	3.30	2.75
13F3749	VPR312U010L1L	3,100	10	⅞ x 1⅝	6.10	3.66	3.05
13F3750	VPR422U010N1L	4,200	10	1 x 1⅝	6.95	4.17	3.48
13F3746	VPR661U010E1A	600	10	½ x 1	2.00	1.20	1.00
81F4106	VPR991U010E1E	990	10	½ x 1¼	2.05	1.23	1.03
13F3754	VPR561U012E1A	560	12	½ x 1	2.00	1.20	1.00
13F3755	VPR122U012E1L	1,200	12	½ x 1⅝	2.15	1.29	1.08
13F3756	VPR152U012L1C	1,500	12	⅞ x 1⅛	5.60	3.36	2.80
13F3757	VPR182U012J1L	1,800	12	¾ x 1⅝	5.50	3.30	2.75
13F3758	VPR362U012N1L	3,600	12	¾ x 2⅝	6.95	4.17	3.48
81F4107	VPR562U012N2C	5,600	12	1 x 2⅛	7.45	4.47	3.73
13F3762	VPR501U016E1A	500	16	½ x 1	2.00	1.20	1.00
13F3763	VPR162U016J1L	1,600	16	¼ x 1⅝	5.50	3.30	2.75
13F3764	VPR232U016L1L	2,300	16	⅞ x 1⅝	6.10	3.66	3.05
13F3767	VPR622U016L3C	6,200	16	⅞ x 3⅛	7.45	4.47	3.73
13F3768	VPR103U016N3L	10,000	16	1 x 3⅝	8.80	5.28	4.40
81F4108	VPR502U016N2C	5,000	16	1 x 2⅛	7.45	4.47	3.73
13F3769	VPR641U026E1L	640	25	½ x 1⅝	2.15	1.29	1.08
13F3770	VPR941U025J1L	940	25	¾ x 1⅝	5.50	3.30	2.75
13F3771	VPR132U025L1L	1,300	25	⅞ x 1⅝	6.10	3.66	3.05
13F3772	VPR182U025N1L	1,800	25	¾ x 2⅝	6.95	4.17	3.48
13F3773	VPR232U025J3C	2,300	25	¾ x 2⅛	6.35	3.81	3.18
13F3775	VPR592U025N3L	5,900	25	1 x 3⅝	8.80	5.28	4.40
81F4109	VPR142U025J2C	1,400	25	¾ x 2⅛	5.80	3.48	2.90
81F4112	VPR492U025N3C	4,900	25	1 x 3⅛	8.40	5.04	4.20
81F4110	VPR282U025N2C	2,800	25	1 x 2⅛	7.45	4.47	3.73
81F4111	VPR392U025N2L	3,900	25	1 x 2⅝	8.00	4.80	4.00
13F3776	VPR161U040E1A	160	40	½ x 1	2.00	1.20	1.00
13F3777	VPR361U040E1L	360	40	½ x 1⅝	2.15	1.29	1.08
13F3778	VPR541U040J1L	540	40	¾ x 1⅝	5.50	3.30	2.75
13F3779	VPR761U040L1L	760	40	⅞ x 1⅝	6.10	3.66	3.05
13F3780	VPR102U040N1L	1,000	40	1 x 1⅝	6.95	4.17	3.48
13F3781	VPR132U040J3C	1,300	40	¾ x 3⅛	6.35	3.81	3.18
13F3782	VPR202U040L3C	2,000	40	⅞ x 3⅛	7.45	4.47	3.73
13F3783	VPR332U040N3L	3,300	40	1 x 3⅝	8.80	5.28	4.40
81F4115	VPR162U040N2C	1,600	40	1 x 2⅛	7.45	4.47	3.73
81F4114	VPR122U040L2C	1,200	40	⅞ x 2⅛	6.50	3.90	3.25
81F4113	VPR241U040E1E	240	40	½ x 1¼	2.05	1.23	1.03
81F4116	VPR222U040N2L	2,200	40	1 x 2⅝	8.00	4.80	4.00
13F3784	VPR111U050E1A	110	50	½ x 1	2.00	1.20	1.00
13F3785	VPR251U050E1L	250	50	½ x 1⅝	2.15	1.29	1.08
13F3786	VPR421U050J1L	420	50	¾ x 1⅝	5.50	3.30	2.75
13F3787	VPR601U050L1L	600	50	⅞ x 1⅝	6.10	3.66	3.05
13F3791	VPR242U050N3L	2,400	50	1 x 3⅝	8.80	5.28	4.40
81F4117	VPR202U050N3C	2,000	50	1 x 3⅛	8.40	5.04	4.20
13F3792	VPR620U075E1A	62	75	½ x 1	2.00	1.20	1.00
13F3793	VPR141U075E1L	140	75	½ x 1⅝	2.15	1.29	1.08
13F3794	VPR231U075J2L	230	75	¾ x 1⅝	6.20	3.72	3.10
13F3796	VPR451U075N1L	450	75	1 x 1⅝	6.95	4.17	3.48
13F3798	VPR811U075L3C	810	75	⅞ x 3⅛	7.45	4.47	3.73
13F3799	VPR132U075N3L	1,300	75	1 x 3⅝	8.80	5.28	4.40
81F4119	VPR501U075L2C	500	75	⅞ x 2⅛	6.50	3.90	3.25
81F4120	VPR681U075N2C	680	75	1 x 2⅛	7.45	4.47	3.73
81F4118	VPR930U075E1E	93	75	½ x 1¼	2.05	1.23	1.03
81F4103	VPR520U100E1E	52	100	½ • 1¼	2.05	1.23	1.03
13F3800	VPR340U100E1A	34	100	½ x 1	2.00	1.20	1.00
13F3802	VPR131U100J1L	130	100	¾ x 1⅝	5.50	3.30	2.75
13F3803	VPR181U100L1L	180	100	⅞ x 1⅝	6.10	3.66	3.05
13F3804	VPR251U100N1L	250	100	1 x 1⅝	6.95	4.17	3.48
13F3807	VPR631U100N3C	630	100	1 x 3⅛	8.40	5.04	4.20

6

Ceramic Capacitors

CK05-CK06 SERIES
General Purpose Capacitors





CK05

Dimension		Inches	MM
Case Height	H	.190 ±.010	4.83 ±.25
Case Length	L	.190 ±.010	4.83 ±.25
Case Width	W	.090 ±.010	2.29 ±.25
Lead Wire Dia.	D	.025 +.004 −.001	.64 +.10 −.03

CK06

Dimension		Inches	MM
Case Height	H	.290 ±.010	7.37 ±.25
Case Length	L	.290 ±.010	7.37 ±.25
Case Width	W	.090 ±.010	2.29 ±.25
Lead Wire Dia.	D	.025 +.004 −.001	.64 +.10 −.03

50 Volts

Stk. No.	CKO Series Mil. No.	pF	Price Code
65F640	CKO5BX123K	12K	D
65F641	CKO5BX153K	15K	D
65F642	CKO5BX183K	18K	D
65F643	CKO5BX223K	22K	D
65F644	CKO5BX273K	27K	D
65F645	CKO5BX333K	33K	E
65F646	CKO5BX393K	39K	E
65F647	CKO5BX473K	47K	E
65F648	CKO5BX563K	56K	F
65F649	CKO5BX683K	68K	F
65F650	CKO5BX823K	82K	G
65F651	CKO5BX104K	100K	G
65F676	CKO6BX124K	120K	M
65F677	CKO6BX154K	150K	M
65F678	CKO6BX184K	180K	N
65F679	CKO6BX224K	220K	N
65F680	CKO6BX274K	270K	O
65F681	CKO6BX334K	330K	O
65F682	CKO6BX394K	390K	P
65F683	CKO6BX474K	470K	P
65F684	CKO6BX564K	560K	Q
65F685	CKO6BX684K	680K	Q
65F686	CKO6BX824K	820K	R
65F687	CKO6BX105K	1M	R

100 Volts

Stk. No.	Mil. No. CKO-	pF	Pr Cd
65F628	CKO5BX122K	1.2K	B
65F629	CKO5BX152K	1.5K	B
65F630	CKO5BX182K	1.8K	B
65F631	CKO5BX222K	2.2K	B
65F632	CKO5BX272K	2.7K	B
65F633	CKO5BX332K	3.3K	B
65F634	CKO5BX392K	3.9K	B
65F635	CKO5BX472K	4.7K	B
65F636	CKO5BX562K	5.6K	B
65F637	CKO5BX682K	6.8K	C
65F638	CKO5BX822K	8.2K	C
65F639	CKO5BX103K	10K	C
65F664	CKO6BX123K	12K	I
65F665	CKO6BX153K	15K	I
65F666	CKO6BX183K	18K	I
65F667	CKO6BX223K	22K	I
65F668	CKO6BX273K	27K	I
65F669	CKO6BX333K	33K	J
65F670	CKO6BX393K	39K	J
65F671	CKO6BX473K	47K	J
65F672	CKO6BX563K	56K	K
65F673	CKO6BX683K	68K	K
65F674	CKO6BX823K	82K	L
65F675	CKO6BX104K	100K	L

200 Volts

Stk. No.	Mil No. CKO-	pF	Price Code
65F603	CKO5BX100K	10	A
65F604	CKO5BX120K	12	A
65F605	CKO5BX150K	15	A
65F606	CKO5BX180K	18	A
65F607	CKO5BX220K	22	A
65F608	CKO5BX270K	27	A
65F609	CKO5BX330K	33	A
65F610	CKO5BX390K	39	A
65F611	CKO5BX470K	47	A
65F612	CKO5BX560K	56	A
65F613	CKO5BX680K	68	A
65F614	CKO5BX820K	82	A
65F615	CKO5BX101K	100	A
65F616	CKO5BX121K	120	A
65F617	CKO5BX151K	150	A
65F618	CKO5BX181K	180	A
65F619	CKO5BX221K	220	A
65F620	CKO5BX271K	270	A
65F621	CKO5BX331K	330	A
65F622	CKO5BX391K	390	A
65F623	CKO5BX471K	470	A
65F624	CKO5BX561K	560	A
65F625	CKO5BX681K	680	A
65F626	CKO5BX821K	820	A
65F627	CKO5BX102K	1K	A
65F652	CKO6BX122K	1.2K	H
65F653	CKO6BX152K	1.5K	H
65F654	CKO6BX182K	1.8K	H
65F655	CKO6BX222K	2.2K	H
65F656	CKO6BX272K	2.7K	H
65F657	CKO6BX332K	3.3K	H
65F658	CKO6BX392K	3.9K	H
65F659	CKO6BX472K	4.7K	H
65F660	CKO6BX562K	5.6K	H
65F661	CKO6BX682K	6.8K	H
65F662	CKO6BX822K	8.2K	H
65F663	CKO6BX103K	10.0K	H

PRICE CODE

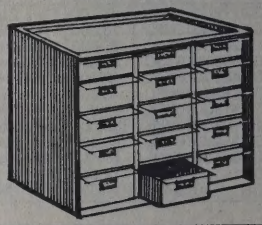
Code	1-24	25-49	50-99	100-249
A	.40	.26	.20	.16
B	.45	.30	.22	.18
C	.50	.33	.25	.20
D	.60	.40	.30	.24
E	.65	.43	.32	.26
F	.70	.46	.35	.28
G	.75	.50	.37	.30
H	.55	.36	.27	.22
I	.60	.40	.30	.24
J	.60	.40	.30	.24
K	.75	.50	.37	.30
L	.80	.53	.40	.32
M	1.30	.86	.65	.52
N	1.50	.99	.75	.60
O	2.10	1.39	1.04	.84
P	3.00	1.98	1.49	1.20
Q	3.50	2.31	1.74	1.40
R	4.90	3.24	2.43	1.96

SPECIFICATIONS
All Tests Per MIL-C-11015

- **Capacitance Range:** 10pF to 1,000,000pF. Tested at 1.0 volt RMS ± 0.2 volt RMS, 1MHz (100pF and below), 1kHz (over 100pF), and +25°C.
- **Capacitance Tolerance:** K = ±10%, M = ±20% as listed.
- **Working Voltage:** 50, 100, 200 VDC as listed.
- **Dielectric Strength:** 250% of rated working voltage with 50 mA maximum charging current.

CK05 and CK06 Series capacitors are for general purpose bypass and coupling applications in telecommunications and instrumentation equipment. They are military qualified to MIL-C-11015 specifications. The capacitance values from 10pF to 1,000,000pF in 50, 100 and 200 WVDC ratings are offered. Radial lead design provides easy p.c. boards installation. Two package sizes with .200" lead spacing are available: CK06, .290 sq.; CK05, .19 sq. Operating temperature range: −55°C to +125°C. Insulation Resistances: 100,000 megohms or 1000 megohms whichever is less. Tested at rate working voltage and +25 °C.

MONO 151A LAB KIT



Lab Kit Assortment Mallory Part No.	Cap (pF or µF)	Tolerance	WVDC	Quantity

81F9283 MONO 151A Lab Kit 120.02

"Mallobins" . . . These attractive 15 drawer plastic cabinets are stackable and keep all of your parts instantly available & fully identified. . . . Clear plastic drawers are custom partitioned to keep parts where they belong. Mallobins contain a variety of carefully selected assortments of popular Mallory components keyed to current market trends.

Size 7½" high, 9⅛" wide, 6½" deep.

LAB KIT COMPONENT PARTS LIST

Mallory Part No.	Cap (pF or *µF)	Tolerance	WVDC	Quantity
CK05BX101K	100	± 10%	200	5
CK05BX102K	1000	± 10%	200	5
CK05BX103K	10,000	± 10%	100	5
CK05BX104K	100,000	± 10%	50	5
CK05BX221K	220	± 10%	200	5
CK05BX222K	2200	± 10%	100	5
CK05BX223K	22,000	± 10%	50	5
CK05BX271K	270	± 10%	200	5
CK05BX331K	330	± 10%	200	5
CK05BX333K	33,000	± 10%	50	5
CK05BX391K	390	± 10%	200	5
CK05BX472K	4700	± 10%	200	5
CK05BX473K	47,000	± 10%	50	5
CK06BX103K	10,000	± 10%	200	5
CK06BX104K	100,000	± 10%	100	5
CK06BX105K	1,000,000	± 10%	50	5
CK06BX224K	220,000	± 10%	50	5
CK06BX473K	47,000	± 10%	100	5
CK06BX474K	470,000	± 10%	50	5
CK06BX683K	68,000	± 10%	100	5
C20C103M1U1CA	.01*	± 20%	100	5
C20C154M5U1CA	.15*	± 20%	50	5
C20C224M5U1CA	.22*	± 20%	50	5
C20C473M1U1CA	.047*	± 20%	100	5
C20C683M1U1CA	.068*	± 20%	100	5
C30C104M1U1CA	.1*	± 20%	100	5
C30C104M5U1CA	.1*	± 20%	50	5
C30C105M5U1CA	1*	± 20%	50	5
C30C154M5U1CA	.15*	± 20%	50	5
C30C224M1U1CA	.22*	± 20%	100	5

Polystyrene Capacitors

Provides the ultimate in temperature and humidity protection. Can replace mica, film, paper and ceramic types in most applications. Insulation resistance. SXK & SXL types greater than 100 megohms; SXM and SX types greater than 100,000 megohms. Temperature range: −40°C to +85°C. Tolerance. SX types ±5%; SXK, SXL and SXM types ±2.5%.

Code	NET				Code	NET				Code	NET			
	1-24	25-99	100-249	250-499		1-24	25-99	100-249	250-499		1-24	25-99	100-249	250-499
A	.32	.23	.19	.17	M	.27	.20	.16	.15	Y	.36	.27	.22	.19
B	.28	.21	.17	.15	N	.30	.22	.18	.16	Z	.33	.23	.20	.17
C	.30	.22	.18	.16	O	.53	.39	.32	.28	AA	.31	.23	.19	.17
D	.34	.24	.20	.18	P	.35	.25	.21	.18	BB	.50	.37	.30	.27
E	.40	.29	.24	.21	R	.40	.30	.25	.22	CC	.57	.41	.34	.30
F	.48	.35	.29	.25	S	.51	.37	.31	.27	DD	.64	.46	.38	.34
G	.52	.38	.31	.29	T	2.91	2.11	1.76	1.56	EE	.53	.39	.32	.28
H	.62	.45	.37	.33	U	.25	.18	.15	.13	FF	.44	.32	.27	.24
J	.72	.52	.43	.38	V	.24	.17	.14	.12					
K	.31	.23	.19	.17	W	.45	.33	.28	.24					
L	.26	.19	.15	.14	X	.27	.20	.17	.15					

RATED VOLTAGE @ +40°C, 33 WVDC

Stk. No	Type	Cap., pF	Max. Size, In. Dia. × Lg.	Code
20F100	SXK310	100	.118 × .315	A
20F101	SXK312	120	.118 × .315	A
20F102	SXK315	150	.122 × .315	A
20F103	SXK318	180	.122 × .315	A
20F104	SXK322	220	.126 × .315	A
20F105	SXK327	270	.130 × .315	B
20F106	SXK333	330	.134 × .315	B
20F107	SXK339	390	.142 × .315	B
20F108	SXK347	470	.146 × .315	B
20F109	SXK356	560	.150 × .315	B
20F110	SXK368	680	.154 × .315	B
20F111	SXK382	820	.157 × .315	B
20F112	SXK210	1,000	.161 × .315	B
20F113	SXK212	1,200	.150 × .473	C
20F114	SXK215	1,500	.154 × .473	C
20F115	SXK218	1,800	.165 × .473	C
20F116	SXK222	2,200	.173 × .473	C
20F117	SXK227	2,700	.193 × .473	C
20F118	SXK233	3,300	.205 × .473	C
20F119	SXK239	3,900	.217 × .473	C
20F120	SXK247	4,700	.236 × .473	C
20F121	SXK256	5,600	.220 × .670	D
20F122	SXK268	6,800	.236 × .670	D
20F123	SXK282	8,200	.252 × .670	D
20F124	SXK110	10,000	.272 × .670	D
20F125	SXK112	12,000	.291 × .670	E
20F126	SXK115	15,000	.323 × .670	E
20F127	SXK118	18,000	.350 × .670	F
20F128	SXK122	22,000	.386 × .670	F
20F129	SXK125	25,000	.407 × .670	F
20F130	SXK127	27,000	.421 × .670	F
20F131	SXK133	33,000	.402 × .670	G
20F132	SXK139	39,000	.453 × .670	G
20F133	SXK147	47,000	.480 × .670	G
20F134	SXK156	56,000	.520 × .670	H
20F135	SXK168	68,000	.563 × .670	J
20F136	SXK182	82,000	.626 × .670	K
20F137	SXK010	100,000	.670 × .670	K

RATED VOLTAGE @ +40°C, 160 WVDC

Stk. No	Type	Cap., pF	Max. Size, In. Dia. × .Lg.	Code
20F174	SXM420	20	.173 × .315	L
20F175	SXM433	33	.173 × .315	M
20F176	SXM439	39	.181 × .315	M
20F177	SXM447	47	.185 × .315	M
20F178	SXM456	56	.177 × .315	M
20F179	SXM468	68	.165 × .315	M
20F180	SXM482	82	.146 × .315	M
20F181	SXM310	100	.154 × .315	M
20F182	SXM312	120	.161 × .315	M
20F183	SXM315	150	.169 × .315	M
20F184	SXM318	180	.173 × .315	M
20F185	SXM322	220	.177 × .315	M
20F186	SXM327	270	.181 × .315	M
20F187	SXM330	300	.185 × .315	M
20F188	SXM333	330	.189 × .315	M
20F189	SXM336	360	.194 × .315	M
20F190	SXM339	390	.201 × .315	M
20F191	SXM343	430	.204 × .315	M
20F192	SXM347	470	.209 × .315	M
20F193	SXM350	500	.211 × .315	M
20F194	SXM351	510	.213 × .315	M
20F195	SXM356	560	.213 × .315	M
20F196	SXM360	600	.220 × .315	M
20F197	SXM362	620	.222 × .473	M
20F198	SXM368	680	.228 × .473	M
20F199	SXM375	750	.232 × .473	M
20F200	SXM382	820	.236 × .473	M
20F201	SXM391	910	.240 × .473	M
20F202	SXM210	1,000	.244 × .473	O
20F203	SXM211	1,100	.250 × .473	N
20F204	SXM212	1,200	.256 × .473	N
20F205	SXM213	1,300	.262 × .473	N
20F206	SXM215	1,500	.268 × .473	N
20F207	SXM216	1,600	.272 × .473	N
20F208	SXM218	1,800	.280 × .473	N
20F209	SXM220	2,000	.285 × .473	N
20F210	SXM222	2,200	.228 × .570	N
20F211	SXM224	2,400	.236 × .670	N

RATED VOLTAGE @ +40°C, 63 WVDC

Stk. No.	Type	Cap., pF	Max. Size, In. Dia. × .Lg.	Code
20F170	SXL120	20,000	.358 × .867	Z
20F171	SXL122	22,000	.378 × .867	AA
20F151	SXL210	1,000	.173 × .473	BB
20F155	SXL222	2,200	.232 × .473	CC
20F162	SXL282	8,200	.303 × .670	DD
20F139	SXL310	100	.122 × .315	OC
20F141	SXL315	150	.126 × .315	CC
20F142	SXL318	180	.126 × .315	CC
20F143	SXL322	220	.130 × .315	EE
20F147	SXL347	470	.154 × .315	FF

RATED VOLTAGE @ +40°C, 160 WVDC

Stk. No.	Type	Cap., pF	Max. Size, In. Dia. × .Lg.	Code
20F212	SXM227	2,700	.252 × .670	N
20F213	SXM230	3,000	.268 × .670	N
20F214	SXM233	3,300	.280 × .670	O
20F215	SXM236	3,600	.295 × .670	O
20F216	SXM239	3,900	.307 × .670	O
20F217	SXM243	4,300	.324 × .670	O
20F218	SXM247	4,700	.335 × .670	O
20F219	SXM250	5,000	.340 × .670	O
20F220	SXM251	5,100	.310 × .867	O
20F221	SXM256	5,600	.315 × .867	P
20F222	SXM262	6,200	.325 × .867	P
20F223	SXM268	6,800	.335 × .867	P
20F224	SXM275	7,500	.346 × .867	P
20F225	SXM282	8,200	.358 × .867	P
20F226	SXM291	9,100	.370 × .867	P
20F227	SXM110	10,000	.382 × .867	P
20F229	SXM112	12,000	.417 × .687	Q
20F231	SXM115	15,000	.452 × .867	Q
20F232	SXM116	16,000	.422 × .1,260	R
20F233	SXM118	18,000	.429 × .1,260	R
20F234	SXM120	20,000	.440 × .1,260	R
20F235	SXM122	22,000	.465 × .1,260	S
20F236	SXM124	24,000	.485 × .1,260	S
20F237	SXM125	25,000	.492 × .1,260	S

RATED VOLTAGE @ +40°C, 630 WVDC

Stk. No.	Type	Cap., pF	Max. Size, In. Dia. × .Lg.	Code
20F305	SX 110	10,000	.555 × .867	T
20F279	SX 210	1,000	.264 × .670	U
20F283	SX 215	1,500	.299 × .670	V
20F286	SX 220	2,000	.329 × .670	V
20F291	SX 230	3,000	.366 × .670	V
20F292	SX 233	3,300	.378 × .867	W
20F294	SX 239	3,900	.398 × .867	W
20F255	SX 310	100	.201 × .473	X
20F259	SX 315	150	.209 × .473	X
20F262	SX 320	200	.217 × .473	X
20F263	SX 322	220	.220 × .473	X
20F265	SX 327	270	.224 × .473	X
20F267	SX 333	330	.228 × .473	X
20F272	SX 351	510	.214 × .620	X
20F274	SX 362	620	.226 × .670	X
20F276	SX 375	750	.244 × .670	X

CAPACITOR HARDWARE FOR FP & WP CAPACITORS

MOUNTING PLATES FIG. G

Stock No.	Type	Size	1-499	500-999	1000-Up
14F401	MP-4	1"	.26	.11	.09
14F402	MP-6	1 3/8"	.34	.15	.12
14F404	BP4	1"	.20	.09	.07
14F406	BP6	1 3/8"	.21	.09	.07

G

INSULATING SLEEVES FIG. K

14F425	CE5	1 1/2x2"	.23	.14	.10
14F426	CE6	1 1/2x3"	.23	.14	.10
14F427	CE7	1x2 1/2"	.23	.12	.09
14F429	CE9	1 1/2x2 1/2"	.23	.14	.10
14F430	CE10	1 1/2x4"	.23	.14	.10
60F2116	CE13	1x1 3/4"	.23	.15	.11

K

MOUNTING CLIPS FIG. L

For Mounting Tubular Components

14F414	TH13	3/8"	.19	.17	.13
14F415	TH15	1/2"	.14	.12	.10
14F416	TH17	5/8"	.14	.12	.10
14F417	TH19	3/4"	.16	.13	.11
14F418	TH21	7/8"	.17	.14	.11
14F419	TH23	1"	.17	.14	.11
14F420	TH25	1 1/8"	.18	.15	.12

L

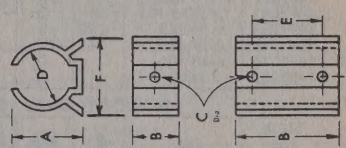
MOUNTING CLAMPS FIG. M

For Mounting Computer Grade Caps

14F409	VR1	1-1 1/16"	.35	.20	.15
14F410	VR3	1 1/8-1 7/16"	.37	.21	.15
14F411	VR4	1 1/2-1 5/16"	.40	.22	.17
14F412	VR6	1 3/4-1 13/16"	.53	.29	.22
14F413	VR8	2-2 1/16"	.59	.33	.24
60F2292	VR10	2 1/2-2 5/16"	.62	.34	.25
60F2113	VR12	3-3 1/8"	.72	.39	.29

M

Type V-VINYL Component Clips



Plastic Component Clips are a convenient, economical means for fastening and, where required, insulating a wide variety of electrical and electronic components, accessories and parts. They permit fast and easy insertion, hold firmly, yet allow easy removal. Typical applications are capacitors, resistors, lamps, batteries and fuses.

They are made of strong, black vinyl and have high dielectric strength.

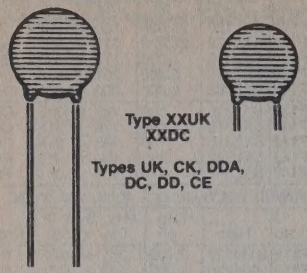
The floor of the clip is pierced for screws or other fastening devices

DIMENSIONS

Stock No.	Cat. No.	D Dia. of Part to Be Held	Max. Height A	Length B	Dia. of Hole C	Between Holes E	F Max.	Net Pkg./100
13F1715	V1000	1/4	13/32	1/2	3/32		1/2	14.56
13F1716	V1001	5/16	15/32	1/2	3/32		33/64	14.81
13F1717	V1002	3/8	1/2	1/2	3/32		5/8	15.17
13F1718	V1003	7/16	1/2	1/2	3/32		11/16	15.44
13F1719	V1004	1/2	5/8	1/2	3/32		11/16	15.81
13F1720	V1005	9/16	5/8	1/2	3/32		3/4	16.17
13F1721	V1006	5/8	5/8	1/2	3/32		29/32	16.60
13F1722	V1007	11/16	3/4	1/2	5/32		1	18.14
13F1723	V1008	3/4	7/8	1/2	5/32		1	18.72
13F1724	V1009	7/8	1	1/2	5/32		1 1/8	19.39
13F1725	V1010	1	1 1/4	1 1/8	5/32	3/4	1 3/8	22.48
13F1726	V1011	1 3/8	1 15/32	1 1/8	5/32	3/4	1 7/16	25.49
13F1727	V1024	1 1/2	1 3/4	1 3/4	5/32	3/4	1 29/64	33.31

Capacitors

LOW VOLTAGE DISC CERAMICS CAPACITORS



GENERAL PURPOSE
500VDCW—Z5V

Designed for high capacity low voltage demands of transistor circuitry. Leads #22 tinned copper. 1.5" minimum length. Power factor: 3% max. at 1 KC. Insulation: Phenolic vacuum wax impregnated. Tolerance: +80 −20%. Operating range: −55 to +85°C.

	SIZES (In.)						
Code	Max. Dia.	Max. Thk.	Lead Space	Code	Max. Dia.	Max. Thk.	Lead Space
A	.220	.156	.250	H	.485	.156	.250
B	.290	.156	.250	I	.690	.156	.375
C	.405	.156	.250	J	.920	.156	.375
D	.590	.156	.375	K	.718	.171	.375
E	.820	.156	.375	L	.718	.250	.375
F	.390	.156	.250	M	.875	.250	.375
G	.485	.156	.375	N	.975	.250	.375

ULTRA-KAP® CERAMIC DISCS

- **Semi-Conductor Design**
- **Miniature Size**

These reduced titanite devices provide from 50 to 100 times greater capacitance than standard ceramic discs. Excellent for bypass and coupling applications in power supply, audio, IF and other low voltage circuits. Durez coated, wax impregnated. Oper. temp. −55°C to +85°C. Standard lead length 1.5" min. XXUK have .187 clipped leads for low profile uses.

3VDCW (Tol. GMV) Y5T

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F395	UK-104	.1	A	.32	.27	.14	.12
19F396	UK-224	.22	C	.43	.36	.19	.17
19F397	UK-474	.47	C	.43	.36	.19	.17
19F398	UK-105	1.0	D	.62	.52	.28	.24
19F399	UK-225	2.2	E	.98	.82	.44	.37

10 VDCW (Tol. +80 −20%) Y5P

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F276	UK10-503	.05	B	.25	.21	.12	.09
19F277	UK10-104	.1	C	.30	.25	.14	.11
19F278	UK10-204	.2	D	.37	.31	.17	.14
19F279	UK10-474	.47	E	.64	.53	.29	.24

12 VDCW (Tol. ±20%) Y5P

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
67F5001	UK12-503	.05	B	.25	.21	.13	.09
67F5002	UK12-104	.1	C	.30	.25	.14	.11
14F3050	XXUK12-104	.1	C	.30	.25	.14	.11
67F5003	UK12-204	.2	D	.43	.36	.21	.16
67F5004	UK12-474	.47	E	.78	.65	.37	.27

16 VDCW (±20%) Y5P

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F1267	UK16-103	.01	B	.25	.21	.12	.09
14F3051	XXUK16-103	.01	B	.25	.21	.12	.09
19F1268	UK16-223	.022	B	.25	.21	.12	.09
19F1269	UK16-503	.05	F	.31	.26	.14	.11
19F1270	UK16-104	.1	G	.38	.32	.18	.13
14F3052	XXUK16-104	.1	G	.38	.32	.18	.13

20 VDCW (Tol. +80 −20%) Y5P

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F1278	UK20-503	.05	C	.26	.22	.14	.10
19F1279	UK20-104	.1	D	.37	.31	.17	.14
19F1280	UK20-204	.2	E	.64	.53	.29	.24

25 VDCW (Tol. ±20%) Y5P

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F1271	UK25-103	.01	B	.25	.21	.12	.09
14F3053	XXUK25-103	.01	B	.25	.21	.12	.09
19F1272	UK25-223	.022	B	.25	.21	.12	.09
19F1273	UK25-503	.05	C	.30	.25	.15	.11
14F3055	XXUK25-503	.05	C	.30	.25	.15	.11
19F1274	UK25-104	.1	D	.44	.37	.21	.16
14F3054	XXUK25-104	.1	D	.44	.37	.21	.16

50 VDCW (Tol. ±20%) Y5P

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F400	UK50-103	.01	B	.25	.21	.13	.09
19F401	UK50-153	.015	F	.31	.26	.14	.11
19F402	UK50-223	.022	H	.38	.32	.18	.13
19F403	UK50-503	.05	D	.44	.37	.21	.16
19F404	UK50-104	.1	E	.76	.63	.37	.27

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F1223	CK-502	.005	F	.17	.14	.08	.06
19F1224	CK-103	.01	F	.17	.14	.08	.06
19F1225	CK-203	.02	D	.26	.22	.13	.09
19F1226	CK-253	.025	D	.26	.22	.13	.09
19F1228	CK-503	.05	I	.36	.30	.17	.12
19F1229	CK-104	.1	K	1.00	.83	.47	.35

GENERAL PURPOSE LOW VOLTAGE

Designed to fulfill most solid-state circuitry demands including non-critical bypass and coupling −55° to +85°C Operating Temperature Range Durez coated, wax impregnated. Tinned wire leads. 1.5" min. length. XXDC .187 cut leads. Dielectric Strength: 250% of rated working voltage.

75 VDCW (Tol. +80, −30%) Z5V

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
19F1103	DDA-503	.05	I	1.69	1.41	.78	.58
19F1104	DDA-104	.1	K	1.99	1.66	.92	.69

100 VDCW (Tol. ±20%) Z4V

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000 24,000
67F5005	DC-502	.005	F	.18	.15	.10	.06
67F5006	DC-103	.01	F	.18	.15	.10	.06
14F3056	XXDC-103	.01	F	.18	.15	.10	.06
67F5007	DC-203	.02	D	.30	.25	.15	.10
67F5008	DC-253	.025	D	.30	.25	.15	.10
67F5010	DC-503	.05	I	.42	.35	.21	.14
14F3058	XXDC-503	.01	I	.42	.35	.21	.14
67F5011	DC-104	.1	K	1.22	1.02	.58	.41
14F3057	XXDC-104	.1	K	1.22	1.02	.58	.41

600 VDCW (Tol. +80, −20% *GMV) Z5U, †Z5V

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000-24,000
67F5012	DD6-103*	.01	D	.26	.22	.13	.09
67F5013	DD-153	.015	I	.36	.30	.17	.12
19F340	DD-203	.02	I	.36	.30	.17	.12
19F538	DD-403	.04	L	1.30	1.08	.61	.45
19F539	DD-503	.05	M	1.69	1.41	.78	.58
67F5018	DD-104†	.1	N	1.99	1.66	.92	.69

TEMPERATURE STABLE CAPACITORS

Excellent capacitance stability over wide temp. range. Used where extended temp. stability is required for RC networks and conventional applications. Working voltage: 600 VDC. Dielectric strength: 250% of rated working voltage. Operating temp. range: −55°C to +85°C. Encapsulation: Phenolic coated, wax impregnated. Leads-configuration: Tinned wire. Type SLL.

600 VDCW (Tol. ±10%) X5F

Stock No.	Type	Mfd.	Size	1-99	100-900	1000-9000	10,000 24,000
19F1235	CE-151	150*	B	.16	.13	.08	.05
19F1236	CE-221	220*	B				
19F1237	CE-331	330*	B				
19F1238	CE-471	470*	B				
19F1239	CE-501	500*	B				
19F1241	CE-681	680*	B				
19F1242	CE-751	.750	B				
19F1244	CE-102	.001	B				
67F5020	CE-152	.0015	F	.18	.15	.10	.07
67F5022	CE-202	.002	H	.22	.18	.12	.08
67F5024	CE-332	.0008	D	.29	.24	.15	.10
67F5026	CE-472	.0047	I	.29	.34	.21	.14
67F5027	CE-502	.005	I	.29	.34	.21	.14
67F5030	CE-103	.01	J	.65	.54	.33	.22

Disc Ceramic Capacitors

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

TYPE DD, XXDD, DD30, DD60 CERAMIC DISCS

DD, XXDD, DD30, DD60

Intended for by-pass, coupling or filter uses. Disc ceramics have a higher dielectric constant, greater voltages, and higher capacities than paper or mica types. DD30/DD60 types for high voltage. XXDD is a cut leaded low profile version of DD. Phenolic coated, wax impregnated. Oper. temp.—55°C to +85°C. For DD and XXDD: Tol. ±10%, except (*) ±20%, (†) ±.5 pF, (#) GMV; +100, —0%.

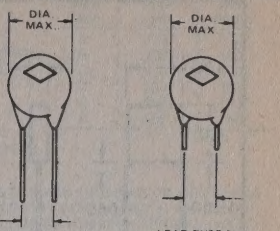
1000 VDCW

Stk. No.	Type	pF	Size	1-99	100-999	1000-9999	10,000-Up
19F300	DD-3R3	3.3†	A				
19F301	DD-050	5	A				
19F341	DD-060	6	A				
19F302	DD-6R8	6.8	A				
19F343	DD-080	8	A				
19F303	DD-100	10	A				
19F344	DD-120	12	A				
19F304	DD-150	15	A				
19F345	DD-180	18	A				
19F305	DD-200	20	A				
19F346	DD-220	22	A				
19F347	DD-240	24	A				
19F306	DD-250	25	A				
19F348	DD-270	27	A				
19F349	DD-300	30	A				
19F307	DD-330	33	A	.26	.13	.07	.05
19F308	DD-390	39	A				
19F309	DD-470	47	A				
19F310	DD-500	50	A				
19F516	DD-510	51	A				
19F311	DD-560	56	B				
19F312	DD-680	68	B				
19F313	DD-750	75	B				
19F358	DD-820	82	B				
19F314	DD-101	100	B				
19F1862	XXDD-101	100	B				
19F315	DD-121	120	B				
19F365	DD-131	130	B				
19F316	DD-151	150	B				
19F317	DD-181	180	B				
19F318	DD-201	200	B				
19F1863	XXDD-201	200	B				
19F319	DD-221	220	B				
19F366	DD-241	240	B				
19F320	DD-251	250	B				
19F321	DD-271	270	B				
19F322	DD-301	300	B				
19F323	DD-331	330	B				
19F369	DD-361	360	B				
19F324	DD-391	390	B				
19F379	DD-401	400	B	.26	.13	.07	.05
19F325	DD-471	470	B				
19F326	DD-501	500	B				
19F1864	XXD-501	500	B				
19F518	DD-511	510	B				
19F327	DD-561	560	B				
19F519	DD-601	600	B				
19F328	DD-681	680	B				
19F329	DD-751	750	B				
19F380	DD-821	820	B				
19F531	DD-911	910	B				
19F331	DD-102	1000	C	.28	.14	.08	.06
19F1865	XXDD-102	1000	C	.28	.14	.08	.06
19F532	DD-102G	1000#	B	.22	.11	.07	.05
19F381	DD-122	1200	C	.28	.14	.08	.06
19F332	DD-152	1500	C	.28	.14	.08	.06
19F384	DD-182	1800	C	.28	.14	.08	.06
19F333	DD-202	2000*	C	.28	.14	.08	.06
19F1866	XXDD-202	2000	C	.28	.14	.08	.06
19F385	DD-222	2200*	C	.28	.14	.08	.06
19F386	DD-252	2500*	C	.28	.14	.08	.06
19F387	DD-272	2700*	C	.28	.14	.08	.06
19F334	DD-302	3000*	C	.28	.14	.08	.06
19F388	DD-332	3300*	C	.28	.14	.08	.06
19F389	DD-392	3900*	C	.34	.17	.10	.07
19F335	DD-472	4700*	D	.34	.17	.11	.08
19F336	DD-5022	5000*	D	.34	.17	.11	.08
19F337	DD-502	5000#	E	.44	.22	.13	.09
19F392	DD-562	5600*	D	.34	.17	.11	.08
19F393	DD-682	6800*	E	.44	.22	.13	.09
19F394	DD-752	7500*	E	.44	.22	.13	.09
19F536	DD-822	8200*	E	.44	.22	.13	.09
19F339	DD-103	10000#	F	.60	.30	.17	.12
19F1867	XXDD-103	10000	F	.60	.30	.17	.12
19F338	DD-1032	10000*	F	.66	.33	.16	.14

SIZES (in.)

Code	Max. Dia.	Thk.	Lead Space
A	.290	.156	.250
B	.305	.156	.250
C	.405	.156	.250
D	.500	.156	.250
E	.605	.156	.375
F	.705	.156	.375
G	.330	.180	.250
H	.330	.203	.250
I	.430	.203	.250
J	.630	.203	.375
K	.650	.293	.375
L	.660	.313	.375
M	.760	.313	.375
N	.800	.203	.375

DD — SERIES XXDD — SERIES



LEAD TYPE SLL
CERAMIC DISC COMPLETELY COVERED WITH PHENOLIC COATING

LEAD TYPE SLC
EXPOSED CERAMIC DISC EDGE AT TANGENT LINE ALLOWED

TYPE DD30—3KVDC*

TYPE DD60—6KVDC#

Stk. No.	Type Code	pF	Size	1-99	100-999	1000-9999	10,000-Up
19F203	100*	10	G				
19F217	101*	100	H	.70	.35	.19	.13
19F222	221*	220	H				
19F230	501*	500	H				
19F234	102*	1,000	I	.76	.38	.21	.15
19F236	152*	1,500	J	.96	.48	.27	.19
19F237	202*	2,000	J	.96	.48	.27	.19
19F238	222*	2,200	J	.96	.48	.27	.19
19F241	302*	3,000	J	.96	.48	.27	.19
19F242	502*	5,000	N	1.46	.73	.41	.29
19F473	500#	50	K				
19F482	201#	200	L	1.18	.59	.33	.23
19F490	471#	470	L				
19F493	681#	680	L				
19F495	102#	1,000	L	1.18	.59	.33	.23
19F498	202#	2,000	M	1.58	.79	.45	.32

CERAMIC CAPACITOR KITS

- **Ideal For Schools, Labs, Maint. Depts., and R & D Depts.**
- **Kits Contain the Most Popular Values ARRANGED by CAP VALUE**
- **Shipped Set-Up and Ready to Use in Steel Frame Cabinet**

Kit 60D contains an assortment of the most widely used general purpose ceramic disc capacitors. 600 and 1000WVDC ratings in 40 different values from 5pf to .05 mf.

KIT-60D CONTENTS

Type	Qty.	No. of Values	WVDC Cap. Range	EIA Temp. Char.
DD	230	33	1000 5pf—.01μf	S2L, S3N, Z5F, Z5R, Z5U
DD	15	3	600 .01μf—.05μf	Z5U

67F5031. NET **75.95**

Kit 63L contains an assortment of the most used low voltage Ultra-Kap and general purpose capacitors in 3 to 100VDC in 14 valuues from .005mf to 1.0mf.

KIT 63L CONTENTS

Type	Qty.	No. of Values	WVDC	Cap. Range	EIA Temp. Char.
UK	230	10	3-75	.01-1.0 μf	Y5P, Y5T, Y5U
DC	25	6	100	.0005-.1μμ	Z5U

F9W511 NET **143.14**

KIT-100MK contains a wide assortment of the most popular radial leaded Mono-Kap© monolithic capacitors in three industry standard temperature characteristics. Eighty values, ranging from 10pf to 2.2mfd, in four tolerances, 50 and 100 VDC ratings, totaling 495 pieces. Each drawer is clearly labeled with T.C., capacitance value, voltage and part number.

KIT-100MK CONTENTS

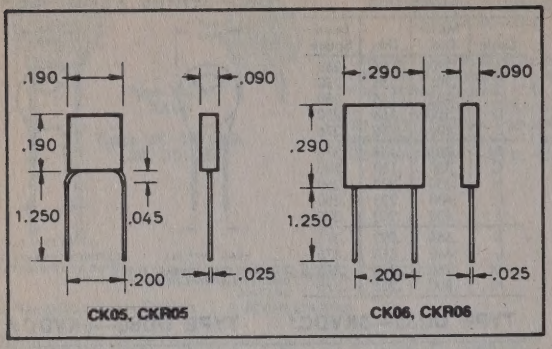
Type	Qty.	No. of Values	WVDC	Cap. Range	EIA Temp. Char.
CN	20	2	50	.01μf	COG(NPO)
CN	115	21	100	10pf—1500pf	COG(NPO)
CW	85	14	50	.01pf—1.0μf	X7R
CW	80	15	100	150pf—.1μf	X7R
CZ	115	20	50	2200pf—1μf	Z5U
CZ	50	8	100	.01μf—2.2μf	Z5U

79W510. NET **184.99**

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS company

Military Grade Capacitors

CK-CKR Series Monolithic Ceramic Capacitors



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CK05 - CK06 molded monolithic ceramic capacitors are military qualified to MIL-C-11015 specifications. Ideal for general purpose bypass and coupling applications in telecommunications and instrumentation equipment and a wide variety of other applications. Operating temperature: -55°C to +125°C. Insulation resistance: 100,000 megohms or 1000 megohm-microfarads, whichever is less. Tested at rated working voltage and +25°C.

CK05 - 200V (TOL ± 10%)

Stk. No.	Type	Cap.	1-9	25-99	100-999
65F1950	CK05BX100K	10KpF			
65F1951	CK05BX120K	12KpF			
65F1952	CK05BX150K	15KpF	.17	.15	.14
65F1953	CK05BX180K	18KpF			
65F1954	CK05BX220K	22KpF			
65F1955	CK05BX270K	27KpF			
65F1956	CK05BX330K	33KpF			
65F1957	CK05BX390K	39KpF	.17	.15	.14
65F1958	CK05BX470K	47KpF			
65F1959	CK05BX560K	56KpF			
65F1960	CK05BX680K	68KpF			
65F1961	CK05BX820K	82KpF			
65F1962	CK05BX101K	100KpF	.17	.15	.14
65F1963	CK05BX121K	120KpF			
65F1964	CK05BX151K	150KpF			
65F1965	CK05BX181K	180KpF			
65F1966	CK05BX221K	220KpF			
65F1967	CK05BX271K	270KpF	.17	.15	.14
65F1968	CK05BX331K	330KpF			
65F1969	CK05BX391K	390KpF			
65F1970	CK05BX471K	470KpF			
65F1971	CK05BX561K	560KpF			
65F1972	CK05BX681K	680KpF	.17	.15	.14
65F1973	CK05BX821K	820KpF			
65F1974	CK05BX102K	1KpF			

CK05 - 100V (TOL ± 10%)

Stk. No.	Type	Cap.	1-9	25-99	100-999
65F1975	CK05BX122K	1.2KpF			
65F1976	CK05BX152K	1.5KpF			
65F1977	CK05BX182K	1.8KpF	.23	.22	.20
65F1978	CK05BX222K	2.2KpF			
65F1979	CK05BX272K	2.7KpF			
65F1980	CK05BX332K	3.3KpF			
65F1981	CK05BX392K	3.9KpF	.23	.22	.20
65F1982	CK05BX472K	4.7KpF	.23	.22	.20
65F1983	CK05BX562K	5.6KpF	.23	.22	.20
65F1984	CK05BX682K	6.8KpF	.25	.23	.21
65F1985	CK05BX822K	8.2KpF	.25	.23	.21
65F1986	CK05BX103K	10.0KpF	.25	.23	.21

CK05 - 50V (TOL ±10%)

Stk. No.	Type	Cap.	1-9	25-99	100-999
65F1987	CK05BX123K	12KpF	.38	.35	.33
65F1988	CK05BX153K	15KpF	.38	.35	.33
65F1989	CK05BX183K	18KpF	.38	.35	.33
65F1990	CK05BX223K	22KpF	.38	.35	.33
65F1991	CK05BX273K	27KpF	.38	.35	.33
65F1992	CK05BX333K	33KpF	.42	.39	.36
65F1993	CK05BX393K	39KpF	.42	.39	.36
65F1994	CK05BX473K	47KpF	.42	.39	.36
65F1995	CK05BX563K	56KpF	.48	.45	.41
65F1996	CK05BX683K	68KpF	.48	.45	.41
65F1997	CK05BX823K	82KpF	.52	.48	.44
65F1998	CK05BX104K	100KpF	.52	.48	.44

CK06 - 200V (TOL ± 10%)

Stk. No	Type	Cap	1 9	25 99	100-999
65F1999	CKO6BX122K	1.2KpF			
65F2000	CKO6BX152K	1.5KpF			
65F2001	CKO6BX182K	1.8KpF	.27	.25	.23
65F2002	CKO6BX222K	2.2KpF			
65F2003	CKO6BX272K	2.7KpF			
65F2004	CKO6BX332K	3.3KpF			
65F2005	CKO6BX392K	3.9KpF			
65F2006	CKO6BX472K	4.7KpF			
65F2007	CKO6BX562K	5.6KpF			
65F2008	CKO6BX682K	6.8KpF	.27	.25	.23
65F2009	CKO6BX822K	8.2KpF			
65F2010	CKO6BX103K	10.0KpF			

CK06 - 100V (TOL ± 10%)

Stk. No.	Type	Cap.	1-9	25-99	100-999
65F2011	CK06BX123K	12KpF	.32	.29	.27
65F2012	CK06BX153K	15KpF	.32	.29	.27
65F2013	CK06BX183K	18KpF	.32	.29	.27
65F2014	CK06BX223K	22KpF	.32	.29	.27
65F2015	CK06BX273K	27KpF	.32	.29	.27
65F2016	CK06BX333K	33KpF	.37	.34	.31
65F2017	CK06BX393K	39KpF	.37	.34	.31
65F2018	CK06BX473K	47KpF	.37	.34	.31
65F2019	CK06BX563K	56KpF	.38	.35	.33
65F2020	CK06BX683K	68KpF	.38	.35	.33
65F2021	CK06BX823K	82KpF	.43	.40	.37
65F2022	CK06BX104K	100KpF	.43	.40	.37

CK06 - 50V (TOL ± 10%)

Stk. No.	Type	Cap.	1-9	25-99	100-999
65F2023	CK06BX124K	120KpF	.82	.75	.70
65F2024	CK06BX154K	150KpF	.82	.75	.70
65F2025	CK06BX184K	180KpF	.97	.89	.83
65F2026	CK06BX224K	220KpF	.97	.89	.83
65F2027	CK06BX274K	270KpF	1.30	1.20	1.12
65F2028	CK06BX334K	330KpF	1.30	1.20	1.12
65F2029	CK06BX394K	390KpF	1.85	1.71	1.59
65F2030	CK06BX474K	470KpF	1.85	1.71	1.59
65F2031	CK06BX564K	560KpF	2.40	2.22	2.06
65F2032	CK06BX684K	680KpF	2.40	2.22	2.06
65F2033	CK06BX824K	820KpF	2.84	2.62	2.43
65F2034	CK06BX105K	1000KpF	2.84	2.62	2.43

CKR05-CKR06 Monolithic Military Type Capacitors
Meet the requirements of MIL-C-39014. Industry standards for high reliability applications within the communications, computer and aerospace fields and also in a variety of other applications. Operating Temperature: -55°C to +125°C. Supplied in "R" (0.01%) and "S" (0.001%) failure rate levels (per 1000 HRS).

CKR Prices

	CKR-05					CKR-06			
Code	1-9	10-24	25-99	100-999	Code	1-9	10-24	25-99	100-999
A	.58	.54	.50	.45	M	.78	.72	.67	.60
B	.65	.60	.56	.50	N	.82	.75	.70	.62
C	.67	.62	.57	.51	O	.85	.79	.73	.65
D	.75	.69	.64	.57	P	.94	.86	.80	.71
E	.80	.74	.69	.61	Q	1.24	1.14	1.06	.94
F	.84	.77	.72	.64	R	1.39	1.28	1.19	1.06
G	.90	.83	.77	.69	S	1.72	1.59	1.47	1.31
H	.94	.86	.80	.71	T	2.27	2.09	1.94	1.73
I	1.02	.85	.79	.70	U	2.82	2.60	2.42	2.15
J	.67	.62	.57	.51	V	3.26	3.00	2.79	2.48
K	.73	.68	.63	.56	W	3.34	3.08	2.86	2.55
L	.75	.69	.64	.57					

CKR05-50V (TOL ± 10%)

Stk. No.	Type	MIL-Type	Cap	Code
65F2072	CKR05BX123KR	M39014/01-1537	12 KpF	E
65F2073	CKR05BX153KR	M39014/01-1538	15 KpF	E
65F2074	CKR05BX183KR	M39014/01-1540	18 KpF	E
65F2075	CKR05BX223KR	M39014/01-1541	22 KpF	E
65F2076	CKR05BX273KR	M39014/01-1543	27 KpF	E
65F2077	CKR05BX333KR	M39014/01-1544	33 KpF	F
65F2078	CKR05BX393KR	M39014/01-1546	39 KpF	F
65F2079	CKR05BX473KR	M39014/01-1547	47 KpF	F
65F2080	CKR05BX563KR	M39014/01-1549	56 KpF	G
65F2081	CKR05BX683KR	M39014/01-1550	68 KpF	G
65F2082	CKR05BX823KR	M39014/01-1552	82 KpF	H
65F2083	CKR05BX104KR	M39014/01-1553	100 KpF	H
65F2123	CKR05BX104KS	M39014/01-1593	100 KpF	I

CKR's CONTINUED ON PAGE 197

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

Ceramic And Encapsulated Glass Monolithic Capacitors

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS company

CKR05-100 V (TOL. ± 10%)

STK. NO.	TYPE	MIL-TXDE	CAP.	CODE
65F2060	CKR05BX122KR	M39014/01-1319	1.2 KpF	B
65F2061	CKR05BX152KR	M39014/01-1320	1.5 KpF	B
65F2062	CKR05BX182KR	M39014/01-1522	1.8 KpF	B
65F2063	CKR05BX222KR	M39014/01-1523	2.2 KpF	B
65F2064	CKR05BX272KR	M39014/01-1525	2.7 KpF	B
65F2065	CKR05BX332KR	M39014/01-1526	3.3 KpF	B
65F2066	CKR05BX392KR	M39014/01-1528	3.9 KpF	B
65F2067	CKR05BX472KR	M39014/01-1529	4.7 KpF	B
65F2068	CKR05BX562KR	M39014/01-1531	5.6 KpF	B
65F2069	CKR05BX682KR	M39014/01-1532	6.8 KpF	C
65F2070	CKR05BX822KR	M39014/01-1534	8.2 KpF	C
65F2071	CKR05BX103KR	M39014/01-1535	10.0 KpF	C
65F2122	CKR05BX103KS	M39014/01-1536	10.0 KpF	D

CKR05-200V (TOL. ± 10%)

65F2035	CKR05BX100KR	M39014/01-1281	10 pF	A
65F2036	CKR05BX120KR	M39014/01-1283	12 pF	A
65F2037	CKR05BX150KR	M39014/01-1284	15 pF	A
65F2038	CKR05BX180KR	M39014/01-1286	18 pF	A
65F2039	CKR05BX220KR	M39014/01-1287	22 pF	A
65F2040	CKR05BX270KR	M39014/01-1289	27 pF	A
65F2041	CKR05BX330KR	M39014/01-1290	33 pF	A
65F2042	CKR05BX390KR	M39014/01-1292	39 pF	A
65F2043	CKR05BX470KR	M39014/01-1293	47 pF	A
65F2044	CKR05BX560KR	M39014/01-1295	56 pF	A
65F2045	CKR05BX680KR	M39014/01-1296	68 pF	A
65F2046	CKR05BX820KR	M39014/01-1298	82 pF	A
65F2047	CKR05BX101KR	M39014/01-1299	100 pF	A
65F2120	CKR05BX101KS	M39014/01-1300	100 pF	C
65F2048	CKR05BX121KR	M39014/01-1301	120 pF	A
65F2049	CKR05BX151KR	M39014/01-1302	150 pF	A
65F2050	CKR05BX181KR	M39014/01-1304	180 pF	A
65F2051	CKR05BX221KR	M39014/01-1305	220 pF	A
65F2052	CKR05BX271KR	M39014/01-1307	270 pF	A
65F2053	CKR05BX331KR	M39014/01-1308	330 pF	A
65F2054	CKR05BX391KR	M39014/01-1310	390 pF	A
65F2055	CKR05BX471KR	M39014/01-1311	470 pF	A
65F2056	CKR05BX561KR	M39014/01-1313	560 pF	A
65F2057	CKR05BX681KR	M39014/01-1314	680 pF	A
65F2058	CKR05BX821KR	M39014/01-1316	820 pF	A
65F2059	CKR05EX102KR	M39014/01-1317	1 KpF	A
65F2121	CKR05BX102KS	M39014/01-1357	1 KpF	C

CKR06-50V (TOL. ± 10%)

65F2108	CKR06BX124KR	M39014/02-1313	120 KpF	Q
65F2109	CKR06BX154KR	M39014/02-1314	150 KpF	Q
65F2110	CKR06BX184KR	M39014/02-1315	180 KpF	R
65F2111	CKR06BX224KR	M39014/02-1316	220 KpF	R
65F2112	CKR06BX274KR	M39014/02-1317	270 KpF	S
65F2113	CKR06BX334KR	M39014/02-1318	334 KpF	S
65F2114	CKR06BX394KR	M3914/02-1319	394 KpF	T
65F2115	CKR06BX474KR	M39014/02-1320	474 KpF	T
65F2116	CKR06BX564KR	M39014/02-1412	564 KpF	U
65F2117	CKR06BX684KR	M39014/02-1413	684 KpF	U
65F2118	CKR06BX824KR	M39014/02-1414	820 KpF	V
65F2119	CKR06BX105KR	M39014/02-1415	1000 KpF	V
65F2126	CKR06BX105KS	M39014/02-1419	1000 KpF	W

CKR06-100V (TOL. ± 10%)

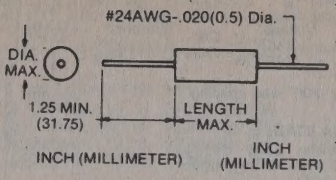
65F2096	CKR06BX123KR	M39014/02-1311	12 KpF	K
65F2097	CKR06BX153KR	M39014/02-1300	15 KpF	K
65F2098	CKR06BX183KR	M39014/02-1301	18 KpF	K
65F2099	CKR06BX223KR	M39014/02-1302	22 KpF	K
65F2100	CKR06BX273KR	M39014/02-1312	27 KpF	K
65F2101	CKR06BX333KR	M39014/02-1303	33 KpF	M
65F2102	CKR06BX393KR	M39014/02-1304	39 KpF	M
65F2103	CKR06BX473KR	M39014/02-1305	47 KpF	M
65F2104	CKR06BX563KR	M39014/02-1306	56 KpF	N
65F2105	CKR06BX683KR	M39014/02-1307	68 KpF	N
65F2106	CKR06BX823KR	M39014/02-1309	82 KpF	O
65F2107	CKR06BX104KR	M39014/02-1310	100 KpF	O
65F2125	CKR06BX104KS	M39014/02-1350	100 KpF	P

CKR06-200V (TOL. ± 10%)

65F2084	CKR06BX122KR	M39014/02-1281	1.2 KpF	J
65F2085	CKR06BX152KR	M39014/02-1282	1.5 KpF	J
65F2086	CKR06BX182KR	M39014/02-1284	1.8 KpF	J
65F2087	CKR06BX222KR	M39014/02-1286	2.2 KpF	J
65F2088	CKR06BX272KR	M39014/02-1288	2.7 KpF	J
65F2089	CKR06BX332KR	M39014/02-1289	3.3 KpF	J
65F2090	CKR06BX392KR	M39014/02-1291	3.9 KpF	J
65F2091	CKR06BX472KR	M39014/02-1292	4.7 KpF	J
65F2092	CKR06BX562KR	M39014/02-1294	5.6 KpF	J
65F2093	CKR06BX682KR	M39014/02-1295	6.8 KpF	J
65F2094	CKR06BX822KR	M39014/02-1297	8.2 KpF	J
65F2095	CKR06BX103KR	M39014/02-1298	10.0 KpF	J
65F2124	CKR06BX103KS	M39014/02-1338	10.0 KpF	L

NOTE: See page 196 for price codes.

C40-C41-C42—SERIES



Size Code	Max. Lgth.	Max. Width
A	.170"	.100"
B	.200"	.100"
C	.250"	.100"
D	.250"	.100"
E	.300"	.150"
F	.400"	.150"

Reliable hermetically sealed type glass to metal construction with tinned wire leads. Ideally suited for applications in communication equipment, navigation and guidance systems, computer business machines or where high volume and low price is required. Working potential: 50 WVDC. Operating temperature: −55°C to 85°C for Z5U; −55°C to 125°C for OOG and X7R. Available in tape and reel on special order. C42 (Y5V) not listed. Available on spec. order.

C40-Series 50V DCW COG(NPO)

Stock No.	Type	Cap.	Tol (±,%)	Size Code	1-99	100-999	1000-9999	10,000 Up
10F7389	C40C100JNP	10 pf	5	A	.52	.26	.18	.14
10F7390	C40C150JNP	15 pf	5	A	.52	.26	.18	.14
10F7391	C40C220JNP	22 pf	5	A	.52	.26	.18	.14
10F7392	C40C330JNP	33 pf	5	A	.52	.26	.18	.14
10F7393	C40C470JNP	47 pf	5	A	.52	.26	.18	.14
10F7394	C40C680JNP	68 pf	5	A	.52	.26	.18	.14
10F7395	C40C101JNP	100 pf	5	A	.52	.26	.18	.14
10F7396	C40C151JNP	150 pf	5	A	.52	.26	.18	.14
10F7397	C40C221JNP	220 pf	5	A	.52	.26	.18	.14
10F7398	C40C331JNP	330 pf	5	A	.62	.31	.21	.16
10F7399	C40C471JNP	470 pf	5	A	1.02	.51	.28	.19
10F7400	C40C681JNP	680 pf	5	A	1.02	.51	.28	.19
10F7401	C40C102JNP	.001 mf	5	B	1.02	.51	.28	.19
10F7402	C40C152JNP	.0015 mf	5	C	1.02	.51	.28	.19
10F7403	C40C222JNP	.0022 mf	5	D	1.36	.68	.37	.25
10F7404	C40C332JNP	.0033 mf	5	D	1.36	.68	.37	.25
10F7405	C40C472JNP	.0047 mf	5	D	2.32	1.16	.79	.59
10F7406	C40C682JNP	.0068 mf	5	E	3.18	1.59	1.08	.81

C41-Series 50 V DCW X7R

10F7407	C41C221KNP	220 pf	10	A	.30	.15	.13	.10
10F7408	C41C331KNP	330 pf	10	A	.30	.15	.13	.10
10F7409	C41C391KNP	390 pf	10	A	.30	.15	.13	.10
10F7410	C41C471KNP	470 pf	10	A	.30	.15	.13	.10
10F7411	C41C561KNP	560 pf	10	A	.30	.15	.13	.10
10F7412	C41C681KNP	680 pf	10	A	.30	.15	.13	.10
10F7413	C41C102KNP	.001 mf	10	A	.30	.15	.13	.10
10F7414	C41C102MNP	.001 mf	20	A	.28	.14	.11	.09
10F7415	C41C222KNP	.0022 mf	10	A	.30	.15	.13	.10
10F7416	C41C332KNP	.0033 mf	10	A	.30	.15	.13	.10
10F7417	C41C392KNP	.0039 mf	10	A	.30	.15	.13	.10
10F7418	C41C472KNP	.0047 mf	10	A	.34	.17	.14	.11
10F7419	C41C682KNP	.0068 mf	10	A	.34	.17	.14	.11
10F7420	C41C103KNP	.01 mf	10	A	.36	.18	.15	.12
10F7421	C41C103MNP	.01 mf	20	A	.34	.17	.14	.11
10F7422	C41C104KNP	.1 mf	10	D	1.10	.55	.44	.32
10F7423	C41C104MNP	.1 mf	20	D	.96	.48	.39	.29

C43-Series 50 V DCW Z5U

10F7424	C43C472MNP	.0047 mf	20	A	.30	.15	.13	.11
10F7425	C43C682MNP	.0068 mf	20	A	.30	.15	.13	.11
10F7426	C43C103MNP	.01 mf	20	A	.30	.15	.13	.11
10F7427	C43C103ZNP	.01 mf	+80−20	A	.24	.12	.11	.09
10F7428	C43C123MNP	.012 mf	20	A	.30	.15	.13	.11
10F7429	C43C153MNP	.015 mf	20	A	.30	.15	.13	.11
10F7430	C43C183MNP	.018 mf	20	A	.30	.15	.13	.11
10F7431	C43C223MNP	.022 mf	20	A	.30	.15	.13	.11
10F7432	C43C333MNP	.033 mf	20	A	.30	.15	.13	.11
10F7433	C43C393MNP	.039 mf	20	A	.30	.15	.13	.11
10F7434	C43C473MNP	.047 mf	20	A	.46	.23	.19	.16
10F7435	C43C563MNP	.056 mf	20	B	.46	.23	.19	.16
10F7436	C43C683MNP	.068 mf	20	C	.52	.26	.21	.18
10F7437	C43C104MNP	.1 mf	20	C	.52	.26	.21	.18
10F7438	C43C104ZNP	.1 mf	+80−20	C	.44	.22	.18	.15
10F7439	C43C124MNP	.12 mf	20	D	.52	.26	.21	.18
10F7440	C43C154MNP	.15 mf	20	D	.52	.26	.21	.18
10F7441	C43C224MNP	.22 mf	20	D	.90	.45	.36	.30
10F7442	C43C334MNP	.33 mf	20	E	.90	.45	.36	.30
10F7443	C43C474MNP	.47 mf	20	E	1.18	.59	.40	.34

MONO-GLASS™ CAPACITOR KIT

Kit-110MG contains a wide assortment of the most popular C40, C41, C43 axial lead mono-glass monolithic capacitors in three industry standard temperature characteristic, COG (NOP), X7R, Z5U. 56 valves, ranging from 10pf to .47mf in four tolerances, 50WVDC rating. Each drawer is clearly labeled with T.C., capacitance value, voltage and part number.

81F9011 NET 133.00

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

Monolithic Capacitors MONO-PAK®

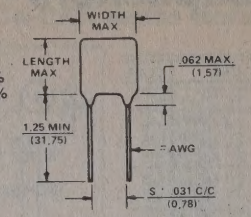
RADIAL LEAD EPOXY COATED MONOLITHIC CAPACITORS

TYPE NO. DESCRIPTION

CN	15	A	100
Temperature Characteristic CN = COG CW = X7R CZ = Z5U	Size (See Table)	Voltage A = 100VDCW C = 50VDCW	Cap. Value

K* Tolerance K = ±10% M = ±20%

*This cap. has .200" lead spacing.



CN SERIES—ULTRA STABLE

EIA Temperature Characteristic COG (NPO) temp. vs. cap. 0 ±30ppm/°C max. change from +25°C over range +25°C to 85°C.

100 VDCW COG (NPO) (TOL ±10%)

Stock No.	CN Type	Cap.	100-900	1,000-9,000	10,000-Up
20F1410	15A100K	10pF	.15	.13	.10
20F1411	15A150K	15pF	.15	.13	.10
20F1412	15A220K	22pF	.15	.13	.10
20F1413	15A330K	33pF	.15	.13	.10
20F1414	15A470K	47pF	.15	.13	.10
20F1415	15A680K	68pF	.15	.13	.10
20F1416	15A101K	100pF	.15	.13	.10
20F1417	15A151K	150pF	.18	.15	.12
20F1418	15A221K	220pF	.18	.15	.12
20F1419	20A331K	330pF	.39	.20	.13
20F1420	20A471K	470pF	.39	.20	.13
20F1421	20A681K	680pF	.39	.20	.13
20F1422	20A102K	.001mF	.39	.20	.13
20F1423	20A152K	.0015mF	.49	.27	.16
20F1424	30A222K	.0022mF	.82	.65	.51
20F1425	30A322K	.0033mF	.82	.65	.51
20F1426	30A472K	.0047mF	1.22	.96	.75
20F1427	30A682K	.0068mF	1.85	1.46	1.15
20F1428	30A103K	.01mF	1.56	1.23	.92

CW SERIES TEMPERATURE STABLE

E1A Temperature Characteristic X7R temp. vs. cap. ± 15% max. cap. change from +25°C over range −55°C to +125°C.
100VDC X7R

100 VDCW X7R (TOL. ±10%)

Stock No.	CW Type	Cap.	100-900	1,000-9,000	10,000 Up
31F1203	15A151K	150pF	.15	.13	.10
31F1238	15A221K	220pF	.15	.13	.10
31F1253	15A271K	270pF	.15	.13	.10
31F1232	15A471K	470pF	.15	.13	.10
31F1268	15A681K	680pF	.15	.13	.10
31F1256	15A102K	.001mF	.15	.13	.10
31F1265	15A122K	.0012mF	.15	.13	.10
31F1249	15A152K	.0015mF	.15	.13	.10
31F1218	15A222K	.0022mF	.15	.13	.10
31F1215	15A562K	.0056mF	.17	.14	.11
31F1201	20A682K	.0068mF	.25	.20	.14
31F1223	20A103K	.01mF	.25	.20	.14
81F9076	20A103K*	.01mF	.25	.20	.14
31F1246	20A153K	.015mF	.25	.20	.14
31F1242	20A223K	.022mF	.32	.26	.19
81F9077	20A233K*	.022mF	.32	.26	.19
31F1216	20A333K	.033mF	.51	.40	.29
31F1202	30A393K	.039mF	.65	.51	.37
31F1210	30A473K	.047mF	.65	.51	.37
31F1231	30A563K	.056mF	.65	.51	.37
31F1235	30A104K	.1mF	.85	.67	.48
31F1241	50A334K	.33mF	1.97	1.15	.99
31F1221	50A474K	.47mF	2.29	1.34	1.15

MONO-PAK® RADIAL LEAD MOLDED CAPACITORS

These two pin dual-in-line capacitors feature .165" seated height for compatability with IC's and other DIP components. Available in standard EIA Temperature Characteristics. Capacitors are magazine loaded (200 pcs. per) for automatic insertion.

CW80-SERIES 50 VOLT DCW X7R

Stk. No.	Type CW80	Cap.	200-800	1000-4800	5000 & Up
81F9103	C332KM	.0032mF	.28	.16	.14
81F9104	C472KM	.0047mF	.28	.16	.14
81F9105	C103KM	.01mF	.28	.16	.14
81F9106	C103MM	.01mF	.26	.14	.13
81F9107	C223KM	.01mF	.33	.18	.17
81F9108	C473KM	.047mF	.38	.21	.19
81F9109	C473MM	.047mF	.36	.20	.18
81F9110	C104KM	.1mF	.45	.25	.23
81F9111	C104MM	.1mF	.40	.23	.20
81F9112	C224KM	.22mF	.76	.42	.38
81F9113	C224MM	.22mF	.53	.30	.27

CW SERIES 50 VDC X7R

Stock No.	CW Type	Cap.	100-900	1,000-9,000	10,000-Up
31F1206	15C151K	150pF	.15	.13	.10
31F1213	15C181K	180pF	.15	.13	.10
31F1236	15C221K	220pF	.15	.13	.10
31F1261	15C271K	270pF	.15	.13	.10
31F1277	15C331K	330pF	.15	.13	.10
31F1255	15C391K	390pF	.15	.13	.10
31F1275	15C471K	470pF	.15	.13	.10
31F1264	15C561K	560pF	.15	.13	.10
31F1278	15C681K	680pF	.15	.13	.10
31F1227	15C821K	820pF	.15	.13	.10
31F1272	15C102K	.001mF	.15	.13	.10
31F1258	15C102M	.001mF	.14	.11	.09
31F1234	15C122K	.0012mF	.15	.13	.10
31F1274	15C152K	.0015mF	.15	.13	.10
31F1267	15C182K	.0018mF	.15	.13	.10
31F1270	15C222K	.0022mF	.15	.13	.10
31F1240	15C272K	.0027mF	.15	.13	.10
31F1220	15C332K	.0033mF	.15	.13	.10
31F1245	15C392K	.0039mF	.15	.13	.10
31F1257	15C472K	.0047mF	.17	.14	.11
31F1271	15C682K	.0068mF	.17	.14	.11
31F1260	15C822K	.0082mF	.18	.15	.12
31F1251	15C103K	.01mF	.18	.15	.12
31F1269	15C103M	.01mF	.17	.13	.11
31F1263	15C123K	.012mF	.18	.15	.12
31F1254	15C153K	.015mF	.18	.15	.12
14F3095	20C103K	.01mF	.25	.20	.14
81F9078	20C103K*	.01mF	.25	.20	.14
14F3096	20C103M	.01mF	.20	.17	.13
81F9079	20C103M*	.01mF	.20	.17	.12
31F1204	20C183K	.018mF	.25	.20	.14
31F1212	20C223K	.022mF	.25	.20	.14
81F9080	20C223K*	.022mF	.25	.20	.14
31F1226	20C273K	.027mF	.25	.20	.14
31F1248	20C333K	.033mF	.25	.20	.14
31F1266	20C393K	.039mF	.32	.26	.19
31F1233	20C473K	.047mF	.32	.26	.19
81F9081	20C473K*	.047mF	.32	.26	.19
31F1273	20C563K	.056mF	.51	.40	.29
31F1239	20C683K	.068mF	.51	.40	.29
31F1219	20C823K	.082mF	.51	.40	.29
14F3097	20C104K	.1mF	.51	.31	.26
81F9082	20C104K*	.1mF	.51	.31	.26
14F3098	20C104M	.1mF	.43	.28	.24
81F9083	20C104M*	.1mF	.43	.28	.24
31F1205	30C104K	.1mF	.65	.51	.37
31F1276	30C104M	.1mF	.54	.45	.33
31F1224	30C154K	.15mF	.85	.67	.48
31F1217	30C224K	.22mF	1.14	.90	.64

CN80-SERIES 50 VOLT DCW COG (NPO)

Stk. No.	Type CN80	Cap.	200-800	1,000-4,800	5000-Up
81F9093	C100KM	10pF	.28	.16	.14
81F9094	C220KM	22pF	.28	.16	.14
81F9095	C330KM	33pF	.28	.16	.14
81F9096	C470KM	47pF	.28	.16	.14
81F9097	C101KM	100pF	.28	.16	.14
81F9098	C151KM	150pF	.28	.16	.14
81F9099	C221KM	220pF	.28	.16	.14
81F9100	C471KM	470pF	.33	.18	.17
81F9101	C102KM	.001mF	.33	.18	.17
81F9102	C222KM	.0022mF	.43	.24	.22

MONO-PAK® SIZES

Size Code	Max. Lgth.	Max. Width	Max. Thick.	Lead Spacing	Lead AWG
15	.150"	.150"	.100"	.100"	26
20	.200"	.200"	.125"	.100"	24
30	.300"	.300"	.150"	.200"	24
40	.400"	.400"	.150"	.200"	24
50	.500"	.500"	.200"	.400"	22

CZ SERIES GENERAL PURPOSE

EIA Temperature Characteristic Z5U temp. vs. cap. +22%−82% max. cap. change from +25°C over range −30°C to +85°C.

100VDC Z5U (TOL ±20%)

Stock No.	CZ Type	Cap. mF	100-900	1,000-9,000	10,000-Up
14F3079	15A682M	.0068	.15	.13	.11
14F3080	15A103M	.01	.15	.13	.11
81F9084	20A103M*	.01	.15	.13	.11
14F3081	15A153M	.015	.15	.13	.11
14F3082	20A223M	.022	.26	.21	.18
81F9085	20A223M*	.022	.26	.21	.18
14F3083	20A333M	.033	.26	.21	.18
14F3084	20A473M	.047	.26	.21	.18
81F9086	20A473M*	.047	.26	.21	.18
14F3085	20A683M	.068	.26	.21	.18
14F3086	20A104M	.1	.26	.21	.15
81F9087	20A104M*	.1	.26	.21	.15
14F3087	30A154M	.15	.43	.35	.25
14F3088	30A224M	.22	.43	.35	.25
14F3089	30A334M	.33	.43	.35	.25
14F3090	30A474M	.47	.95	.56	.48
14F3091	40A684M	.68	.95	.56	.48
14F3092	40A105M	1	1.88	1.09	.94
14F3093	50A155M	1.5	2.56	1.49	1.28
14F3094	50A225M	2.2	4.14	2.41	2.07

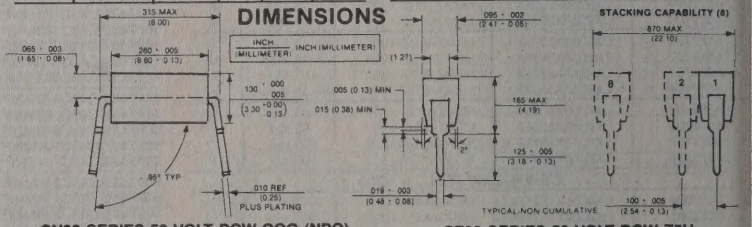
50 VDC Z5U (TOL ±20%)

Stock No.	CZ Type	Cap. mF	100-900	1,000-9,000	10,000-Up
14F3059	15C102M	.001	.15	.13	.11
14F3060	15C222M	.0022	.15	.13	.11
14F3061	15C332M	.0033	.15	.13	.11
14F3062	15C472M	.0047	.15	.13	.11
14F3063	15C682M	.0068	.15	.13	.11
14F3064	15C103M	.01	.15	.13	.09
81F9088	20C103M*	.01	.15	.13	.09
14F3065	15C223M	.022	.15	.13	.11
14F3066	15C333M	.033	.15	.13	.11
14F3067	15C473M	.047	.26	.21	.18
81F9090	20C473M*	.047	.26	.21	.18
14F3068	20C683M	.068	.26	.21	.18
14F3069	20C104M	.1	.26	.21	.15
81F9091	20C104M*	.1	.26	.21	.15
81F9089	20C223M*	.1	.15	.12	.10
14F3070	20C224M	.22	.35	.28	.23
81F9092	20C224M*	.22	.35	.28	.23
14F3071	30C334M	.33	.43	.35	.25
14F3072	30C474M	.47	.80	.65	.47
14F3073	30C684M	.68	.80	.65	.47
14F3074	30C105M	1	.86	.70	.51
14F3075	40C155M	1.5	1.48	.86	.74
14F3076	40C225M	2.2	2.22	1.29	1.11
14F3077	50C335M	3.3	3.77	2.19	1.88
14F3078	50C475M	4.7	4.93	2.86	2.46

CZ80-SERIES 50 VOLT DCW Z5U

Stk. No.	Type CZ80	Cap.	200-800	1000-4800	5000 & Up
81F9114	C103MM	.01mF	.23	.13	.12
81F9115	C103ZM	.01mF	.22	.13	.11
81F9116	C223MM	.022mF	.28	.16	.14
81F9117	C473MM	.047mF	.30	.17	.15
81F9118	C473ZM	.047mF	.30	.17	.15
81F9119	C104MM	.1mF	.33	.18	.17
81F9120	C104ZM	.1mF	.32	.18	.16
81F9121	C224MM	.22mF	.38	.21	.19
81F9122	C224ZM	.22mF	.37	.21	.19

DIMENSIONS



Capacitors

DIPPED-MICA CAPACITORS

Silvered mica with plastic coating. Combines stability, dielectric strength, "Q", dielectric constant, chemical inertness, moisture and puncture resistance. Oper. Temp. —55 to 150°C. Tolerance: ±5% except (*) ±0.5 pF. DMS series is stamped with cap. values in pF followed by a letter indicating tol: (J) ±5%; (A) ±1 pF; (D) ±0.5 pF. All meet or exceed MIL-C-S specifications. 500 volts except (†) 100 V and (**) 300 V.

SIZE CHART (Marked with MIL and Commercial Type Nos.)

DM5.....270x.190x.110 to .270x.250x.190
DM10/CM04.....360x.330x.190 to .400x.390x.230
DM15/CM05.....450x.360x.170 to .530x.430x.250
DM19/CM06.....640x.500x.190 to .700x.570x.340

Stk. No.	Type	pF	10-90	100-490	500-990
14F1262	DM5CC010D	1*	.44	.33	.28
14F1263	DM5CC020D	2*	.44	.33	.28
14F1264	DM5CC030D	3*	.44	.33	.28
14F1265	DM5CC040D	4*	.44	.33	.28
14F1266	DM5CC050D	5*	.44	.33	.28
14F1267	DM5CC060D	6	.44	.33	.28
14F1268	DM5CC070D	7	.44	.33	.28
14F1269	DM5CC080D	8	.44	.33	.28
14F1270	DM5CC100J	10**	.27	.20	.17
14F1271	DM5CC120J	12**	.27	.20	.17
14F1272	DM5CC150J	15**	.28	.21	.18
14F1273	DM5CC180J	18**	.33	.25	.21
14F1274	DM5CC200J	20**	.33	.25	.21
14F1275	DM5CC220J	22**	.34	.26	.22
14F1276	DM5CC240J	24**	.34	.26	.22
14F1277	DM5EC270J	27**	.35	.27	.22
14F1278	DM5EC300J	30**	.37	.28	.19
14F1279	DM5EC330J	33**	.38	.29	.24
14F1280	DM5EC360J	36**	.38	.29	.24
14F1281	DM5EC390J	39**	.40	.30	.25
14F1282	DM5EC430J	43**	.41	.31	.26
14F1283	DM5EC470J	47**	.43	.32	.27
14F1284	DM5EC500J	50**	.43	.32	.27
14F1285	DM5EC510J	51**	.45	.34	.28
14F1286	DM5EC560J	56**	.46	.35	.29
14F1287	DM5EC620J	62**	.48	.36	.30
14F1288	DM5EC680J	68**	.50	.38	.32
14F1289	DM5EC750J	75**	.54	.40	.34
14F1291	DM5FC910J	91**	.61	.46	.39
14F1292	DM5FC101J	100**	.63	.48	.40
14F1294	DM5FC121J	120**	.71	.53	.44
14F1295	DM5FA131J	130**	.63	.48	.40
14F1296	DM5FA151J	150**	.71	.53	.44
14F1297	DM5FA161J	160**	.74	.55	.46
14F1298	DM5FA181J	180**	.79	.59	.50
14F1151	DM10-020D	2*	.34	.26	.19
14F1152	DM10-030D	3*	.34	.26	.19

Stk. No.	Type	pF	10-90	100-490	500-990
14F1156	DM10-150J	15	.34	.26	.19
14F1162	DM10-300J	30	.27	.20	.15
14F1164	DM10-360J	36	.30	.23	.17
14F1166	DM10-430J	43	.30	.23	.17
14F1168	DM10-500J	50	.30	.23	.17
14F1173	DM10-750J	75	.31	.23	.17
14F1177	DM10-111J	110	.31	.24	.18
14F1183	DM10-201J	200	.42	.32	.24
14F1186	DM10-251J	250	.49	.37	.28
14F1188	DM10-301J	300**	.50	.38	.28
14F1189	DM10-331-J	330†	.49	.37	.28
14F1190	DM10-361J	360†	.50	.38	.28
14F1200	DM10-391J	390†	.54	.41	.30
14F571	DM15-680J	68	.24	.18	.13
14F572	DM15-750J	75	.24	.18	.13
14F573	DM15-820J	82	.24	.18	.13
14F575	DM15-101J	100	.24	.18	.13
14F579	DM15-151J	150	.27	.20	.15
14F581	DM15-181J	180	.31	.23	.17
14F582	DM15-201J	200	.31	.23	.17
14F583	DM15-221J	220	.32	.24	.18
14F584	DM15-241J	240	.34	.26	.19
14F586	DM15-271J	270	.36	.27	.20
14F587	DM15-301J	300	.39	.29	.22
14F588	DM15-331J	330	.42	.32	.24
14F589	DM15-361J	360	.45	.25	.23
14F590	DM15-391J	390	.46	.35	.26
14F591	DM15-431J	430	.50	.38	.28
14F592	DM15-471J	470	.52	.40	.29
14F596	DM15-621J**	620	.60	.45	.33
14F1116	DM15-911J†	910	.68	.51	.38
14F1117	DM15-102J†	1000	.74	.56	.41
14F468	DM19-501J	500	.55	.42	.31
14F480	DM19-152J	1500	.99	.75	.55
14F481	DM19-162J	1600	.99	.75	.55
14F1210	DM19-502J	5000	2.48	1.87	1.37

LOW VOLTAGE MINIATURE DISC CERAMIC CAPACITORS

SIZE CHART

Code	Dim. A	Dim. B	Code	Dim. A	Dim. B	Code	Dim. A	Dim. B
A	.290"	.250"	G	.276"	.250"	P	.395"	.250"
B	.385"	.250"	H	.315"	.250"	Q	.475"	.250"
C	.590"	.375"	J	.355"	.375"	R	.530"	.250"
D	.690"	.375"	K	.473"	.375"	S	.590"	.375"
E	.394"	.250"	L*	.721"	.375"	T	.750"	.375"
F	.474"	.250"	M	.315"	.250"	(*) .171" Thickness		

25VDCW +80%, −20% TOL. Z5V

Stk. No.	Type	Mfd.	Size	1-99	100-999	1000-9999
67F802	TCA-503Z	.05	.....	.12	.06	.04
67F804	TCA-104Z	.1	.....	.22	.11	.09

50 VDCW ±20% TOL. Z5U

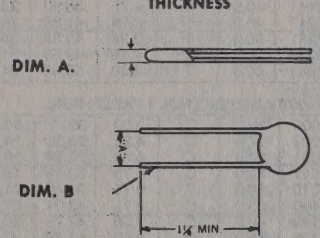
67F300	TCD-103M	.010	E	.11	.06	.04
67F301	TCD-153M	.015	F	.12	.06	.05
67F302	TCD-223M	.022	F	.12	.06	.05
67F303	TCD-333M	.033	F	.13	.07	.05
67F305	TCD-503M	.050	C	.20	.10	.07

50VDCW +80%, −20% TOL. Z5V

67F306	TCD-502Z	.005	G	.00	.00	.00
67F307	TCD-103Z	.010	H	.00	.00	.00
67F308	TCD-203Z	.020	J	.00	.00	.00
67F311	TCD-503Z	.050	K	.00	.00	.00
67F313	TCD-104Z	.100	L	.00	.00	.00

100 VDCW ±20% TOL. Z5U

67F319	TCP-RO5	.05	T	.32	.16	.13



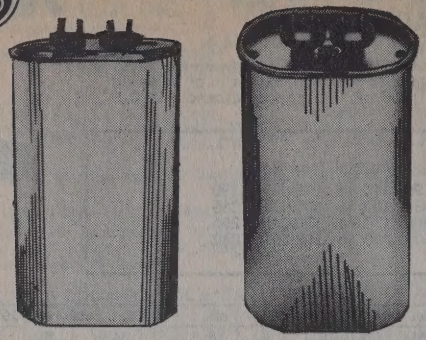
Type TCD designed for low voltage transistor circuitry. All units coated with "Durez" coating. Tinned #22 annealed wire. .156" thick unless otherwise indicated.

GENERAL PURPOSE DISC CAPACITORS

Ceramic disc capacitors with phenolic coating and high temperature wax impregnation. Tol: (*), ±.5pf; (†), GMV, (‡), ±20%. All others ±10%. 1000 VDCW.

Stk. No.	Type	Pf	Size	1-9	10-99	100-999
67F321	CCD-050	5*	A	.16	.08	.05
67F323	CCD-080	8*	A	.16	.08	.05
67F373	CCD-202G	2000†	B	.16	.08	.05
67F378	CCD-332G	3300†	C	.18	.09	.07
67F383	CCD-682G	6800†	C	.18	.09	.07
67F385	CCD-103	10000‡	D	.22	.11	.09

AC/DC POWER CAPACITORS



GEM-I METALLIZED CAPACITORS (97F Series)

General Electric's line of GEM-I capacitors represents a major advance in capacitor technology. GEM-I brings improved performance with substantial reductions in size and weight over conventional paper/foil designs. The extremely low dielectric losses, the inherent "self-healing" property of metalized capacitors, and the greatly increased microfarads per unit volume of GEM-I make it the choice for all AC applications up through 440 VAC. The smaller microfarad values come in an oval case (Style A). The larger units are round case styles (P,S,T).

DIELEKTROL I PAPER/FOIL CAPACITORS (21L Series)

The oval-cased designs are included primarily for replacement purposes. The majority of A-C capacitors now in service are ovals and the round GEM-I designs may not be acceptable.

SPECIFICATIONS

Both the 97F and 21L capacitors shown here are rated for 60,000 hour life with 94% survival when operated within rated voltage and temperature limits. The operating temperature range is −40° to +70°C. The capacitance value shown has a tolerance of ±10%. The Dissipation Factor for the 97F's is 0.1% max. and for the 21L's 0.6% max. All the units contain GE's patented pressure sensitive interrupter and carry UL recognition for fault currents up to 5000 amps.

370VAC RATINGS
370V GEM I METALLIZED FILM

Stock No.	Type	Cap. µF	Case Style	Case Ht. C	1-24	25-49	50-99
81F3172	97F4153	3.0	A	2.62	8.37	5.34	3.92
81F3173	97F4154	4.0	A	2.62	8.70	5.55	4.07
81F3174	97F4155	5.0	A	2.62	9.31	5.94	4.36
81F3175	97F4156	6.0	A	2.88	9.92	6.33	4.64
81F3176	97F4157	7.5	A	3.50	10.86	6.93	5.08
81F3177	97F4158	10.0	A	3.88	13.07	8.34	6.12
81F3178	97F4159	12.5	A	4.50	14.90	9.51	6.97
67F871	97F4525	15.0	P	3.12	17.39	11.10	8.14
67F872	97F4526	17.5	P	3.50	19.22	12.27	9.00
67F873	97F4527	20.0	P	3.50	21.10	13.47	9.88
67F874	97F4528	25.0	P	4.25	24.68	15.75	11.55
67F875	97F3131	30.0	S	3.83	28.67	18.30	13.42
67F876	97F3136	35.0	S	4.25	32.90	21.00	15.40
67F877	97F3141	40.0	S	4.75	36.90	23.55	17.27
67F878	97F3247	45.0	T	3.88	41.36	26.40	19.36
67F879	97F3251	50.0	T	3.88	45.59	29.10	21.34
81F3179	97F3256	55.0	T	4.25	49.59	31.65	23.21
81F3180	97F3261	60.0	T	4.50	53.82	34.35	24.19

370V DIELEKTROL I PAPER FOIL

10F9018	21L5000	15.0	C	3.50	20.77	13.26	9.72
10F9019	21L5002	17.5	C	4.25	23.36	14.91	10.93
10F9020	21L5001	20.0	C	4.50	25.62	16.35	11.99
10F9021	21L5011	25.0	C	5.75	30.46	19.44	14.26
10F9022	21L3010	30.0	C	6.75	34.40	21.96	16.10
10F9023	21L5100	35.0	D	6.75	43.01	27.45	20.13
10F9024	21L5103	40.0	D	7.25	47.75	30.48	22.35
10F9025	21L5101	45.0	D	8.00	51.89	33.12	24.29
10F9026	21L5106	50.0	D	9.00	55.60	35.49	26.03

440VAC RATINGS
440V GEM I METALLIZED FILM

81F3181	97F4172	2.0	A	2.62	10.95	6.99	5.13
81F3182	97F4173	3.0	A	2.62	10.95	6.99	5.13
81F3183	97F4174	4.0	A	2.88	12.27	7.83	5.74
81F3184	97F4175	5.0	A	3.50	13.07	8.34	6.12
81F3185	97F4176	6.0	A	3.88	13.87	8.85	6.49
81F3186	97F4177	7.5	A	4.50	15.04	9.60	7.04
81F3187	97F4581	10.0	P	3.12	17.91	11.43	8.38
81F3188	97F4582	12.5	P	3.50	20.87	13.32	9.77
81F3189	97F4583	15.0	P	4.25	21.76	13.89	10.19
81F3190	97F3119	19.5	S	3.98	22.65	14.46	10.60
81F3191	97F3110	20.0	S	4.25	24.49	15.63	11.46
81F3192	97F3123	25.0	S	4.75	27.73	17.70	12.98
81F3193	97F3216	30.0	T	3.88	36.43	23.25	17.05
81F3194	97F3209	35.0	T	4.25	38.54	24.60	18.04
81F3195	97F3207	40.0	T	4.50	48.36	30.87	22.64
81F3196	97F3210	45.0	T	5.25	52.55	33.54	24.60

440V DIELEKTROL I PAPER—FOIL

Stock No.	Type	Cap. µF	Case Style	Case Ht. Z	1-24	25-49	50-99
10F9027	21L5204	12.5	C	4.25	22.56	14.40	10.56
10F9028	21L5207	15.0	C	4.75	24.82	15.84	11.62
10F9029	21L5209	17.5	C	5.75	27.40	17.49	12.83
10F9030	21L5215	20.0	C	6.25	29.61	18.90	13.86
10F9032	21L5232	25.0	C	8.00	34.12	21.78	15.97
10F9033	21L5309	30.0	D	6.15	43.33	27.66	20.28
10F9034	21L5311	35.0	D	8.00	48.93	31.23	22.90
10F9035	21L5313	40.0	D	9.00	53.67	34.26	25.12
81F3197	21L5304	45.0	D	9.50	57.81	36.90	27.06

26F6600 SERIES PAPER/FILM CAPACITORS

These higher voltage A-C capacitors are designed for use in ferroresonant power supplies and A-C filters. The polypropylene/paper dielectric system provides excellent reliability and low losses.

SPECIFICATIONS

Rated life is 60,000 hours with 94% survival. The capacitance tolerance is ±6% and the units are color coded in 4 bands each of 3%. The operating temperature range is −55°C to +70°C. All units contain the pressure sensitive interrupter.

660 VAC NOMINAL

Stock No.	Type	Cap., µF	Case Style	Case Height C	Net Each 1-24	25-49	50-99
47F1296	26F6615FA	.5	A	2.12	9.18	5.95	4.43
47F1297	26F6616FA	1.0	A	2.12	10.17	6.58	4.89
47F1298	26F6617FA	1.5	A	2.12	10.97	7.09	5.27
47F1299	26F6618FA	2.0	A	2.12	11.25	7.27	5.40
47F1328	26F6619FA	2.5	A	2.12	12.14	7.84	5.82
47F1329	26F6664FA	3.0	A	2.32	12.75	8.23	6.10
47F1330	26F6621FA	4.0	A	3.12	14.49	9.34	6.92
47F1331	26F6622FA	5.0	A	3.50	16.89	10.87	8.04
47F1332	26F6623FA	6.0	A	4.25	20.23	13.00	9.60
47F1333	26F6624FA	7.0	A	4.50	21.26	13.66	10.08
47F1334	26F6625FA	8.0	A	5.50	24.13	15.49	11.43
47F1335	26F6626FA	10.0	C	3.88	28.45	18.25	13.45
47F1336	26F6627FA	12.0	C	4.50	35.50	22.75	16.75
47F1337	26F6628FA	15.0	C	5.75	44.05	28.21	20.75
47F1338	26F6629FA	18.0	C	6.75	54.49	34.87	25.64
47F1339	26F6634FA	20.0	D	6.25	59.66	38.17	28.06
47F1340	26F6635FA	25.0	D	7.50	68.45	43.78	32.17
47F1341	26F6636FA	30.0	D	8.00	75.97	48.58	35.69

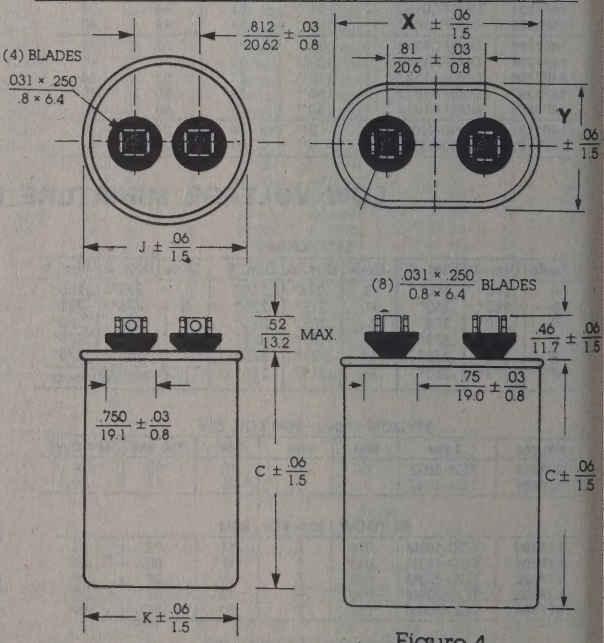


Figure 3

CASE STYLES P, S, & T

Case Style	K	J
P	1.75	1.88
S	2.00	2.12
T	2.50	2.62

Figure 4

CASE STYLES A, C, & D

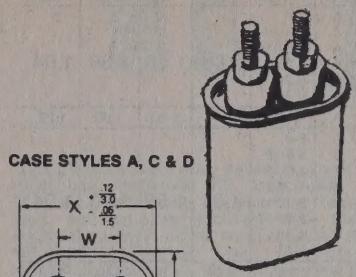
Case Style	X	Y
A	2.16	1.31
C	2.91	1.91
D	3.66	1.97

SCR COMMUTATION CAPACITORS

26F6700/6900 SERIES SCR COMMUTATION CAPACITORS

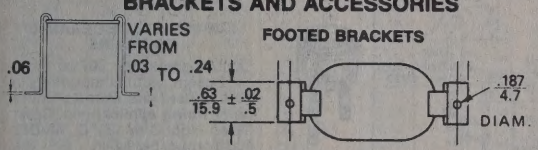
These capacitors are designed for medium to high current applications such as in SCR commutation or either high frequency. A-C circuits. The internal construction features a polypropylene/paper dielectric with exposed foil electrodes and braided cable connections. The specified life is 40,000 hours with 95% survival when operated within rated conditions. The "peak" voltage is the maximum repetitive voltage (in either polarity) that the capacitor can handle.

Stock No.	Type	Cap µF	Case Style	Case Ht.	1-24	25-49	50-99
500 VOLTS PEAK							
62F3600	26F6905FC	2.0	A	2.62	26.19	15.98	10.74
81F3198	26F6907FC	5.0	A	4.25	32.92	20.06	13.46
62F3601	26F6908FC	10.0	C	4.25	45.56	27.72	18.57
62F3602	26F6909FC	20.0	C	6.25	59.66	36.27	24.27
62F3603	26F6910FC	30.0	D	7.25	77.19	46.90	31.35
62F3604	26F6911FC	45.0	E	5.38	130.96	79.51	53.09
62F3605	26F6912FC	50.0	E	6.25	141.30	85.78	57.27
600 VOLTS PEAK							
62F3606	26F6914FC	2.0	A	2.62	28.45	17.35	11.65
62F3607	26F6915FC	5.0	A	4.75	35.08	21.37	14.33
62F3608	26F6916FC	10.0	C	4.75	47.67	29.01	19.42
62F3609	26F6917FC	25.0	D	6.25	64.88	39.44	26.38
81F3199	26F6918FC	30.0	E	6.25	124.38	75.52	50.43
62F3610	26F6919FC	40.0	E	7.25	143.46	87.09	58.14
62F3611	26F6920FC	50.0	E	9.00	185.20	112.40	75.02
1000 VOLTS PEAK							
62F3627	26F6769FC	1.0	A	3.50	29.91	18.23	12.24
47F822	26F6732FC	2.0	A	4.25	31.22	19.03	12.77
47F823	26F6734FC	5.0	C	4.75	44.38	27.01	18.09
47F824	26F6735FC	10.0	D	6.25	62.10	37.76	25.25
62F3628	26F6770FC	20.0	E	7.25	123.77	75.15	50.18
1500 VOLTS PEAK							
62F3629	26F6771FC	.5	A	3.50	23.70	14.47	9.73
47F827	26F6742FC	1.0	A	4.25	30.00	18.29	12.28
47F828	26F6743FC	2.0	C	4.25	35.27	21.48	14.41
47F829	26F6745FC	5.0	D	7.25	57.73	35.11	23.49
47F830	26F6746FC	10.0	E	7.25	115.68	70.25	46.91



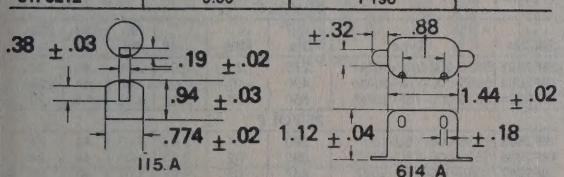
Case Style	X	Y	W
A	2.16	1.31	.81
C	2.91	1.91	1.38
D	3.66	1.97	1.38

BRACKETS AND ACCESSORIES



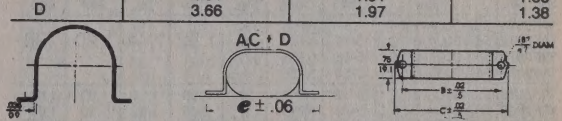
FOR CASE STYLES A, C, D, P, S & T

Stock No.	Case Height	Type 302C920	Price
62F3618	2.12	P210	.25
81F3200	2.39	P208	
62F3619	2.62	P200	
62F3620	2.88	P113	.30
62F3621	3.12	P179	
62F3622	3.50	P119	
62F3623	3.88	P115	
62F3624	4.25	P122	
81F3201	4.50	P211	.35
81F3202	4.75	P116	
62F3625	5.75	P209	
81F3203	6.12	P212	
81F3204	6.25	P152	
81F3205	6.75	P213	.40
81F3206	7.25	P214	
62F3626	8.00	P186	
81F3207	9.00	P215	
81F3208	9.50	P216	
FOR CASE STYLE E			
81F3209	5.88	P218	.55
81F3210	6.25	P190	
81F3211	7.25	P207	
81F3212	9.00	P196	



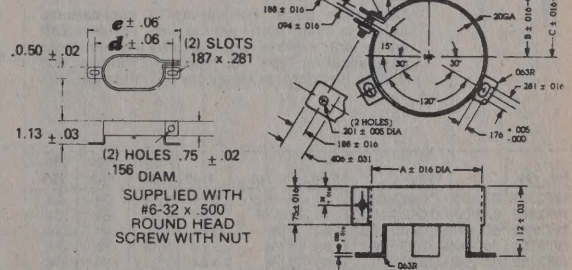
PROTECTIVE BOOT FOR CUP BUSHINGS

Stock No.	Type	Price
62F3616	614A527P21	.20
62F3617	115A1552P23	



WRAP-AROUND BRACKETS

Stock No.	Case Style	Type	Mtg. Dim. F	Price
62F3613	A	K9827065P21	2.38	.15
62F3614	C	614A301P61	3.31	.15
62F3615	D	614A301P51	4.06	.15
81F3213	P	279A7235P24	2.50	.15
81F3214	S	279A7235P22	2.75	.15
81F3215	T	279A7235P23	3.25	.15


e ± .06
d ± .06
.0.50 ± .02
(2) SLOTS .187 x .281
1.13 ± .03
(2) HOLES .75 ± .02
.156 DIAM.
SUPPLIED WITH #6-32 x .500 ROUND HEAD SCREW WITH NUT
P,S ↑ D
(2 HOLES) .201 ± .005 DIA
A ± .016 DIA

UNIVERSAL WRAP-AROUND BRACKETS

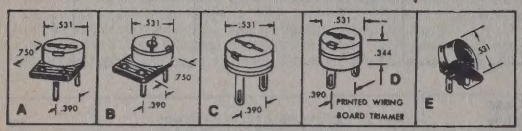
Stock No.	Case Style	Type	Mtg. Dim. F	Mtg. Dim. G	Price
62F3630	A	128A2244ACP21	2.69	—	.65
62F3631	C	128A2244ABP22	3.44	—	.65
62F3632	D	128A22244ABP23	4.19	—	.70
81F3216	P	295A6016P31	—	1.12	.65
81F3217	S	295A6016P32	—	1.25	.65
81F3218	T	295A6016P33	—	1.50	.65

TUSONIX Ceramic Disc and Trimmer Capacitors

MINIATURE CERAMIC DISC TRIMMERS

Stk. No.	Type	Fig.	Mmf. Range	1-49	50-99	100-249	250-499
19F2090	538-000A-2-8	A	2-8				
19F2091	538-000A-5.5-18	A	5.5-18				
19F2092	538-000B-2.5-11	A	2.5-11				
19F2093	538-000B-7-25	A	7.25	2.08	1.56	1.30	1.04
19F2095	538-000C-8-25	A	8-25				
19F2097	538-000D-9-35	A	9-35				
19F2893	538-000F-15-60	A	15-60	2.44	1.83	1.53	1.22
19F2098	538-002A-2-8	B	2-8				
19F2099	538-002A-5.5-18	B	5.5-18				
19F2100	538-002B-2.5-11	B	2.5-11				
19F2101	538-002B-7-25	B	7-25				
19F2102	538-002C-3-10	B	3-10	2.08	1.56	1.30	1.04
19F2103	538-002C-8-25	B	8-25				
19F2104	538-002D-3-15	B	3-15				
19F2105	538-002D-9-35	B	9-35				
19F2894	538-002F-15-60	B	15-60	2.44	1.83	1.53	1.22
19F1738	538-011A-2-8	C	2-8				
19F1739	538-011A-5.5-18	C	5.5-18				
19F1740	538-011B-2.5-11	C	2.5-11				
19F1741	538-011B-7-25	C	7-25	2.48	1.86	1.55	1.24
19F1744	538-011D-3-15	C	3-15				
19F1745	538-011D-9-35	C	9-35				
19F2895	538-011F-15-60	C	15-60	2.84	2.13	1.78	1.42
19F2219	538-006A-2-8	D	2-8	2.28	1.71	1.43	1.14
19F2220	538-006A-5.5-18	D	5.5-18				
19F2226	538-006D-9-35	D	9-35	2.28	1.71	1.43	1.14
19F2444	538-006F-15-60	D	15-60	2.64	1.98	1.65	1.32

TYPE 557 PHENOLIC BASE TRIMMER CAPACITORS



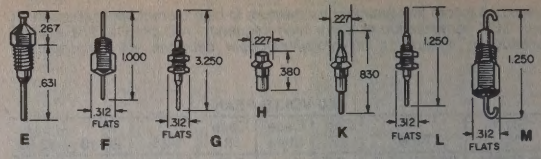
Stk. No.	Type	Cap. (pF)	Temp. Coef.	Fig.	1-49	50-99	100-249	250-499
19F2971	557-000A-1.5-7	1.5-7	NPO	A				
19F2972	557-000A-3-12	3-12	NPO	A	1.92	1.44	1.20	.96
19F2973	557-000A-5-25	5-25	NPO	A				
19F2977	557-000E-8-50	8-50	N750	A				
19F2979	557-006A-3-12	3-12	NPO	B	2.08	1.56	1.30	1.04
19F2980	557-006A-5-25	5-25	NPO	B	2.08	1.56	1.30	1.04
19F2984	557-006E-8-50	8-50	N750	B	2.08	1.56	1.30	1.04
19F2987	557-013A-5-25	5-25	NPO	C	1.76	1.32	1.11	.88
19F2990	557-013E-5-30	5-30	N750	C	1.76	1.32	1.11	.88
19F3001	557-091E-8-50	8-50	N750	D	2.56	1.92	1.60	1.28
19F3002	557-091F-10-75	10-75	N1500	D	2.84	2.13	1.78	1.42
19F3008	3192-000A-6-25	6-25	NPO	E	4.80	3.60	3.00	2.40

GENERAL PURPOSE CERAMICONS

Ceramicon discs. For variety of applications. COGO is a high stability type; X5F, X5R and Z5A are general purpose types; U2,J0 is a temperature compensating type. All types are rated at 500 WVDC. Standard lead length is 1½" minimum. *mf.

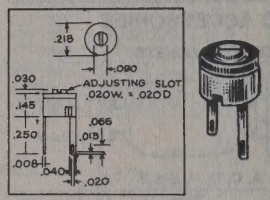
Stk. No.	Type	PF Cap.	Tol.	1-49	50-99	100-499	500-999
19F2683	831-000-COGO-509C	5	±.25 pF	3.64	1.54	.64	.34
19F2685	831-000-COGO-100D	10	±.5 pF	3.64	1.54	.64	.34
19F2689	801-000-COGO-200J	20	±5%	3.04	1.54	.64	.34
19F2704	801-000-U2JO-500J	50	±5%	3.04	1.54	.64	.34
19F2709	851-000-U2JO-101J	100	±5%	3.04	1.54	.64	.34
19F2721	831-000-X5FO-101K	100	±10%	3.04	1.54	.63	.33
19F2724	831-000-X5FO-221K	220	±10%	3.04	1.54	.63	.33
19F2725	831-000-X5FO-271K	270	±10%	3.04	1.54	.63	.33
19F2726	831-000-X5FO-331K	330	±10%	3.04	1.54	.63	.33
19F2728	831-000-X5FO-471K	470	±10%	3.04	1.54	.63	.33
19F2731	801-000-X5FO-102K	1K	±10%	3.06	1.56	.66	.36
19F2732	851-000-X5FO-152K	1500	±10%	3.09	1.59	.69	39
19F2738	811-000-Z5UO-103M	10K	±20%	3.08	1.58	.68	.38
19F2740	841-000-Z5UO-203M	20K	±10%	3.03	1.63	.73	.43
19F1701	805-000-Z5VO-103Z*	.01	+80-20%	3.03	1.53	.63	.33

FEED-THRU CERAMIC CAPACITORS



For by-passing RF to ground in feed-thru appl. Wire terminal (362) and hook terminals (327) serve as tie pt. for several connections, for supporting other ckt elements and for pt. to pt. wiring. 2499 (for aerospace appl.) is mini version of 327. 2499 and 327 are sealed in heavy metal housing at both ends with a low loss thermosetting plastic. *Curved leads. †MIL-C-11015C 20%.

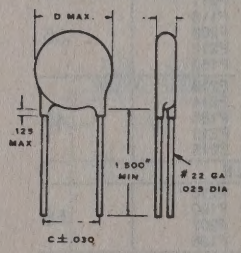
Stk. No.	Type	pf.	Fig.	1-49	50-99	100-249	250-499
19F2300	321-000-X5UO-102M	1000	L	1.60	1.20	1.00	.80
19F1780	327-005-X5U0-102M	1000	M	2.12	1.59	1.33	1.06
19F1781	327-005-X5U0-152M	1500	M	2.12	1.59	1.33	1.06
19F1783	357-001-X5U0-102M	1000	L	1.64	1.23	1.03	.82
19F1784	357-001-X5U0-152M	1500	L	1.64	1.23	1.03	.82
19F1788	2404-000-X5U0-101M	100	K	.68	.51	.43	.34
19F1789	2404-000-X5U0-102P	1000	K	.68	.51	.43	.34
19F1791	2404-014-X5U0-501M	500	H	.64	.48	.40	.32
19F1790	2404-014-X5U0-102P	1000	H	.64	.48	.40	.32
19F2861	2499-003-X5S0- 102M	1000	F	2.00	1.50	1.25	1.00
19F2862	2499-003-X5S0- 152M	1500	F	2.00	1.50	1.25	1.00
19F2301	2425-001-X5U0-102AA	1000	E	2.80	2.10	1.75	1.40
19F2302	2425-001-X5W0-502AA	5000	E	2.80	2.10	1.75	1.40
19F2303	2425-003-W5U0-102AA	1000	E	3.04	2.28	1.90	1.52
19F2304	2425-003-W5U0-501AA	500	E	3.04	2.28	1.90	1.52
19F2305	2425-003-W5W0-502AA	5000	E	3.04	2.28	1.90	1.52
19F2150	CK70-AW-152M†	1500	M	2.52	1.89	1.58	1.26



SUBMINIATURE CERAMIC TRIMMERS

Occupies less than .007 cu. inches. Design permits mounting in both printed circuit and point to point wiring applications. Oper. Temp. −55°C to 125°C. WVDC, 100 Torque, 5-3 oz. in.

Stk. No.	Type	1-49	50-99	100-249	250-499
19F3446	518-000A-2.5-9	4.95	4.25	3.75	3.50
19F3447	518-000A-3.5-20	4.95	4.25	3.75	3.50
19F3440	518-000A-5-25	4.95	4.25	3.75	3.50
17F130	518-000G-7-40	4.95	4.25	3.75	3.50



TRANSCAP CERAMIC CAPACITORS

TRANSCAPS are low cost disc type ceramic capacitors for transistorized applications. Useful where high capacitance and low cost are important, such as in by-pass and filtering. Dissipation factor: 7% max. @ 1kHz, 3VRMS, 25°C. Body thickness: .156". Lead spacing: 5635, 5655, 5835, 5855—.25"; 5615, 5815—.375".

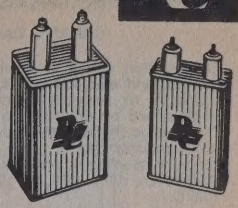
Stk. No.	Type	Dia.	Mfd.	1-49	50-99	100-249	250-499
	12 VOLT						
19F2802	5635-000-Y5F-503M	.275	.05	2.04	1.04	.45	.25
19F2803	5655-000-Y5F-104M	.420	.10	2.04	1.08	.48	.28
19F2804	5615-000-Y5F-224M	.550	.22	2.12	1.12	.52	.32
	25 VOLT						
19F2805	5835-000-Y5U-103Z	.290	.01	2.03	1.03	.44	.24
19F2806	5835-000-Y5U-203Z	.290	.02	2.03	1.03	.44	.24
19F2087	5855-000-Y5U-503Z	.437	.05	2.07	1.07	.48	.28
19F2088	5815-000-Y5U-104Z	.593	.10	2.11	1.11	.51	.37
19F2089	5815-200-Y5U-204Z	.593	.02	4.22	2.22	1.02	.62
	50 VOLT						
81F2078	5935-000-Y5UO-103M	.240	.01	2.04	1.04	.45	.25
81F2079	5935-000-Y5UO-203M	.240	.02	2.04	1.04	.45	.25
81F2080	5955-000-Y5UO-503M	.437	.05	2.08	1.08	.48	.28

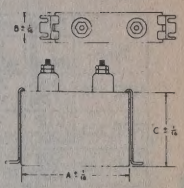
Plastic Capacitors, High Voltage Capacitors

TYPE LK MYLAR* PAPER FILTER CAPACITORS

*T.M.® U.S. Pat. off.

Stk. No.	Type	Cap. mfd.	DC Volts	Size (AxBxC)	1-9	10-24	25-49	50-99
18F2985	LK 20-105	1.0	2000	1¾ x1x3¼	18.26	15.57	12.56	11.11
18F2986	LK 20-205	2.0	2000	2½ x1 13/16 x3½	22.66	19.47	15.62	13.87
18F2987	LK 20-405Y	4.0	2000	3¾ x1¼ x3¾	32.16	27.70	22.18	19.63
18F2988	LK 20-106Y	10.0	2000	3¾ x2¼ x4½	58.05	50.33	40.29	35.68
18F2989	LK 20-126Z	12.0	2000	3¾ x3 3/16 x4	74.25	63.67	51.26	45.34
18F2990	LK 50-104	0.1	5000	1¾ x1x2⅛	22.85	18.95	15.60	14.10
18F2991	LK 50-254	0.25	5000	1¾ x1x3	25.25	21.05	17.36	15.80
18F2992	LK 50-504	0.5	5000	1¾ x1x4¾	29.45	24.47	20.16	18.30
18F2993	LK 50-105	1.0	5000	2½ x1 3/16 x5	39.06	32.80	26.96	24.46
18F2994	LK 50-405	4.0	5000	3¾ x2¼ x6¼	93.42	78.24	62.49	56.73
18F2995	LK100-104	0.1	10KV	3¾ x1¾ x3¼	51.70	45.68	34.30	32.25
18F2996	LK100-254	0.25	10KV	3¾ x1¾ x3¾	60.29	53.55	40.08	36.99
18F2997	LK100-504	0.5	10KV	3¾ x1¾ x5¾	75.43	66.85	50.31	46.13
18F2998	LK100-105	1.0	10KV	3¾ x2¼ x7¼	106.77	95.02	71.16	65.29
18F2999	LK100-205	2.0	10KV	4 5/16 x3¾ x6¾	191.88	171.43	128.44	117.71





Type LK capacitors offer unusually good electrical characteristics with very small size. They are specifically designed for filter, bypass, and coupling applications in the low audio frequency range. Have twice the life of MIL-C-25D capacitors. Temp. range: −55°C to +85°C. Std. tol. ±10%. Mineral oil filled. No PCB's. Footed Brkts. supplied.

TYPE "OF" HIGH VOLTAGE GLASS CAPACITORS

Mylar film dielectric. Used for high voltage power filter. Mount in any position. Temperature range—55°C to +85°C. Tolerance ±10%. ⅜x8-32 screw terminals except (*) marked have tinned copper pigtails. Heavy wall, hard glass case.

Contains no PCBS

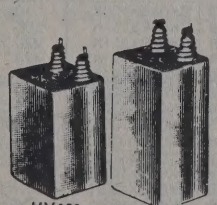
Stk. No.	Type OF	Cap. mfd.	DC Volts	Size "L" & "D"	1-9	10-24	25-49	50-99
19F700	20-103*	.01	2000	1 3/16 x 19/32"	9.68	9.28	8.81	8.23
19F701	20-503	.05	2000	1¾ x¾"	10.10	9.70	9.21	8.61
19F702	20-104	.10	2000	2¼ x¾"	10.25	9.82	9.34	8.73
19F703	20-254	.25	2000	2¾ x 29/32"	11.96	11.47	10.94	10.18
19F704	30-103*	.01	3000	1 9/16 x 19/32"	9.76	9.36	8.92	8.33
19F705	30-203	.02	3000	1¾ x¾"	10.10	9.70	9.21	8.61
19F706	30-503	.05	3000	2¼ x¾"	10.25	9.82	9.34	8.73
19F707	30-104	.10	3000	1¾ x1⅛"	12.92	12.38	11.78	10.98
19F1290	30-254	.25	3000	2x1⅜"	14.75	14.15	13.46	12.56
19F1291	30-504	.50	3000	2¾ x1⅝"	16.44	15.74	15.01	13.99
19F708	50-103	.01	5000	1¾ x¾"	11.52	11.31	9.97	9.46
19F709	50-203	.02	5000	2¼ x¾"	11.72	11.72	10.34	9.75
19F710	50-503	.05	5000	2¼ x 29/32"	12.72	12.72	11.13	10.52
19F711	50-104	.10	5000	2¼ x1⅝"	17.11	17.11	15.08	14.17
19F1292	50-102*	.001	5000	1 3/16 x 19/32"	11.06	10.85	9.58	9.10

Stk. No.	Type OF	Cap. mfd.	DC Volts	Size "L" & "D"	1-9	10-24	25-49	50-99
19F1293	50-502*	.005	5000	1⅝ x 19/32"	11.13	10.94	9.67	9.15
19F1294	50-254	.25	5000	3x1⅝"	21.47	21.47	18.99	17.87
19F1295	50-504	.50	5000	6x1⅝"	24.75	24.75	21.82	20.65
19F1296	80-502	.005	8000	1¾ x¾"	11.11	11.11	9.75	9.17
19F1297	80-103	.01	8000	2¼ x¾"	12.31	11.89	10.52	9.93
19F1298	80-104	.10	8000	3⅜ x1⅝"	22.65	19.46	18.17	16.62
19F712	100-102*	.001	10KV	1⅝ x 19/32"	11.06	11.06	9.64	9.29
19F713	100-502	.005	10KV	1¾ x 13/16"	13.45	12.29	11.11	10.45
19F714	100-103	.01	10KV	2¼ x 29/32"	14.81	13.56	12.29	11.52
19F715	100-203	.02	10KV	2¾ x1⅛"	19.55	17.83	16.11	15.15
19F1299	150-103	.01	15KV	3¾ x1⅛"	23.76	21.70	19.71	18.39
19F716	200-102	.001	20KV	3½ x¾"	22.71	20.67	18.66	17.04
19F717	200-202	.002	20KV	3½ x 13/16"	23.53	21.41	19.36	17.61
19F718	200-502	.005	20KV	3½ x1⅛"	25.26	22.99	20.79	18.93
19F719	200-103	.01	20KV	4½ x1⅛"	30.07	27.31	24.58	22.58
19F720	300-501*	.0005	30KV	4 9/16 x 19/32"	22.90	20.78	18.82	17.31
19F722	300-202	.002	30KV	5x 29/32"	36.51	33.43	30.06	27.42
19F723	300-502	.005	30KV	5x1⅜"	44.91	40.73	35.94	33.74
19F724	600-501	.0005	60KV	10x¾"	40.54	37.18	33.77	31.29
19F725	600-102	.001	60KV	10x 29/32"	49.10	44.91	39.99	37.81
19F726	600-202	.002	60KV	10x1⅜"	52.74	48.29	43.97	40.65

HIGH VOLTAGE D.C. POWER PACKS

- **Long-life Silicon Rectifiers Provide Instant Operation**
- **Output from Zero to Rated Voltage by Adjusting Input**
- **Mount in Any Position**

Hermetically sealed, oil filled hot-tinned or lead coated plate steel container with MIL-L-7178-lacquer coating. 118 volt 50-500 Hz input. Output operation from zero to rated voltage by adjusting input. Max. ambient 85°C. Supplied with footed brackets. Positive or negative out. except items marked (*); pos. only. Terminals: 20kVA and less—solder lugs. Units 25kVA and over—aluminum Corona Spheres.



Stk. No.	Type HV	DC KV	Max. MA	Approx. Reg. Volts/Mil	Size	Wt. Lbs.	NET
19F3673	10-103M	0-1	10	36	3¾ x2¼ x3⅜	2	151.39
19F3675	20-152M	0-2	1.5	140	3¾ x1¾ x3⅜	1	146.33
19F1285	20-502M	0-2	5	120	3¾ x2¼ x3⅜	2½	182.94
19F3677	25-103M	0-2.5	10	76	3¾ x2¼ x3¾	3	186.71
19F3676	50-152M	0-5	1.5	400	3¾ x2¼ x3⅜	2	152.65
19F1286	50-502M	0-5	5	280	3¾ x2¼ x3¾	3¼	186.24
19F3678	50-103M	0-5	10	137	3¾ x4 9/16 x5⅞	11	239.68
19F3679	100-152M	0-10	1.5	1500	3¾ x3 3/16 x4½	4	201.84
19F1287	100-502M	0-10	5	500	3¾ x4 9/16 x5⅞	8⅛	256.11
19F3680	100-103M	0-10	10	265	3¾ x4 9/16 x8	12	328.01
19F3681	150-152M	0-15	1.5	1600	3¾ x3 3/16 x5½	5	268.74
19F3682	150-502M	0-15	5	520	3¾ x4 9/16 x6⅛	11	288.91
19F1288	200-152M	0-20	1.5	1740	3¾ x4 9/16 x5⅞	9	273.14
19F1289	200-502M	0-20	5	860	3¾ x4 9/16 x8	12	343.18
19F3683	300-152M	0-30	1.5	2100	3¾ x4 9/16 x7½	11	436.51
19F3684	300-502M	0-30	5	1000	4 11/16 x6x8½	22	492.04
19F3686	500-502M	0-50	5	1200	5⅝ x7⅞ x12½	40	615.65
19F3687	750-152M*	0-75	1.5	4700	5⅝ x7⅞ x12½	45	1079.94

MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE FOR INDUSTRIAL ELECTRONICS EQUIPMENT

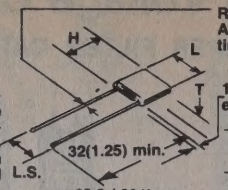
CONTACT YOUR NEAREST NEWARK BRANCH FOR FAST, DEPENDABLE SERVICE

Monolithic Ceramic Capacitors

MURATA ERIE NORTH AMERICA, INC.

CERAMIC CAPACITORS

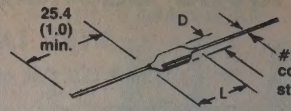
Encapsulated with a polymeric coating for mechanical and electrical protection under severe conditions. Monolithics incorporate stacked parallel plates with metal electrodes fired at high temp. Temp. range characteristics adapt capacitors from stable requirements of tuned circuits to general needs of coupling and bypassing. Oper. Temp.: COG(NPO), X7R, −55 to +125 C; Z5U, +10 to +85 C.



RPE 110, #26 AWG
All others, #24 AWG
tinned copper wire

1.0 (.040) max. epoxy extension*

*0.8 (.031) max. epoxy extension upon request



#24 tinned copper clad steel wire

Type	Dimensions mm (inches) L (Max)	H (Max)	T (Max)	L.S. (Max)
RPE 110	3.5 (.138)	2.5 (.100)	2.5 (.100)	2.5 (.100)
RPE 121	5.08 (.200)	*250 (6.35)	3.17 (.125)	2.5 (.100)
RPE 122	5.08 (.200)	*250 (6.35)	3.17 (.125)	5.08 (.200)

Type	DIMENSIONS mm (inches) L (Max)	H (Max)	T (Max)	L.S. (Max)
RPE 113	7.62 (.300)	76.2 (.300)	3.8 (.150)	5.08 (.200)
RPE 114	10.16 (.400)	10.16 (.400)	3.8 (.150)	5.08 (.200)
RPE 117	12.7 (.500)	12.7 (.500)	5.08 (.200)	10.16 (.400)

Type	Dimensions mm (inch) L(Max)	D(Max)	Voltage Rating
RPA10	4.3 (.170)	2.5 (.100)	50V
RPA20	6.6 (.260)	2.5 (.100)	50V
RPA30	7.36 (.290)	3.8 (.150)	50V
RPA40	10.16 (.400)	3.8 (.150)	50V

6

50V-GENERAL PURPOSE (TOL +20%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3494	RPE110Z5U103M50V	.01mf	.33	.26	.21	.18
81F3495	RPE110Z5U223M50V	.22	.34	.27	.22	.18
81F3496	RPE110Z5U473M50V	.047	.34	.27	.22	.18
81F3497	RPE110Z5U683M50V	.068	.35	.28	.23	.18
81F3498	RPE122Z5U104M50V	.1	.36	.29	.23	.19
81F3499	RPE122Z5U224M50V	.22	.65	.53	.42	.34
81F3500	RPE122Z5U334M50V	.33	.73	.59	.47	.38
81F3501	RPE122Z5U474M50V	.47	.84	.68	.55	.44
81F3502	RPE113Z5U105M50V	1.0	1.43	1.51	.93	.75

50V-STABLE (TOL +10%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3503	RPE110X7R102K50V	1000pf	.35	.28	.23	.18
81F3504	RPE110X7R472K50V	4700	.38	.31	.25	.20
81F3505	RPE110X7R103K50V	.01mf	.39	.31	.25	.20
81F3506	RPE110X7R223K50V	.022	.40	.32	.26	.21
81F3507	RPE122X7R473K50V	.047	.45	.36	.29	.24
81F3508	RPE122X7R104K50V	.1	.68	.55	.44	.35
81F3509	RPE113X7R224K50V	.22	1.18	.95	.77	.62
81F3510	RPE113X7R334K50V	.33	1.98	1.60	1.29	1.03
81F3511	RPE113X7R474K50V	.47	2.75	2.22	1.79	1.44

50-ULTRA STABLE +5%

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3512	RPE110C OG100D50V	10pf	.53	.42	.34	.28
81F3513	RPE110C OG220J50V	22	.53	.42	.34	.28
81F3514	RPE110C OG470J50V	47	.53	.42	.34	.28
81F3515	RPE110C OG101J50V	100	.63	.51	.41	.33
81F3516	RPE110C OG221J50V	220	.70	.57	.46	.37
81F3517	RPE110C OG471J50V	470	.65	.53	.42	.34
81F3518	RPE122C OG102J50V	1000	.65	.53	.42	.34
81F3519	RPE113C OG103J50V	.01mf	2.45	1.98	1.60	1.29

100V-GENERAL PURPOSE (TOL +20%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3520	RPE110Z5U103M100V	.01mf	.34	.27	.22	.18
81F3521	RPE122Z5U223M100V	.022	.34	.27	.22	.18
81F3522	RPE122Z5U473M100V	.047	.36	.29	.23	.19
81F3523	RPE122Z5U104M100V	.1	.55	.44	.36	.29
81F3524	RRE113Z5U224M100V	.22	.91	.74	.59	.48
81F3525	RPE113Z5U334M100V	.33	.96	.77	.62	.50
81F3526	RPE114Z5U474M100V	.47	1.98	1.60	1.29	1.04

100V-STABLE (TOL +10%)

Stk. No.	type	Cap	1-49	50-99	100-249	250-499
81F3527	RPE110X7R102K100V	1000pf	.35	.28	.23	.18
81F3528	RPE110X7R472K100V	4700	.38	.31	.25	.20
81F3529	RPE110X7R103K100V	.01mf	.42	.34	.27	.22
81F3530	RPE122X7R223K100V	.022	.44	.36	.29	.23
81F3531	RPE122X7R473K100V	.047	.57	.46	.37	.30
81F3532	RPE122X7R104K100V	.1	.90	.73	.59	.47
81F3533	RPE113X7R224K100V	.22	1.49	1.20	.97	.78
81F3534	RPE113X7R334K100V	.33	2.39	1.93	1.56	1.26
81F3535	RPE114X7R474K100V	.47	4.22	3.40	2.74	2.21

100V-ULTRA STABLE (TOL +5%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3536	RPE110COG100J100V	10pf	.55	.44	.36	.29
81F3537	RPE110COG220J100V	22	.55	.44	.36	.29
81F3538	RPE110COG470J100V	47	.55	.44	.36	.29
81F3539	RPE110COG101J100V	100	.66	.53	.43	.35
81F3540	RPE110COG221J100V	220	.73	.59	.48	.38
81F3541	RPE110COG471J100V	470	.66	.53	.43	.34
81F3542	RPE122COG102J100V	1000	.69	.55	.45	.36
81F3543	RPE113COG103J100V	.01mf	2.80	2.26	1.82	1.47

50V-GENERAL PURPOSE (TOL +20%)

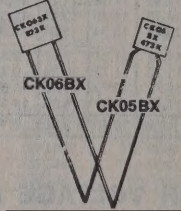
Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3544	RPA10Z5U103M50V	.01mf	.23	.18	.15	.12
81F3545	RPA10Z5U223M50V	.022	.26	.21	.17	.14
81F3546	RPA10Z5U473M50V	.047	.30	.24	.19	.16
81F3547	RPA20Z5U683M50V	.068	.36	.29	.23	.19
81F3548	RPA20Z5U104M50V	.1	.37	.30	.24	.20
81F3549	RPA30Z5U224M50V	.22	.71	.57	.46	.37
81F3550	RPA30Z5U334M50V	.33	.80	.64	.52	.42
81F3551	RPA40Z5U474M50V	.47	.83	.67	.54	.44

50V-STABLE (TOL +10%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3553	RPA10X7R102K50V	1000pf	.40	.32	.26	.21
81F3554	RPA10X7R472K50V	4700	.40	.32	.26	.21
81F3555	RPA10X7R103K50V	.01mf	.40	.32	.26	.21
81F3556	RPA10X7R223K50V	.022	.45	.36	.29	.24
81F3557	RPA20X7R473K50V	.047	.67	.54	.43	.35
81F3558	RPA30X7R683K50V	.068	.70	.56	.45	.36
81F3559	RPA30X7R104K50V	.1	.70	.56	.45	.36
81F3560	RPA40X7R224K50V	.22	.99	.80	.64	.52

50V-ULTRA STABLE (TOL +5%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3561	RPA10NP0100J50V	10pf	.34	.27	.22	.18
81F3562	RPA10NP0220J50V	22	.34	.27	.22	.18
81F3563	RPA10NP0470J50V	47	.34	.27	.22	.18
81F3564	RPA10NP0101J50V	100	.35	.28	.23	.18
81F3565	RPA10NP0221J50V	220	.43	.35	.28	.23
81F3566	RPA10NP0471J50V	470	.45	.36	.29	.24
81F3567	RPA20NP0102J50V	1000	.49	.39	.32	.26



MILITARY GRADE MONOBLOC® CERAMIC CAPACITORS

Types CK05 and CK06 are subminiature rectangular molded case units meeting the requirements of the latest revision of established reliability Mil specifications.

Type	W&H	T	Lead Spacing	Type	W&H	T	Lead Spacing
CK05	.200	.100	.200	CKR05	.200	.100	.200
CK06	.300	.100	.200	CKR06	.300	.100	.200

MIL-C-11015 (TOL 10%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3568	CK05BX100K	10pf	.48	.27	.21	.17
81F3569	CK05BX101K	100	.48	.27	.21	.17
81F3570	CK05BX221K	220	.48	.27	.21	.17
81F3571	CK05BX471K	470	.48	.27	.21	.17
81F3572	CK05BX102K	1000	.48	.27	.21	.17
81F3573	CK05BX222K	2200	.53	.30	.23	.19
81F3574	CK05BX472K	4700	.53	.30	.23	.19
81F3575	CK05BX103K	.01mf	.57	.32	.24	.20
81F3576	CK05BX223K	.022	.66	.38	.28	.24
81F3577	CK05BX473K	.047	.70	.40	.30	.25
81F3578	CK05BX104K	.1	.82	.47	.35	.29
81F3579	CK06BX103K	.01mf	.62	.35	.26	.22
81F3580	CK06BX223K	.022	.66	.38	.28	.24
81F3581	CK06BX473K	.047	.72	.41	.31	.26
81F3582	CK06BX224K	.22	1.67	.96	.72	.60
81F3583	CK06BX334K	.33	2.47	1.41	1.06	.88
81F3584	CK06BX474K	.47	3.46	1.98	1.48	1.24
81F3585	CK06BX105K	1	6.62	3.78	2.84	2.36

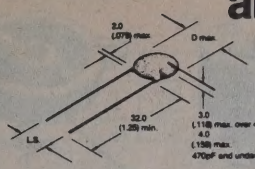
MIL-39014/01 (TOL 10%)

Stk. No.	Type	Cap	1-49	50-99	100-249	250-499
81F3586	CKR05BX102KR	1000pf	1.21	.69	.52	.43
81F3587	CKR05BX104KR	.1mf	1.58	.90	.68	.56
81F3588	CKR05BX104KS	.1	1.86	1.06	.80	.66
81F3589	CKR06BX103KR	.01	1.33	.76	.57	.48
81F3590	CKR06BX104KR	.1	1.57	.90	.67	.56
81F3591	CKR06BX104KS	.1	1.85	1.06	.79	.66

Ceramic Disc Trimmer, Capacitors and Quartz Crystals

MURATA ERIE NORTH AMERICA, INC.

Type	Dimensions mm (inches) D	L.S.
DD104	4 (.157)	2.5 (.098)
DD105	5 (.197)	2.5 (.098)
DD106	6 (.236)	5 (.197)
DD107	7.5 (.295)	5 (.197)
DD109	9.5 (.374)	5 (.197)
DD115	15 (.591)	10 (.394)

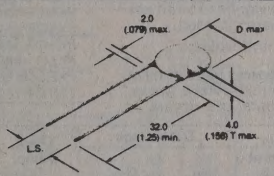


GENERAL PURPOSE CERAMICONS

For a variety of applications. NPO is high stability type. Y5P, Y5R, Z5P, Z5V, and Z5U are general purpose types. Oper. Temp.: NPO, −55 to +125°C; Y5P, Y5R, −30 to +85°C; Z5P, Z5V, Z5U, +10 to +85°C. All types are rated to 50 or 100WVDC.

Stock No.	Type	Cap.	Tol.	1-49	50-99	100-249	250-499
81F3592	DD104K10Z5P101K50V	100pf	10%	.10	.08	.06	.05
81F3593	DD104K10Z5P102K50V	1000	10%	.10	.08	.06	.05
81F3594	DD106M10Z5V103Z50V	.01mf	+80-20%	.08	.07	.06	.04
81F3595	DD107M10Z5V203Z50V	.02	+80-20%	.09	.08	.06	.05
81F3596	DD115G10Z5V104Z50V	.1	+80-20%	.24	.19	.15	.12
81F3597	DD105K10Z5U102Z100V	1000	+80-20%	.08	.06	.05	.04
81F3598	DD109M10Z5U103Z100V	.01	+80-20%	.12	.09	.08	.06
81F3627	DD109M10Z5U103M100V	.01	20%	.14	.11	.09	.07
81F3599	DD104K10NP0100J100V	10pf	5%	.11	.09	.07	.06
81F3600	DD104K10NP0150J100V	15	5%	.11	.09	.07	.06
81F3601	DD105K10NP0270J100V	27	5%	.12	.10	.08	.06
81F3602	DD105K10NP0330J100V	33	5%	.12	.10	.08	.06
81F3603	DD106M10NP0470J100V	47	5%	.13	.11	.09	.07
81F3604	DD107M10NP0101J100V	100	5%	.15	.12	.10	.08

Type	Dimensions mm (inches) D(Max)	L.S.
DD350	6 (.237)	6.4 (.250)
DD360	7.4 (.290)	6.4 (.250)
DD380	8.9 (.350)	6.4 (.250)
DD310	10.9 (.430)	6.4 (.250)
DD312	13.7 (.540)	9.5 (.375)
DD314	15.2 (.600)	9.5 (.375)
DD601	6 (.237)	6.4 (.250)
DD600	7.9 (.310)	6.4 (.250)



"SUPER CAP" CERAMIC CAPACITORS

"Super Caps" are low cost disc type ceramic capacitors for transistorized applications. Useful where high capacitance and low cost are important such as in by-pass and filtering. Dissipation factor: 7% max for Y5R and 5% for Y5P at 1KHz, .3VRMS, 25°C.

12 VOLT

Stock No.	Type	Cap.	Tol.	1-49	50-99	100-249	250-499
81F3605	DD601B10Y5R473M12V	.047mf	20%	.23	.18	.15	.12
81F3606	DD600B10Y5R104M12V	.1	20%	.24	.19	.15	.12

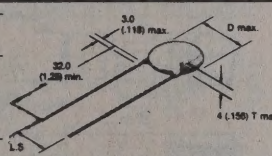
25 VOLT

Stock No.	Type	Cap.	Tol.	1-49	50-99	100-249	250-499
81F3607	DD360B10Y5P223M25V	.022mf	20%	.16	.13	.11	.09
81F3608	DD380B10Y5P473M25V	.047	20%	.23	.18	.15	.12
81F3609	DD312F10Y5P104M25V	.1	20%	.27	.22	.18	.14

50 VOLT

Stock No.	Type	Cap.	Tol.	1-49	50-99	100-249	250-499
81F3610	DD350B10Y5P103M50V	.01mf	20%	.15	.12	.10	.08
81F3611	DD310B10Y5P473M50V	.047	20%	.23	.18	.15	.12
81F3612	DD314F10Y5P104M50V	.1	20%	.32	.26	.21	.17

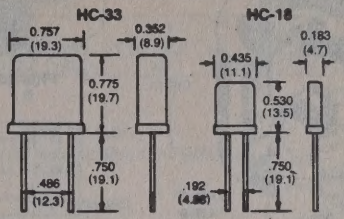
Type	Dimensions mm (inches) D(Max)	L.S.
DD05	5.0 (.196)	6.4 (.250)
DD07	7.5 (.296)	6.4 (.250)
DD09	9.5 (.375)	6.4 (.250)
DD10	10.5 (.413)	6.4 (.250)
DD12	12.5 (.492)	6.4 (.250)



1 KV CERMICONS

Stock No.	Type	Cap.	Tol.	1-49	50-99	100-249	250-499
81F3613	DD05B10NP04R7C1KV	4.7pf	.25%	.19	.15	.12	.10
81F3614	DD05B10NP0100D1KV	10	.50%	.19	.15	.12	.10
81F3615	DD05B10NP0220J1KV	22	5%	.19	.15	.12	.10
81F3616	DD07B10NP0470J1KV	47	5%	.22	.18	.14	.11
81F3617	DD09B10NP0680J1KV	68	5%	.24	.20	.16	.13
81F3618	DD10B10NP0101J1KV	100	5%	.29	.23	.19	.15
81F3619	DD05B10Y5P101K1KV	100	10%	.15	.12	.10	.08
81F3620	DD05B10Y5P221K1KV	220	10%	.15	.12	.10	.08
81F3621	DD05B10Y5P271K1KV	270	10%	.15	.12	.10	.08
81F3622	DD05B10Y5P331K1KV	330	10%	.15	.12	.10	.08
81F3623	DD05B10Y5P391K1KV	390	10%	.15	.12	.10	.08
81F3624	DD05B10Y5P471K1KV	470	10%	.15	.12	.10	.08
81F3625	DD05B10Y5P561K1KV	560	10%	.15	.12	.10	.08
81F3626	DD07B10Y5P102K1KV	1000	10%	.15	.12	.10	.08
81F3628	DD12B10Y5P472K1KV	4700	10%	.16	.13	.11	.08
81F3629	DD12B10Z5U103M1KV	.01mf	10%	.24	.19	.15	.13

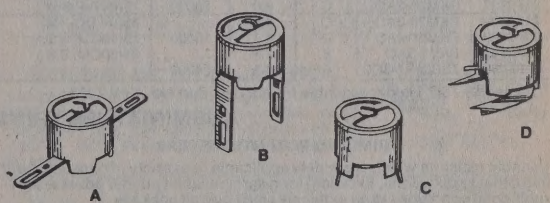
MICROPROCESSOR QUARTZ CRYSTALS



Piezoelectric devices with inherently high "Q". Generally used to time microprocessor circuitry. Frequency tolerance of ±.005% at room temp. (25° C) and stability tolerance of ±.01% over temp. range (−20° C to +70° C). Other frequencies including low frequency (KHz) available upon request. Holder type HC-18 except (*) HC-33.

Stock No.	ERIE Type	Frequency (MHz)	Calibrated	1-9	10-24	25-49	50-99
81F3656	E100*	1.0	Parallel @ 13pF	11.50	9.50	7.25	6.25
81F3657	E184*	1.8432	Parallel @ 13pF	11.50	9.50	7.25	6.25
81F3658	E200*	2.0	Parallel @ 20pF	8.85	7.00	5.35	4.50
81F3659	E245*	2.4576	Parallel @ 32pF	8.85	7.00	5.35	4.50
81F3660	E357	3.579545	Parallel @ 18pF	5.85	4.45	3.70	3.15
81F3661	E400	4.0	Series	5.85	4.45	3.70	3.15
81F3662	E400A	4.0	Parallel @ 20pF				
81F3663	E491	4.9152	Series				
81F3664	E500	5.0	Parallel @ 20pF				
81F3665	E506	5.0688	Series	5.85	4.45	3.70	3.15
81F3666	E600	6.0	Series				
81F3667	E614	6.144	Parallel @ 30pF				
81F3668	E800	8.0	Series				
81F3669	E1000	10.0	Series				
81F3670	E1843	18.432	Series				
81F3671	E2000	20.0	Series	5.85	4.45	3.70	3.15
81F3672	E4800	48.0	Series				

MINIATURE CERAMIC DISC TRIMMERS



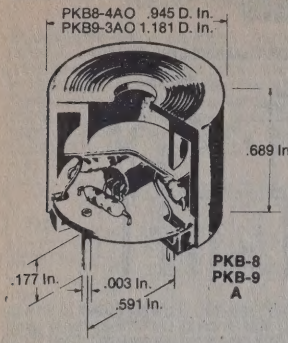
SPECIFICATIONS

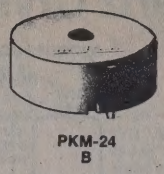
Working Voltage: A, B, C: 350 WVdc @ 85° C; 200 WVdc @ 125° C. D: 200 WVdc @ 85° C; 100 WVdc @ 125° C. **Dielectric Strength:** 500 Vdc for 1-5 sec. **Operating Temperature Range:** −55° C to +125° C. **Q Factor @ 1M Hz:** 500 Minimum. **Torque:** 1-6 oz. in.

Stock No.	Type	Fig.	Mmf. Range	1-49	50-99	100-249	250-499
81F3630	EAB538-000A-2-8	A	2-8				
81F3631	EAB538-000A-5.5-18	A	5.5-18				
81F3632	EAB538-000B-2.5-11	A	2.5-11				
81F3633	EAB538-000B-7-25	A	7-25	2.08	1.56	1.30	1.04
81F3634	EAB538-000C-8-25	A	8-25				
81F3635	EAB538-000D-9-35	A	9-35				
81F3652	EAB538-000F-15-60	A	16-50	2.44	1.83	1.53	1.22
81F3636	EAB538-002A-2-8	B	2-8				
81F3637	EAB538-002A-5.5-18	B	5.5-18				
81F3638	EAB538-002B-2.5-11	B	2.5-11				
81F3639	EAB538-002B-7-25	B	7-25				
81F3640	EAB538-002C-8-25	B	8-25	2.08	1.56	1.30	1.04
81F3641	EAB538-002D-3-15	B	3-15				
81F3642	EAB538-002D-9-35	B	9-35				
81F3653	EAB538-002F-15-60	B	15-60	2.44	1.83	1.53	1.22
81F3643	EAB538-011A-2-8	C	2-8				
81F3644	EAB538-011A-5.5-18	C	5.5-18				
81F3645	EAB538-011B-2.5-11	C	2.5-11				
81F3646	EAB538-011B-7-25	C	7-25	2.48	1.86	1.55	1.24
81F3647	EAB538-011D-3-15	C	3-15				
81F3648	EAB538-011D-9-35	C	9-35				
81F3654	EAB538-011F-15-60	C	15-60	2.84	2.13	1.78	1.42
81F3649	EAB538-006A-2-8	D	2-8				
81F3650	EAB538-006A-5.5-18	D	5.5-18	2.28	1.71	1.43	1.14
81F3651	EAB538-006D-9-35	D	9-35	2.28	1.71	1.43	1.14
81F3655	EAB538-006F-15-60	D	15-60	2.64	1.98	1.65	1.32

MURATA ERIE NORTH AMERICA, INC.

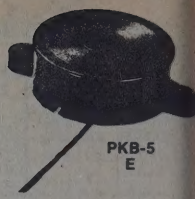
Piezo-Alarms and Trimmers

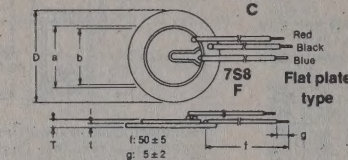



PKM-24
B

PKM-28
PKM-29
C

PKM-11
D


PKB-5
E



APPLICATIONS

- Fire alarms
- Gas detectors
- Calculators
- Medical electronics
- Appliances
- Burglar alarms
- Automobiles
- Aircraft
- Clocks
- Watches
- Communication systems
- Data processing
- Instrumentation and control systems
- Restaurant equip.
- Recreational equip.

6

(A) Miniature PKB Piezo-Alarms are designed requiring a small highly-reliable acoustic alarm or signal. Solid state with no electromechanical components. Cased piezo-electric units produce a clear, audible tone and require very low electronic power input for high acoustic power output. Self-contained and require no external driving components. Standard pc board mounting.

(D,E) The piezo-alarms are completely self-contained alarms requiring only a DC voltabe source for operation. They provide surprisingly high audio outputs with exceptionally low input power requirement and offer a high degree of flexibility because of their ability to operate over a broad range of input voltages.

Units are compatible with most standard pc board assembly and flow soldering procedures.

(B) The piezo-alarms have *no* internal "feedback" tab, suited for the generation of both standard tones and unusual sound effects that are possible with specifically designed driving circuits including musical melodies, insert sounds, etc.

Compatible with all standard pc board and flow soldering techniques used in high volume electronic equipment manufacture.

(F) Piezo-alarm elements that can meet any application requirements. Both self driven units with a feedback electrode for oscillation generation and externally driven units designed to be driven by an external signal source are included.

Devices available from AMP and Molex.

(C) Increased use of microprocessors in a variety of consumer applications in microwave areas, automobiles, clocks, washers and dryers to name a few, piezo-alarms provide an inexpensive and highly reliable means of audio alarm generation. Units are provided with a "feedback" tab for use in self-oscilating circuits.

Components are compatible with most standard pc board assembly and flow soldering techniques.

Type	Dia.	Length
PKB8-4AO	.945	.866
PKB9-3AO	1.181	.866
PKM24-4AO	.866	.579
PKM28-2AO	1.496	.669
PKM29-3AO	1.535	.976
PKM11-4AO	.945	.177
PKB5-3BO	1.654	.571
7SB-34R7-3C2*	1.366	.020

Stock No.	Type	Style	Res. Freq. KHz	Cap. Pf ±30%	Sound Level (dB)	Oper. Current mA	DC Voltage Min.	DC Voltage Max.	Oper. Temp. °C	1-49	50-99	100-499	500-999
81F3710	PKB8-4AO	A	3.8	.....	80 @ 1M Typ.	10	3	20	−20±70	3.00	2.50	1.75	1.25
81F3711	PKB9-3AO	A	2.7	.....	80 @ 1M Typ.	17	3	20	−20±70	3.50	3.00	1.75	1.25
81F3706	PKM24-4AO	B	4.0	12000	75(3VP-P S.W.)	1.0	.....	25VP-P	−30N±70	2.50	2.00	1.25	.95
81F3707	PKM28-2AO	C	2.0	26000	75(9VP-P S.W.)	2.5	.....	30VP-P	−30N±70	2.50	2.00	1.25	1.00
81F3708	PKM29-3AO	C	3.4	.....	85(9V DC, 1M)	15	9	15	−20N±70	2.50	2.00	1.25	1.05
81F3709	PKM11-4AO	D	4.1	10000	75(10CM, S.S.)	1	.....	25VP-P	−20±70	2.50	2.00	1.25	.98
81F3712	PKB5-3AO	E	2.8	.....	85(30CM, S.S.)	12	1.5	9	−20N±60	3.50	3.00	1.75	1.50
81F3705	7SB34R7-3C2	F	3.1	24000	.....	.....	.....	30VP-P	−20±70	2.00	1.50	1.00	.68

*Uncased—7SB. Holder available from Molex Part No. ATM 7373

SUBMINIATURE TRIMMING POTENTIOMETERS

TRIMMING POTENTIOMETERS

Variable resistors which are widely applicable to a variety of consumer and industrial applications. Excellent long-term reliability under adverse environmental conditions in an extemely small overall package.
Cermet units, additionally, provide considerably increased power dissipation capability in the same small package.

CARBON (Tol. 20%)

Stock No.	Type	Ohms	1-49	50-99	100-249	250-500
81F3681	RVA0911V-304-7-102M	1000	1.35	.78	.56	.50
81F3682	RVA0911V-304-7-103M	10K				
81F3683	RVA0911V-304-7-104M	100K				
81F3684	RVA0911V-304-7-105M	1000K				
81F3685	RVA0911V-304-7-501M	500				
81F3686	RVA0911V-304-7-502M	5000				
81F3687	RVA0911V-304-7-503M	50K				
81F3688	RVA0911V-304-7-504M	500K				

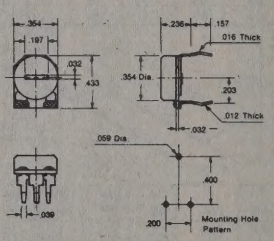
CERMET (Tol. 20%)

Stock No.	Type	Ohms	1-49	50-99	100-249	250-500
81F3673	RVG0911V-304-10-102M	1000	1.89	1.10	.80	.70
81F3674	RVG0911V-304-10-103M	10K				
81F3675	RVG0911V-304-10-104M	100K				
81F3676	RVG0911V-304-10-105M	1000K				
81F3677	RVG0911V-304-10-501M	500				
81F3678	RVG0911V-304-10-502M	5000				
81F3679	RVG0911V-304-10-503M	50K				
81F3680	RVG0911V-304-10-504M	500K				

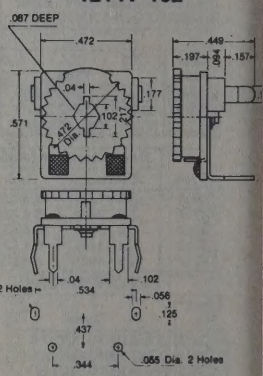
CARBON (Tol. 20%)

Stock No.	Type	Ohms	1-49	50-99	100-249	250-500
81F3689	RVA1214V-102-7-102M	1000	1.50	.83	.60	.54
81F3690	RVA1214V-102-7-103M	10K				
81F3691	RVA1214V-102-7-104M	100K				
81F3692	RVA1214V-102-7-105M	1000K				
81F3693	RVA1214V-102-7-501M	500				
81F3694	RVA1214V-102-7-502M	5000				
81F3695	RVA1214V-102-7-503M	50K				
81F3696	RVA1214V-102-7-504M	500K				

0911V-304



1214V-102



Note: -7- is natural knob color
-10-is black knob color

CERMET (Tol. 20%)

Stock No.	Type	Ohms	1-49	50-99	100-249	250-500
81F3697	RVG1214V-102-10-102M	1000	2.10	1.20	.88	.78
81F3698	RVG1214V-102-10-103M	10K				
81F3699	RVG1214V-102-10-104M	100K				
81F3700	RVG1214V-102-10-105M	1000K				
81F3701	RVG1214V-102-10-501M	500				
81F3702	RVG1214V-102-10-502M	5000				
81F3703	RVG1214V-102-10-503M	50K				
81F3704	RVG1214V-102-10-504M	500K				

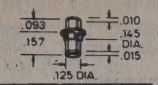
EMI Suppression Filters

MURATA ERIE NORTH AMERICA, INC.

SINGLE SECTION TYPES

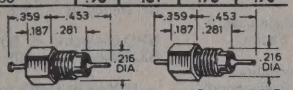
TYPE 1214

Min. attenuation: 50 dB from 200 MHz to 10 GHz, over range −55°C to +125°C, 65 dB @ +125°C.



Stk. No.	Type	Cap.	WVDC @ 85°C	1-99	100-249	250-499	500-999
10F8144	1214-007	1750pf	250	.98	.81	.76	.70

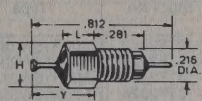
TYPES 1201-086, 1201-082



Min. attenuation: 50 dB from 100 MHz to 10 GHz, over range −55°C to +125°C, 65 dB @ +125°C.

Stk. No.	Type	Cap.	WVDC @ 85°C	1-99	100-249	250-499	500-999
10F8145	1201-066*	5500pf	200	2.03	1.89	1.77	1.59
10F8146	1201-082	5500pf	200				

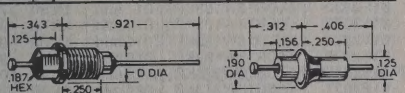
TYPES 1201-052, 1201-054



Min. atten.: 45 dB from 200 MHz to 10 GHz, −55°C to +125°C. Type 052, 12-28 threads. Type 054, 12-32 threads.

Stk. No.	Type	Cap.	WVDC	1-99	100-249	250-499	500-999
19F2110	1201-052*	1500pf	200	2.02	1.88	1.76	1.58
10F8147	1201-054	1500pf	200				

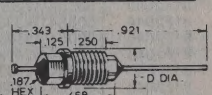
TYPES 1270-009, 1270-024



Min. atten.: 45 dB from 200 MHz to 10 GHz, over range −55°C to +125°C. Type 009, .250" dia. Type 024, .235" dia. 12-32 thds.

Stk. No.	Type	Cap.	WVDC	1-99	100-249	250-499	500-999
19F2455	1270-009*	1500pf	350	2.01	1.70	1.54	1.43
19F2457	1270-024	1500pf	350	1.99	1.68	1.52	1.41

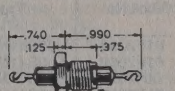
TYPE 1270-016



Min. attenuation: 50 dB from 200 MHz to 10 GHz, over range −55°C to +125°C.

Stk. No.	Type	Cap.	WVDC @ 85°C	1-99	100-249	250-499	500-999
19F2456	1270-016*	5000pf	200	2.01	1.70	1.54	1.43

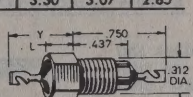
TYPE 1280-060



Replaces 1280-001. Min. atten.: 45 dB from 100 MHz to 10 GHz, over range −55°C to +85°C.

Stk. No.	Type	Cap.	WVDC	1-99	100-249	250-499	500-999
19F689	1280-060*	1500pf	2500	3.97	3.30	3.07	2.85

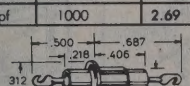
TYPE 1202-005



Min. atten.: 45 dB from 100 MHz to 10 GHz, over range −55°C to +85°C. Threaded 5/16"-32.

Stk. No.	Type	Cap.	WVDC	1-99	100-249	250-499	500-999
10F8148	1202-005*	2000pf	1000	2.69	2.23	2.08	1.93

TYPES 1202-052, 1202-054, 1204-050

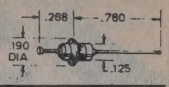


Min. attenuation: 50 dB from 100 MHz to 10 GHz, over range −55°C to +125°C. Type 052, 5/16"-24 threads; 054, 5/16"-32

Stk. No.	Type	Cap.	WVDC	1-99	100-249	250-499	500-999
19F2112	1202-052*	3000pf	500	2.87	2.39	2.23	2.06
10F8149	1202-054*	3000pf	500	2.79	2.32	2.16	2.00
19F2113	1204-050	3000pf	500	1.24	1.03	.96	.89

(*) Indicates parts supplied with lockwasher and nut.

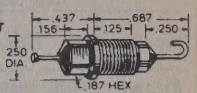
TYPE 1250-003



Min. atten.: 50 dB from 200 MHz to 10 GHz, over range −55°C to +125°C.

Stk. No.	Type	Cap.	WVDC @ 85°C	1-99	100-249	250-499	500-999
19F3061	1250-003*	1500pf	200	3.13	2.19	2.04	1.89

TYPE 1214-001



Min. atten.: 38 dB from 200 MHz to 10 GHz, over range −55°C to +125°C.

TYPE 1221-001

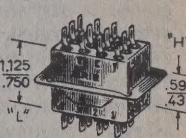
Min. atten.: 50 dB from 100 MHz to 10 GHz, over range −55°C to +85°C.

Stk. No.	Type	Cap.	WVDC @ 85°C	1-99	100-249	250-499	500-999
19F687	1214-001	1750pf	250	.87	.73	.64	.61

Stk. No.	Type	Cap.	WVDC @ 85°C	1-99	100-249	250-499	500-999
19F688	1221-001*	4000pf	500	2.59	2.15	2.00	1.85

MULTI-SECTION TYPES

MINIATURE 6 & 12 CHANNEL R.F.I. FILTERS

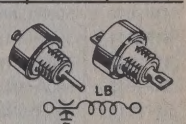


Minimum attenuation: 45 dB from 100-200 Mc, 50dB from 200Mc to 2000 Mc, over the temp. range of −55°C to +125°C measured in accordance with Mil-Std.-220A. Capacitance: 2500 pf min. at 1 Kc, 0.5 to 5 VRMS, 25°C. Working voltage: 350 VDC. Insulation resistance: 20K megohms min. at 100 VDC 25°C (50 ma max. charging current). D.C. resistance: .01 ohms per section. D.C. and low frequency current: 5 amps max. per section.

Type 1212 is 12 channel — **Type 1206** is 6 channel. Size: 1.125"L x .594"H.

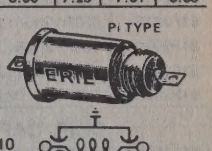
Stk. No.	Type	1-99	100-249	250-499	500-999
19F3067	1212-502	20.91	19.06	18.43	17.94
19F3065	1206-502	18.07	16.37	15.62	15.37

LOW PASS AND POWER LINE TYPES



Low pass EMI filters hermetically sealed; 9050 has epoxy seals, 9051 has hermetic seals. Freq. range: 30 KHz to 1 GHz. Both rated 80 VDC from −55°C to +85°C, 160V peak transient. ¼-28 UNF 2A threads.

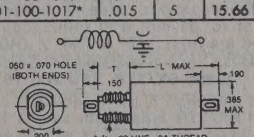
Stk. No.	Type	Rdc Ohms	Idc (A)	1-49	50-99	100-249	250-399
10F8141	9050-100-0000	.008	15	7.97	7.30	7.12	6.76
17F222	9051-100-0000*	.008	15	8.00	7.25	7.01	6.65



LOW PASS — Pi TYPE

Hermetically sealed, EMI filter. Rated: 30 KHz to 10 GHz @ 100 WVDC (125°C). 500V peak.

Stk. No.	Type	Rdc Ohms	Idc (A)	1-49	50-99	100-249	250-399
10F8142	9001-100-1010*	.6	.5	16.95	15.23	15.03	14.22
19F681	9001-100-1017*	.015	5	15.66	14.08	13.90	13.16



POWER LINE — Pi TYPE

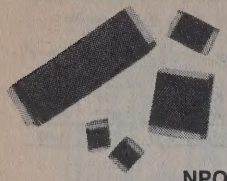
Hermetically sealed, EMI filter. Rated: 10 KHz to 10 GHz @ 125VAC (125°C). 500V peak.

Stk. No.	Type	Rdc Ohms	Idc (A)	1-49	50-99	100-249	250-399
17F142	9001-100-1021*	.25	1	14.68	13.20	13.09	12.27
19F682	9001-100-1023*	.06	3	14.19	12.74	12.56	11.79
19F683	9001-100-1025*	.015	5				

All 9001 listed are threaded ¼-28 UNF 2A; Lgth. 0.778" FMS.

JOHANSON DIELECTRICS

CERAMIC CHIP CAPACITORS



Ceramic chip capacitors are suited for a wide variety of hybrid circuit applications. These units feature high volumetric efficiency in an extremely small size. Available in NPO dielectric which meets the applicable portions of EIA 198B Class I specifications and BX dielectrics which meet the applicable portions of EIA 198B Class II.

SPECIFICATIONS

Voltage:	50VDCW
Tolerance:	NPO Dielectric Below 10 pf ±.5 pf, above 10 pf ±5% BX Dielectric ±10%
Termination Material:	Palladium silver
Temperature Coefficient:	NPO Dielectric 0±30 ppm/°C –55°C to 125°C BX Dielectric ±15% △ C Max –55°C to 125°C
Dissipation Factor:	NPO Dielectric < .001 (0.1%) @ 1 KHz,25°C BX Dielectric < .025 (2.5%) @ 1 KHz,25°C
Insulation Resistance:	> 100ΩF or 100 GΩ whichever is less, @ 25°C, VDCW. @ 125°C, IR is 1% of 25°C Requirement.
Dielectric Strength:	NPO Dielectric > 2.5 × VDCW BX Dielectric > 2.5 × VDCW, 50 ma Max.

NPO-COG DIELECTRIC

Size .080"L × .050"W × .050" Max. T

Stock No.	Type	Capacitance	Bags of 50			
			1-5	6-10	11-15	16-20
81F1988	500R15N1R5DP	1.5pf	$15.00	9.00	7.50	6.00
81F1989	500R15N1R8DP	1.8pf	15.00	9.00	7.50	6.00
81F1990	500R15N2R2DP	2.2pf	15.00	9.00	7.50	6.00
81F1991	500R15N2R7DP	2.7pf	15.00	9.00	7.50	6.00
81F1992	500R15N3R3DP	3.3pf	15.00	9.00	7.50	6.00
81F1993	500R15N3R9DP	3.9pf	15.00	9.00	7.50	6.00
81F1994	500R15N4R7DP	4.7pf	15.00	9.00	7.50	6.00
81F1995	500R15N5R6DP	5.6pf	15.00	9.00	7.50	6.00
81F1996	500R15N6R8DP	6.8pf	15.00	9.00	7.50	6.00
81F1997	500R15N8R2DP	8.2pf	15.00	9.00	7.50	6.00
81F1998	500R15N100JP	10pf	15.00	9.00	7.50	6.00
81F1999	500R15N120JP	12pf	12.50	7.50	6.25	5.00
81F2000	500R15N150JP	15pf	12.50	7.50	6.25	5.00
81F2001	500R15N180JP	18pf	12.50	7.50	6.25	5.00
81F2002	500R15N220JP	22pf	12.50	7.50	6.25	5.00
81F2003	500R15N270JP	27pf	12.50	7.50	6.25	5.00
81F2004	500R15N330JP	33pf	12.50	7.50	6.25	5.00
81F2005	500R15N390JP	39pf	12.50	7.50	6.25	5.00
81F2006	500R15N470JP	47pf	12.50	7.50	6.25	5.00
81F2007	500R15N560JP	56pf	12.50	7.50	6.25	5.00
81F2008	500R15N680JP	68pf	12.50	7.50	6.25	5.00
81F2009	500R15N820JP	82pf	12.50	7.50	6.25	5.00
81F2010	500R15N101JP	100pf	12.50	7.50	6.25	5.00
81F2011	500R15N121JP	120pf	12.50	7.50	6.25	5.00
81F2012	500R15N151JP	150pf	13.75	8.25	6.90	5.50
81F2013	500R15N181JP	180pf	13.75	8.25	6.90	5.50
81F2014	500R15N221JP	220pf	13.75	8.25	6.90	5.50
81F2015	500R15N271JP	270pf	13.75	8.25	6.90	5.50
81F2016	500R15N331JP	330pf	13.75	8.25	6.90	5.50
81F2017	500R15N391JP	390pf	13.75	8.25	6.90	5.50
81F2018	500R15N471JP	470pf	15.00	9.00	7.50	6.00
81F2019	500R15N561JP	560pf	16.25	9.75	8.15	6.50
81F2020	500R15N681JP	680pf	17.50	10.50	8.75	7.00
81F2021	500R15N821JP	820pf	18.75	11.25	9.40	7.50
81F2022	500R15N102JP	1000pf	20.00	12.00	10.00	8.00

X7R DIELECTRIC

Size .080"L × .050"W × .050" Max. T

Stock No.	Type	Capacitance	Bags of 50			
			1-5	6-10	11-15	16-20
81F2023	500R15W182KP	1800pf	12.50	7.50	6.25	5.00
81F2024	500R15W222KP	2200pf	12.50	7.50	6.25	5.00
81F2025	500R15W272KP	2700pf	12.50	7.50	6.25	5.00
81F2026	500R15W332KP	3300pf	12.50	7.50	6.25	5.00
81F2027	500R15W392KP	3900pf	12.50	7.50	6.25	5.00
81F2028	500R15W472KP	4700pf	12.50	7.50	6.25	5.00
81F2029	500R15W562KP	5600pf	12.50	7.50	6.25	5.00
81F2030	500R15W682KP	6800pf	12.50	7.50	6.25	5.00
81F2031	500R15W822KP	8200pf	12.50	7.50	6.25	5.00
81F2032	500R15W103KP	.01 mfd	12.50	7.50	6.25	5.00
81F2033	500R15W123KP	.012 mfd	13.75	8.25	6.90	5.50
81F2034	500R15W153KP	.015 mfd	15.00	9.00	7.50	6.00
81F2035	500R15W183KP	.018 mfd	16.25	9.75	8.15	6.50
81F2036	500R15W223KP	.022 mfd	17.50	10.50	8.75	7.00
81F2037	500R15W273KP	.027 mfd	21.25	12.75	10.65	8.50

X7R DIELECTRIC

Size .125"L × .095"W × .065" Max. T

Stock No.	Type	Capacitance	Bags of 50			
			1-5	6-10	11-15	16-20
81F2038	500S41W103KP	.01 mfd	22.50	13.50	11.25	9.00
81F2039	500S41W123KP	.012 mfd	22.50	13.50	11.25	9.00
81F2040	500S41W153KP	.015 mfd	22.50	13.50	11.25	9.00
81F2041	500S41W183KP	.018 mfd	22.50	13.50	11.25	9.00
81F2042	500S41W223KP	.022 mfd	22.50	13.50	11.25	9.00
81F2043	500S41W227KP	.027 mfd	22.50	13.50	11.25	9.00
81F2044	500S41W333KP	.033 mfd	23.75	14.25	11.90	9.50
81F2045	500S41W393KP	.039 mfd	23.75	14.25	11.90	9.50
81F2046	500S41W473KP	.047 mfd	25.00	15.00	12.50	10.00
81F2047	500S41W563KP	.056 mfd	26.25	15.75	13.15	10.50
81F2048	500S41W683KP	.068 mfd	27.50	16.50	13.75	11.00
81F2049	500S41W823KP	.082 mfd	28.75	17.25	14.40	11.50
81F2050	500S41W104KP	.100 mfd	22.50	13.50	11.25	9.00

NPO-COG DIELECTRIC

Size .125"L × .095"W × .065" Max. T

Stock No.	Type	Capacitance	Bags of 50			
			1-5	6-10	11-15	16-20
81F2051	500S41N102JP	1000pf	22.50	13.50	11.25	9.00
81F2052	500S41N122JP	1200pf	23.75	14.25	11.90	9.50
81F2053	500S41N152JP	1500pf	25.00	15.00	12.50	10.00
81F2054	500S41N182JP	1800pf	26.25	15.75	13.15	10.50
81F2055	500S41N222JP	2200pf	27.50	16.50	13.75	11.00
81F2056	500S41N272JP	2700pf	28.75	17.25	14.40	11.50
81F2057	500S41N332JP	3300pf	30.00	18.00	15.00	12.00
81F2058	500S41N392JP	3900pf	32.50	19.50	16.25	13.00
81F2059	500S41N472JP	4700pf	32.50	19.50	16.25	13.00

CHIP CAPACITOR PROTOTYPING KITS

Designer kits contain standard size chips in popular capacitance values and dielectric characteristics, with palladium silver terminations. Kits are supplied in a special vinyl cover for convenient shelf storage with each chip value individually packaged for easy access.

S-900 NPO/COG Kit

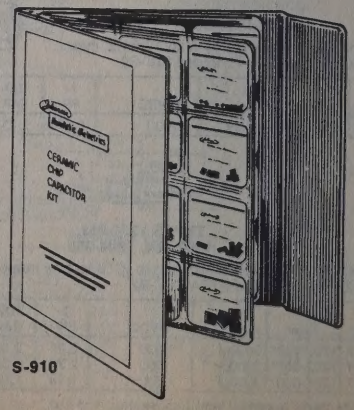
300 ceramic NPO/COG capacitor chips. Includes 10 chips each of 30 different values from 1.0 pf to .01 mfd with tolerances from ±.5 pf to ±5% at 50 VDCW. Sizes included are from .050" x .040" x .040"T to .125" x .095" x .065"T.
17F149. S-900 NET.....75.00

S-905 BX/X7R, Z5U and Y5V Kit

400 ceramic BX/X7R and High K (Z5U and Y5V) capacitor chips. Kit includes 10 chips each of 20 BX/X7R types with values from 390 pf to .22 mfd with tolerances of ±10%, at 25 and 50 VDCW and 20 High K (Z5U/Y5V) types with values from .012 mfd to 1.0 mfd with tolerances to +100%, —0% at 6 and 12 VDCW. Sizes included are from .050" x .040" x .040"T to .125" x .095" x.065"T. in all dielectrics. **17F150. S-905 NET.....75.00**

S-910 CERAMIC CAPACITOR WAFERS KIT

500 single layer ceramic capacitor wafers are ideal for microwave circuit applications. Kit includes 125 pieces each of 4 sizes from .020" x .020" (U02) to .050" x .050" (U05). Each size group includes 5 different capacitance values ranging from 0.3 pf to 50.0 pf in the U02 size to 1.0 pf to 1000 pf in the U05 size. Electrodes are high adhesion precious metal alloy which provides easy attachment to circuitry with solder, epoxy or wire bonding techniques.
11F467. S-910 NET.....75.00



S-910

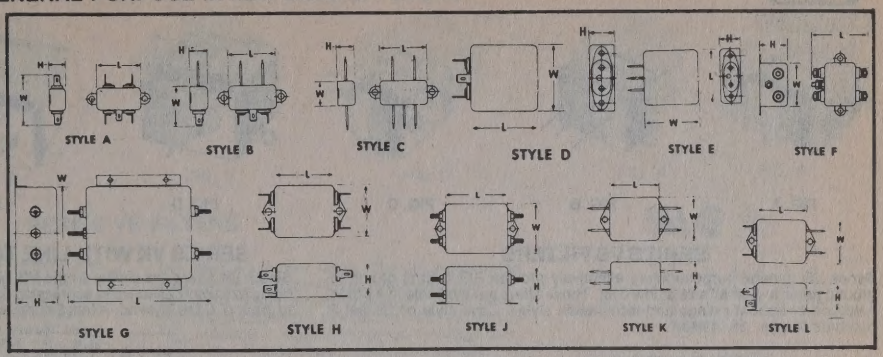
RFI Filters

GENERAL PURPOSE INTERFERENCE FILTERS

SPRAGUE
THE MARK OF RELIABILITY
a GK Technologies subsidiary

Series JX5100

General Purpose Interference Filters. Useful for eliminating high-frequency interference into the VHF range and even from microwave ovens. Can be used at any frequency or voltage up to 250V and 60 Hz. Maximum leakage of .5 mA at 125V 60 Hz, 1 mA at 250V 60 Hz. Dielectric will withstand 2100 VDC. Style AA and AB have combination terminals which accept quick disconnect terminals. U.L. recognized at 125 and 250 VAC. *Maximum rated current in amperes.



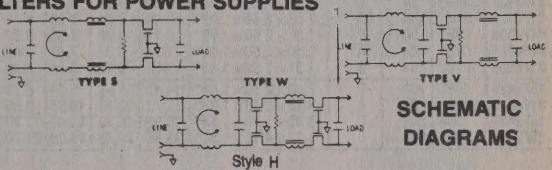
Stock No.	Type	Style	Dimensions L×W×H (Inches)	Max. Amps	EACH 1-24	25-49	50-99	100-499
15F2650	1JX5101A	A	1.750×1.985×.635	1	8.93	7.31	6.50	5.68
17F2217	1JX5101C	C	1.750×.885×.635	1	9.48	7.76	6.90	6.03
15F2651	2JX5102A	A	1.750×1.985×.635	2	8.07	6.61	5.87	5.14
17F2221	2JX5102C	C	1.750×.885×.635	2	8.60	7.04	6.26	5.47
17F2222	2JX5102E	E	2.000×1.760×.760	2	9.64	7.88	7.01	6.13
15F2653	5JX5104A	A	1.750×2.360×.760	5	8.23	6.73	5.98	5.24
17F2228	5JX5104B	B	1.810×1.750×.760	5	8.45	6.91	6.14	5.38
17F2229	5JX5104C	C	1.260×1.750×.760	5	8.82	7.22	6.42	5.61
17F2231	10JX5105C	C	1.260×1.750×1.135	10	9.61	7.87	6.99	6.12
17F2234	20JX5106A	A	2.000×3.110×1.135	20	12.34	10.10	8.98	7.85
17F2235	20JX5106B	F	3.570×2.000×1.135	20	14.32	11.72	10.42	9.11
20F774	1JX5201A	A	2.000×2.860×.885	1	11.31	9.25	8.22	7.20
20F780	2JX5202B	B	2.000×2.310×.885	2	10.63	8.69	7.73	6.76
20F782	2JX5202D	D	2.560×2.000×.885	2	11.81	9.67	8.59	7.52
20F789	5JX5204A	A	2.000×2.860×1.135	5	10.60	8.68	7.71	6.75
20F791	5JX5204C	C	2.000×1.760×1.135	5	11.18	9.14	8.13	7.11
20F798	20JX5206A	F	3.580×2.500×1.515	20	16.57	13.55	12.05	10.54
20F803	2JX5302A	H	2.000×1.765×1.140	2	15.66	12.82	11.39	9.97
20F805	2JX5302C	K	2.000×1.765×1.140	2	16.06	13.14	11.68	10.22
20F806	3JX5303A	H	2.500×2.015×1.140	3	16.79	13.73	12.21	10.68

SERIES JX5600 EMI/RFI LINE FILTERS FOR POWER SUPPLIES

- UL RECOGNIZED for operation at 125 and 250 volts a-c.
- For appl. in moderate to severe suppression situations, for conducted emission or conducted susceptibility.
- High performance for applications as switching regulated power supplies and equipment which contains especially susceptible low-level logic.
- TYPE S FILTERS. offer two suppression elements ('L' Filter) for common-mode signals and three elements ('Pi' Filter) for differential-mode interference. Effective where low-frequency common-mode problem is least severe and high-frequency load impedance is relatively high.
- TYPE V FILTER. offer three suppression elements ('T' Filter) for common-mode signals and three elements ('Pi' Filter) for differential-mode interference. Effective where a low load impedance is presented to common-mode signals.
- TYPE W FILTER. offers four suppression elements (Double 'L' Filter) for common-mode signals and three elements ('Pi' Filter) for differential-mode interference.
- For complete data, refer to latest issue of Engineering Bulletin 8213.

PERFORMANCE CHARACTERISTICS

1. Leakage Current: From input or output lines to filter case, the max. shall not exceed 0.5 mA @ 125 v, 60 Hz or 1.25 mA @ 250 v, 50 Hz.
2. Voltage Rating: 125 v a-c @ 0-400 Hz; 250 v a-c @ 50-60 Hz.



SCHEMATIC DIAGRAMS

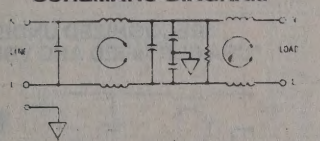
Stock No.	Type	Dem. In. LxWxH	Max. Amps	Schematic Diagram	1-24	25-49	50-99
81F1702	3JX5603S	2.38x1.75x1.13	3	S	14.85	12.15	10.80
81F1703	3JX5603V	2.38x1.75x1.13	3	V	16.48	13.48	11.98
81F1704	3JX5603W	2.38x1.75x1.13	3	W	17.27	14.13	12.56
81F1705	6JX5606S	2.94x2.00x1.50	6	S	19.71	16.13	14.34
81F1706	6JX5606V	2.94x2.00x1.50	6	V	22.13	18.11	16.10
81F1707	6JX5606W	2.94x2.00x1.50	6	W	21.34	17.46	15.52
81F1708	10JX5610S	2.94x2.00x1.50	10	S	16.76	13.72	12.19
81F1709	10JX5610V	2.94x2.00x1.50	10	V	18.39	15.05	13.38
81F1710	10JX5610W	2.94x2.00x1.50	10	W	18.63	15.25	13.55

SERIES JX5900 GENERAL-PURPOSE EMI/RFI LINE FILTERS

- UL RECOGNIZED and
- C.S.A. CERTIFIED.

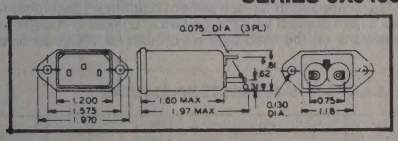
U.L reg and C.S.A. certified. Complies with FCC rules Part 15, VDE 0871, and other appl. that must meet similar spec. for 10kHz to 30MHz atten reg. Supplied with insul stranded wire leads(ends stripped and tinned) or with .250 × .035" Q-C tab term. (slotted for soldering). Operates @ 125 or 250V, 50/60 Hz. leakage current. From input or output line to filter case, max not to exeed 0.3mA @ 125V, 60 Hz or 0.4mA @ 250V, 50 Hz. Insul res., 6000 meg. min. @ 200VDC from line to case

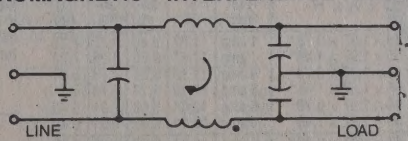
SCHEMATIC DIAGRAM



Stock No.	Type	Style	Dimensions LxWxH	Current @ 50-60 Hz 125V	250V	1-24	25-49	50-99	100-499
81F1711	3JX5903A	H	2.50"x2.00"x1.75"	3 A	1.5 A	21.93	17.95	15.95	13.96
81F1712	6JX5906A	H	5.19"x2.00"x2.25"	6 A	4 A	30.65	25.07	22.29	19.50
81F1713	10JX5910A	H	5.19"x2.00"x2.75"	10 A	6 A	39.36	32.20	28.62	25.04
81F1714	3JX5903B	K	2.50"x2.00"x1.75"	3 A	1.5 A	22.51	18.41	16.37	14.32
81F1715	6JX5906B	K	5.19"x2.00"x2.25"	6 A	4 A	31.22	25.54	22.70	19.87
81F1716	10JX5990B	K	5.19"x2.00"x2.75"	10 A	6 A	39.30	32.67	29.04	25.41

SERIES JX5400 ELECTROMAGNETIC INTERFERENCE FILTERS





CIRCUIT STYLE #1

Electromagnetic Interference Filters. Incorporates I.E.C. integral male line cord receptacle. U.L. recognized for operation at 125 or 250 VAC over range of 50-400 Hz. Protects low level logical circuitry against external transients (energy range: 150 kHz-30MHz). Withstands I.E.C. 10 kV surge test. Type numbers shown are for filters with rear terminals. Size: 1.97"x1.97"x.81.

Stock Number	Type	Max. Current (Amperes)	Circuit Style	EACH 1-24	25-49	50-99	100-499
20F817	1JX5411A	1	1	10.60	8.68	7.71	6.75
20F818	3JX5421A	3	1	9.99	9.81	7.26	6.36
20F819	6JX5431A	6	1	9.37	7.67	6.82	5.96
20F821	15JX5451A	15	1	10.96	8.96	7.72	6.73

6

RFI Powerline Filters

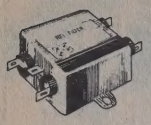


FIG. A

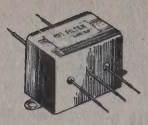


FIG. B

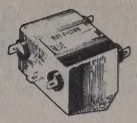


FIG. C

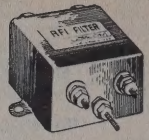


FIG. D

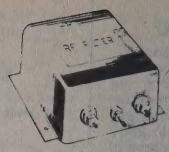


FIG. E

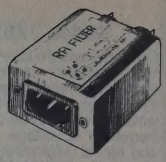
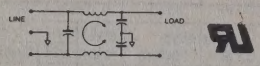


FIG. F

SERIES VB FILTERS

Series VB general purpose filters effectively provide RFI control of line to ground noise in a small size at low cost. These filters are available in a broad selection of current ratings and termination styles. Case style no. is last 2 numbers of type.

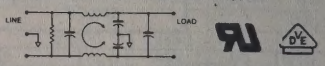


1 TO 30 AMPS; 115/250 VOLTS, 50-60 Hz

Stock No.	Type	Max. Amp	Case Style	Size L x W x H	1-24	25-49	50-99	100-499
81F4520	1VB1	1A	A	2.11×2.50× .63″	10.48	8.66	7.29	6.38
81F4521	1VB3	1A	B	.94×2.50× .63″	11.42	9.44	7.95	6.95
81F4548	2VB1	2A	A	2.11×2.50× .63″	9.44	7.79	6.56	5.74
81F4522	2VB3	2A	B	.94×2.50× .63″	10.38	8.57	7.22	6.32
81F4523	3VB1	3A	A	2.50×2.50× .75″	10.87	8.98	7.56	6.62
81F4537	3VB3	3A	B	1.31×2.50× .75″	11.84	9.78	8.24	7.21
81F4524	5VB1	5A	A	2.50×2.50× .75″	10.09	8.33	7.02	6.14
81F4538	5VB3	5A	B	1.31×2.50× .75″	10.87	8.98	7.56	6.62
81F4525	10VB1	10A	A	2.50×2.50×1.13″	11.37	9.39	7.91	6.92
81F4539	10VB3	10A	B	1.31×2.50×1.13″	12.02	9.93	8.36	7.32
15F2425	10B6	10A	D	2.60×2.50×1.13″	14.43	11.92	10.04	8.78
81F4540	20VB1	20A	A	3.23×2.78×1.13″	15.73	13.00	10.95	9.58
15F2427	20B6	20A	D	3.35×2.78×1.13″	18.56	15.33	12.91	11.30
15F2428	30B6	30A	E	5.22×4.12×1.50″	35.65	29.45	24.80	21.70

SERIES VK WITH LINE TO LINE CAPACITORS

Series VK filters are similar to the VB series but have the added feature of being extremely effective in supressing line to line interference as well as line to ground. Case style no. is last 2 numbers of type.



1 TO 30 AMPS; 115/250 VOLTS, 50-60 Hz

Stock No.	Type	Max. Amp	Case Style	Size L x W x H	1-24	25-49	50-99	100-499
81F4526	1VK1	1A	A	2.98×2.78× .88″	14.24	11.77	9.91	8.67
81F4541	1VK3	1A	B	1.81×2.78× .88″	15.13	12.50	10.53	9.21
81F4527	2VK1	2A	A	2.98×2.78× .88″	12.23	10.10	8.51	7.45
81F4528	2VK3	2A	B	1.81×2.78× .88″	13.49	11.14	9.38	8.21
81F4542	3VK1	3A	A	2.98×2.78×1.13″	14.56	12.03	10.13	8.86
81F4529	3VK3	3A	B	1.81×2.78×1.13″	15.29	12.63	10.64	9.31
81F4543	3VK7	3A	F	3.15×2.19×1.25″	16.49	13.62	11.47	10.04
81F4549	5VK1	5A	A	2.98×2.78×1.13″	12.44	10.28	8.65	7.57
81F4530	5VK3	5A	B	1.81×2.78×1.13″	14.32	11.83	9.96	8.72
81F4550	10VK1	10A	A	3.23×2.78×1.13″	13.41	11.08	9.33	8.16
81F4544	10VK3	10A	B	2.06×2.78×1.13″	14.06	11.62	9.78	8.56
15F2452	10K6	10A	F	3.35×2.78×1.13″	15.79	13.04	10.98	9.61
81F4545	10VK7	10A	F	3.64×2.19×1.25″	16.88	13.95	11.75	10.28
81F4546	20VK1	20A	C	3.23×3.32×1.50″	17.90	14.79	12.45	10.90
15F2454	20K6	20A	D	3.35×3.32×1.50″	20.70	17.10	14.40	12.60
15F2455	30K6	30A	E	5.23×4.12×1.50″	40.09	33.12	27.89	24.40

INTERNATIONAL FILTERS/MEDICAL APPLICATION SERIES EF-EFF/SERIES EH

FIG. H

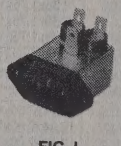


FIG. I

FIG. J

FIG. K

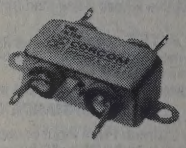
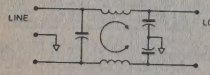


FIG. L

EF & EFF INTERNATIONAL SERIES FILTERS

This rugged international series of RFI filters incorporates the special IEC (International Electrotechnical Commission) power line connector. This series includes ¼ inch fastons on the EFF or solder terminals on the EF on the load side which can be soldered or crimp terminated. Electrically the EF international series is a general purpose filter effectively providing RFI control of line-to-ground noise. The design is compact and meets low leakage requirements.



SERIES
EF EFF

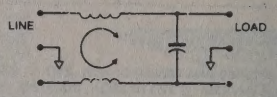
1 TO 6 AMPS; 115-250 VOLTS, 50-60 HZ AC

Stock No.	Type	Case Style	Size L x W x H	Max. Line Current	1-24	25-49	50-99	100-499
81F4531	1EF1*	H	2.16×1.97×0.78″	1 amp	11.87	9.80	8.25	7.22
81F4532	1EF2F*	I	1.55×1.97×1.45″	1 amp	11.87	9.80	8.25	7.22
81F4551	3EF1F*	H	2.16×1.97×0.78″	3 amp	11.19	9.24	7.78	6.81
81F4533	3EF2F*	I	1.55×1.97×1.45″	3 amp	11.19	9.24	7.78	6.81
81F4552	6EF1F*	H	2.16×1.97×0.78″	6 amp	10.51	8.68	7.31	6.40
81F4547	6EF2F*	I	1.55×1.97×1.45″	6 amp	10.51	8.68	7.31	6.40
15F2456	1EF1	J	1.97×1.97×0.78″	1 amp	11.87	9.80	8.25	7.22
15F2457	3EF1	K	1.97×1.97×0.78″	3 amp	11.19	9.24	7.78	6.81
15F2458	6EF1	J	1.97×1.97×0.78″	6 amp	10.51	8.68	7.31	6.40
15F2459	1EF2	K	1.55×1.97×1.23″	1 amp	11.87	9.80	8.25	7.22
15F2460	3EF2	J	1.55×1.97×1.23″	3 amp	11.19	9.24	7.78	6.81
15F2461	6EF2	K	1.55×1.97×1.23″	6 amp	10.51	8.68	7.31	6.40

*Styles E1F & E2F have SEMKO approval

EH SERIES RFI POWER LINE FILTERS FOR MEDICAL EQUIPMENT APPLICATION

°RECOGNIZED UNDER UL544
°CSA CERTIFIED AND VDE APPROVED



SERIES EH

The EH Series is designed to meet UL 544 specifications for medical and dental equipment. The model 6EH1 is suited for patient care equipment. Model 6EH4 and 6EH9 are suited for non-patient equipment (equipment that is intended for use where contact with the patient is unlikely). The EH Series included ¼ inch fastons on the load side which can be soldered or crimp terminated.

6 AMPS; 115-250 VOLTS 50-60 HZ AC

Stock No.	Type	Case Style	Size L x W x H	Max. Line Current	1-24	25-49	50-99	100-499
81F4534	6EH1	L	2.11×2.50×0.63	6A	10.79	8.92	7.51	6.57
81F4535	6EH4	J	2.16×1.97×0.78	6A	13.43	11.10	9.35	8.18
81F4536	6EH9	K	1.55×1.97×1.45	6A	13.43	11.10	9.35	8.18

RFI Power Line Filters

FIG. A

FIG. B

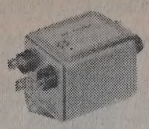


FIG. C

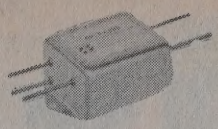


FIG. D

FIG. E

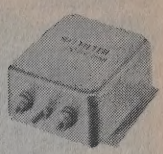
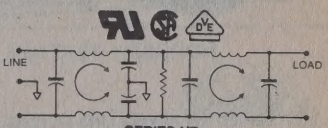


FIG. F

SERIES VR FILTERS

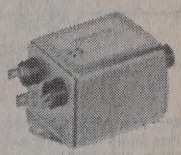
The VR series dual T section RFI power line filters provide premium performance at moderate cost. They are well suited for low impedance loads where noisy RFI environments are present. At frequencies as low as 150 KHz the VR series has an insertion loss as high as 45 DB. They control pulsed, continuous and/or intermittent interference insuring protection of your equipment from power line noise in addition to protecting the line from equipment noise. The V.R. series is an ideal replacement for Pi type filters while incorporating the "value added" concept. Pi filters have used large capacitors to eliminate low frequency RFI, resulting in high line to ground leakage current. The R series dual T type provides extremely low leakage current without deterioration of insertion loss characteristics.

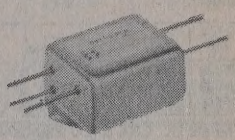


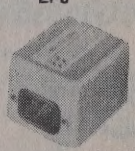
SERIES VR

TWO "T" SECTIONS—1 TO 20 AMPS; 115/250 VOLTS, 50-60 HZ AC

Stock No.	Type	Case Style	Size	Max. Line Current	1-24	25-49	50-99	100-499
81F4553	1VR1	C	3.23L × 1.75W × 1.13"H	1A	20.31	16.78	14.13	12.36
81F4566	1VR3	D	2.75L × 1.75W × 1.13"H	1A	21.43	17.70	14.91	13.05
81F4554	2VR1	C	3.23L × 1.75W × 1.13"H	2A	18.35	15.16	12.76	11.17
81F4567	2VR3	D	2.75L × 1.75W × 1.13"H	2A	20.33	16.80	14.15	12.38
81F4555	3VR1	C	3.73L × 2.00W × 1.13"H	3A	19.73	16.30	13.73	12.01
81F4556	3VR3	D	3.32L × 2.00W × 1.13"H	3A	20.99	17.34	14.60	12.78
81F4568	3VR7	A	4.28L × 2.19W × 1.25"H	3A	22.74	18.78	15.82	13.84
81F4557	5VR1	C	3.73L × 2.00W × 1.13"H	5A	18.53	15.31	12.89	11.28
81F4569	5VR3	D	3.32L × 2.00W × 1.13"H	5A	20.49	16.93	14.25	12.47
81F4570	5VR7	A	4.28L × 2.19W × 1.25"H	5A	21.48	17.75	14.95	13.08
81F4558	10VR1	C	3.73L × 2.00W × 1.50"H	10A	19.45	16.06	13.53	11.84
81F4571	10VR3	D	3.32L × 2.00W × 1.50"H	10A	20.13	16.63	14.00	12.25
15F2477	10R6	E	3.85L × 2.00W × 1.50"H	10A	23.05	19.04	16.04	14.03
81F4572	10VR7	A	4.28L × 2.19W × 1.50"H	10A	23.08	19.06	16.05	14.05
81F4559	20VR1	B	5.11L × 4.12W × 1.50"H	20A	40.62	33.55	28.25	24.72
12F2479	20R6	F	5.23L × 4.12W × 1.50"H	20A	41.66	34.42	28.98	25.36


EP1

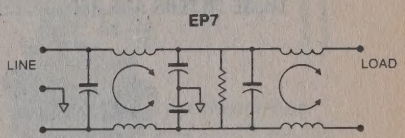

EP3


EP7

EP SERIES
RFI POWERLINE FILTER FOR SWITCHING POWER SUPPLY NOISE SUPPRESSION

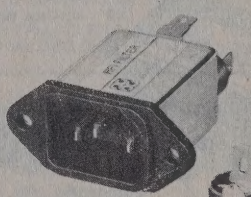
EP series RFI filters developed to reduce conducted noise to acceptable limits for equipment that must comply with requirements of VDE 0875, in West Germany, and FCC specifications in USA. Filters provide high insertion losses for both line-to-ground and line-to-line emissions throughout frequency range. Filters are U.L. recognized, CSA certified VDE and SEV approved and comply with requirements for IEC 161.

- UL Recognized
- CSA Certified
- VDE Approved
- SEV Approved



EP SERIES

Stock No.	Type	Case Style	Size	Max. Line Current	1-24	25-49	50-99	100-499
81F4560	3EP1	P1	3.74"L × 2.00"W × 1.75"H	3 Amp	26.37	21.79	18.35	16.05
20F638	3EP3	P3	3.32"L × 2.00"W × 1.75"H	3 Amp	26.37	21.79	18.35	16.05
81F4561	3EP7	P7	3.15"L × 2.19"W × 1.75"H	3 Amp	28.72	23.73	19.98	17.48
81F9311	6EP1	P1	6.50"L × 2.00"W × 2.25"H	6 Amp	39.88	32.95	27.75	24.28
22F1147	6EP3	P3	6.00"L × 2.00"W × 2.25"H	6 Amp	39.88	32.95	27.75	24.28
81F4562	10EP1	P1	6.50"L × 2.00"W × 2.75"H	10 Amp	50.97	42.10	35.45	31.02
22F1148	10EP3	P3	6.00"L × 2.00"W × 2.75"H	10 Amp	50.97	42.10	35.45	31.02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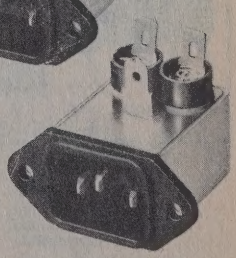
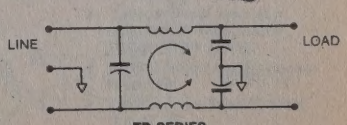

E2

ED SERIES—High Performance RFI Power Line Filters

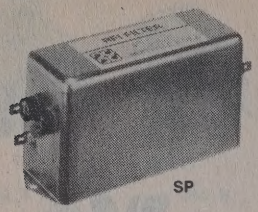
The ED series filters are high performance filters that are extremely effective in applications where line-to-line and low frequency line to ground noise must be controlled in such cases as bringing equipment into compliance with FCC conducted emission standards. The series incorporates an IEC connector and features a very low leakage current.

Stock No.	Type	Case Style	Size	Max. Line Current	1-24	25-49	50-99	100-499
81F4573	1ED1	E1	2.16L × 1.97W × 0.78"H	1A	16.03	13.24	11.15	9.76
81F4574	1ED2	E2	1.55L × 1.97W × 1.45"H	1A	16.03	13.24	11.15	9.76
81F4563	3ED1	E1	2.16L × 1.97W × 0.78"H	3A	15.11	12.48	10.51	9.20
81F4564	3ED2	E2	1.55L × 1.97W × 0.45"H	3A	15.11	12.48	10.51	9.20
81F4565	6ED1	E1	2.16L × 1.97W × 1.78"H	6A	14.19	11.72	9.87	8.64
81F4575	6ED2	E2	1.55L × 1.97W × 1.45"H	6A	14.19	11.72	9.87	8.64



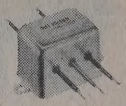
ED SERIES

Power Line Filters and Connectors

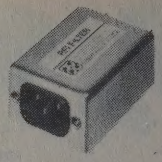


SP

SK1

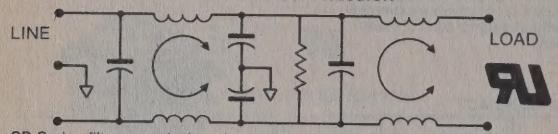


SK3



SK7

SP SERIES RFI POWER LINE FILTERS FOR SWITCHING POWER SUPPLY NOISE SUPPRESSION

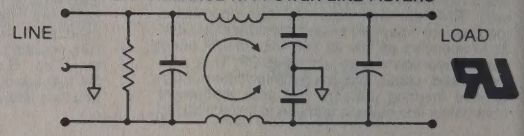


SP Series filters are designed to reduce RFI noise generated by switching type power supplies to acceptable limits. Filters provide high insertion losses for line-to-ground and line-to-line emissions throughout the frequency range.

Stock No.	Type	Size	Max Line Current	1	25	50	100
20F638	3SP1A	6.94″L×2.00″W×1.78″H	3 Amps	33.48	27.57	23.22	20.32
20F639	6SP1A	6.94″L×2.00″W×1.78″H	6 Amps	44.46	36.73	30.93	27.06
20F640	10SP1A	6.94″L×2.00″W×1.78″H	10 Amps	55.62	45.95	38.69	33.85

+ Meets UL, CSA & IEC Standards

SK SERIES HIGH PERFORMANCE RFI POWER LINE FILTERS



The SK Series filters are significantly higher performance than the K series which makes this new series particularly suited for equipment with high line-to-ground as well as line-to-line conducted emissions.

- UL Recognized
- CSA Certification, VDE and SEV approvals in process.

Stk. Nos.	Type	Case Style	Size	Max Line Current	1-24	25-49	50-99	100-499
81F4582	3VSK1	1	3.68L×2.00W×1.13″H	3A	19.50	16.11	13.56	11.97
81F4576	3VSK3	3	3.32L×2.00W×1.13″H	3A	20.15	16.65	14.02	12.37
81F4577	3VSK7	7	3.09L×2.19W×1.13″H	3A	22.16	18.31	15.42	13.49
81F4583	6VSK1	1	4.16L×2.20W×1.25″H	6A	22.87	18.89	15.91	13.92
81F4584	6VSK3	3	3.80L×2.20W×1.25″H	6A	23.55	19.45	16.38	14.33
81F4578	6VSK7	7	3.09L×2.19W×1.75″H	6A	25.54	21.09	17.76	15.54
81F4579	10VSK1	1	4.80L×2.19W×1.75″H	10A	26.66	22.02	18.55	16.23
81F4580	10VSK3	3	4.44L×2.19W×1.75″H	10A	27.34	22.58	19.02	16.64
81F4581	10VSK7	7	4.21L×2.19W×1.75″H	10A	29.33	24.23	20.40	17.85

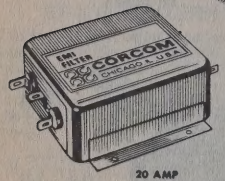
3-CONDUCTOR LINE CORDS

Type 80-1245. Mates with J, EF, EFF, ED and all style 7 filters.
15F2481 1-49 $5.72 each
50-up 4.57 each

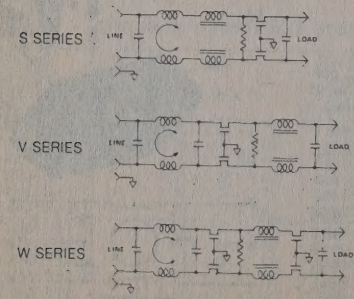
Type 80-1430. Low leakage line cord for use with 6EH1 filter.
1-49 $39.95 each
50-up 31.96 each.

THESE FILTERS ARE RECOGNIZED UNDER THE COMPONENTS PROGRAM OF UNDERWRITERS LABORATORIES, INC.

3, 6, 10, AMP



20 AMP



SERIES S, V and W FILTERS

The S, V and W series combine line-to-ground interference rejection filters with additional circuitry designed to reduce low freq. line-to-line noise and add a balanced N = 3 ("PI") line-to-line filter with high rejection at low freq. to the N = 2 ("L") and N = 3 ("T") sections to eliminate line-to-ground noise. Particularly effective when applied in equipment using switching type power supplies, SCR and TTL circuits.

APPLICATION DATA

Corcom Filter Series	Line-to-Ground Z	Line-to-Line Z	For use when equip. impedance @ high freq. is:
S	N = 2	N = 3	High
V	N = 3	N = 3	Low
W	N = 4	N = 3	High

SERIES S

Stk. No.	Type	Max. Line Amps	Size L×W×H	1-24	25-49	50-99	100-499
15F2388	3S1A	3A	3.10L×1.75W×1.25″H	17.83	14.73	12.40	10.85
15F2389	6S1*	6A	3.60L×2.00W×1.50″H	17.59	14.53	12.24	10.71
15F2390	10S1	10A	3.60L×2.00W×1.50″H	18.74	15.48	13.04	11.41
15F2391	20S1	20A	4.97L×4.12W×1.50″H	40.77	33.68	28.36	24.82

SERIES V

Stk. No.	Type	Max. Line Amps	Size L×W×H	1-24	25-49	50-99	100-499
15F2392	3V1A	3A	3.10L×1.75W×1.25″H	19.60	16.19	13.64	11.93
15F2393	6V1*	6A	3.60L×2.00W×1.50″H	19.11	15.78	13.29	11.63
15F2394	10V1	10A	3.60L×2.00W×1.50″H	20.54	16.97	14.29	12.50
15F2395	20V1	20A	4.97L×4.12W×1.50″H	42.45	35.06	29.53	25.84

SERIES W

15F2396	3W1A	3A	3.10L×1.75W×1.25″H	21.69	17.92	15.09	13.20
15F2397	6W1*	6A	3.60L×2.00W×1.50″H	20.07	16.58	13.96	12.22
15F2398	10W1	10A	3.60L×2.00W×1.50″H	22.27	18.40	15.49	13.55
15F2399	20W1	20A	4.97L×4.12W×1.50″H	43.36	35.82	30.16	26.39

*6 Amp models are both UL approved and CSA certified. CSA certification in process on 3, 10, and 20 Amp models.

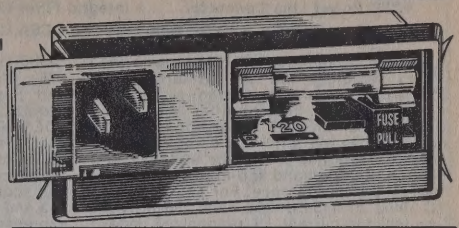
RFI Power Line Filters

corcom

VOLTAGE SELECTING & FUSED CONNECTORS

Developed for the manufacturer who markets his products worldwide. Eliminates internal wiring changes, special power supplies or stocking various line cords.

VS & F, in less than 3½ square inches of panel space, provides an internationally approved connector, fuse holder and a means to change transformer primary connections with a unique voltage selector card. Can be operated any place in the world without modification at time of installation. Available with a built-in filter for RFI protection of the equipment. U.L. recognized. 6VJ1 is VDE approved.



SPECIFICATIONS

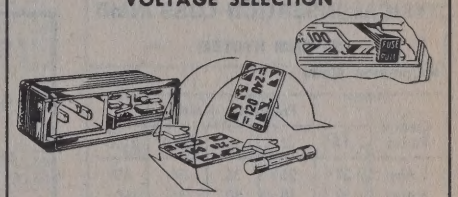
Current: 6A AC max. Operating voltages: 100, 120, 220, and 240 VAC. Operating frequency: 50-400 Hz. Fuse: integral fuse holder line side, accepts .25" x 1.25" fuse. Power connector: meets U.L./IEC requirements. Specs per CEE Publication 22 Type VI. Terminals: connector back terminals suitable for soldering, wire wrapping or crimp-on lugs. 2250 VDC test voltage. Construction meets IEC 161, category 10/70/21. Max. leakage current line-to-ground @ 250 VAC 50 Hz, 5 μA (6VJ1); 500 μA (6J4).

Stk. No.	Type	Description	Each
15F2482	6VJ1	unfiltered	7.07
15F2483	6J4	filtered	13.42

REPLACEMENT CIRCUIT CARDS

Stk. No.	Type	For Voltages	Each
15F2485	70-1470	100, 120, 220, 240	1.22
15F2484	70-1495	115 & 230	1.22

VOLTAGE SELECTION



Specifications	VB, VK, VR & SK Series	EF, EFF & ED Series	EP Series	SP Series	S, V & W Series	V Series	H Series
Rated Voltage: (VRMS)	115/250	115/250	115/250	115/250	115/250	115/250	115/250
Operating Freq.:	50-60 Hz	50-60 Hz	50-60 Hz	60-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Max. leakage current each, line to ground:							
115 VAC 60 Hz:	.5 mA	.25 mA	.25 mA	2.0 mA	.5 mA	—	2 mA
250 VAC 50 Hz:	1.25 mA	.50 mA	.40 mA	3.0 mA	1.25 mA	(J1) 5 mA (J4) 500 mA	5 mA
Test Voltage: (Line to case)	2250 VDC	2250 VDC	2250 VDC	2250 VDC	2250 VDC	2250 VDC	1500 VAC

FOR INSERTION LOSS VALUE SPECIFICATION CONTACT NEWARK LOCAL SALES OFFICE

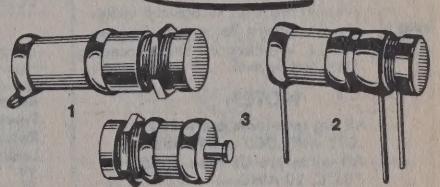
Variable Capacitors

Johanson

STANDARD VARIABLE AIR CAPACITORS

Stk. No.	Type	Fig.	Q Factor @ 100 MHZ	Capacitance Range	Size L x D	1-24	25-49	50-99	100-299
17F153	5200	1	>5000	0.8-10.0 Pf	.500 x .285	6.05	5.05	4.15	3.70
17F154	5201	2	>5000	0.8-10.0 Pf	.500 x .285				
17F155	5202	3	>5000	0.8-10.0 Pf	.500 x .285				
17F160	5401	2	>3000	1.0-14.0 Pf	.500 x .285	7.55	6.65	5.80	5.35
11F461	5451	2	>3000	1.0-16.0 Pf	.500 x .285	8.70	7.65	6.70	6.15
17F165	5500	1	>1500	1.0-20.0 Pf	.734 x .285	9.35	8.30	7.30	7.00
11F463	5501	2	>1500	1.0-20.0 Pf	.738 x .285				
19F002	5601	2*	>800	1.0-30.0 Pf	.926 x .285	13.05	10.60	9.55	9.30

*Similar to Fig. 2 except with four leads.



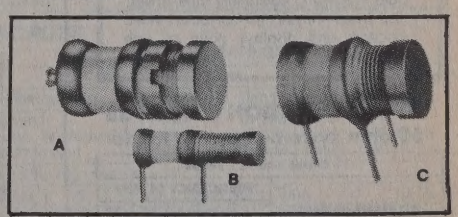
STANDARD VARIABLE AIR CAPACITORS

These capacitors are designed for UHF and VHF applications. They feature excellent tuning stability and very low dynamic noise. Working voltage: 250 VDC. Test voltage: 500 VDC. Temperature coefficients PPM/°C: 5200, 0±15; 5400, 0±25; 5450, 0±50; 5500 and 5600, 0±30.

MINIATURE VARIABLE AIR CAPACITORS

The miniature air series of variable capacitors are a size reduction of the standard series and are for use in microwave, VHF and UHF applications. They offer fine tuning resolution; .35 pf per turn, 10/1 capacitance ratio, low temperature coefficients and sizes compatible for hybrid circuits as well as standard applications. Working voltage: 250 VDC. Test voltage: 500 VDC. Temperature coefficients PPM/°C: 5700 and 5800, 0±15, 5750 and 5850, 0±50.

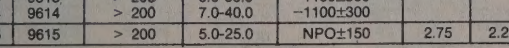
Stk. No.	Type	Fig.	Q Factor @ 100 MHZ	Capacitance Range	Size L x D	1-24	25-49	50-99	100-299
17F182	5701	C	>1000	0.6-6.0 Pf	.484 x .220	8.90	7.80	6.95	6.65
17F213	5751	C	>7500	0.8-10.0 Pf	.484 x .220	9.25	8.30	7.50	7.20
17F214	5752	A	>7500	0.8-10.0 Pf	.484 x .220				
17F174	5801	B	>10000	0.35-3.50 Pf	.484 x .145	8.10	7.25	6.45	6.20
17F175	5802	A	>10000	0.35-3.50 Pf	.484 x .145				



Miniaturized variable ceramic capacitors for microwave, RF, video and digital applications. Perfect for applications where small size and contamination free operation is required. Incorporates a sealed body which prevents intrusion of solder flux, cleaning agents and atmospheric contamination. Printed circuit mounting. Conforms to specification MIL-C-81. Tamper proof, non-slip adjustment with unique square drive tuning. Size: .250"D x .078"H.

SEAL-TRIM CERAMIC VARIABLE CAPACITORS

Stk. No.	Type	Q Factor @ 100 MHz	Cap. Range pF	Temp. Coef. PPM/°C	1-49	50-99	100-299
13F5050	9610	>1000	1.0-4.5	50± 50	2.75	2.25	1.85
13F5051	9611	>1000	2.5-10.0	−500±200			
13F5052	9612	> 700	4.0-18.0	−400±200			
13F5053	9613	> 200	6.0-35.0	−1100±300			
13F5054	9614	> 200	7.0-40.0	−1100±300			
13F5055	9615	> 200	5.0-25.0	NPO±150	2.75	2.25	1.85



Model 8777 Tuning Tool for series 5200, 5400, 5500, 5600, 5700 & 5800
81F4903.....$2.50

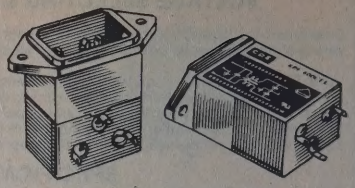
- **Low temperature coefficient and drift rates**
- **Impervious to all standard P.C. board cleaning solvents**
- **Tamper proof, non-slip adjustment with unique square drive tuning**
- **High Q factor and frequency response**
- **Conforms to Specification MIL-C-81**
- **Printed circuit mounting**

International Connectors

INTERNATIONAL CONNECTOR SERIES

- IEC Power Line Connector
- Integral Filter Case Housing
- UL Recognized
- VDE Approved
- CSA Certified

Low cost, all purpose RFI/EMI power line filters featuring the IEC (International Electro-Technical Commission) power line connector. Case housing filter is an integral part of molded connector. Molded cover containing terminals completes enclosure. Designed to provide effective reduction of broadband line-to-ground (common mode) interference. For operation on AC lines of 115 to 250 volts, 50/60 Hz. Low leakage current. UL recognized under Component Recognition Program for UL 478, Electronic Data Processing Units and Systems. Entire series is VDE approved for full current rating under the VDE 550-6 and 560-7 and VDE class HPF and listed by the Canadian Standards Association as certified Insertion loss in dB chart below for 50 ohm system covers both common and differential modes at 1, 3 and 6 amperes for various frequencies expressed in MHz.



CET CEE

TYPICAL INSERTION LOSS IN dB

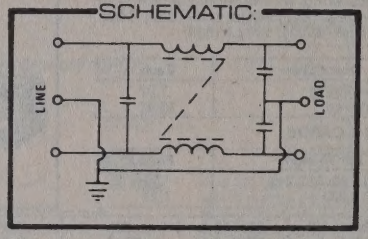
50 OHM SYSTEM

- **Common Mode**

Current Rating	Freqeuncy in MHz				
	.15	.2	.5	10.0	20.0
1 Amp	20	25	35	55	50
3 Amp	12	18	30	55	50
6 Amp	10	12	22	55	50

- **Differential Mode**

Current Rating	Freqeuncy in MHz				
	.15	.2	.5	10.0	20.0
1 Amp	18	22	35	45	45
3 Amp	14	17	31	45	45
6 Amp	8	12	24	45	45



Stock No.	Type APF	AMP	1-24	24-49	50-99	100-499
10F7705	100CEE	1				
10F7706	100CET	1	11.18	9.14	8.05	6.96
10F7707	300CEE	3				
10F7708	300CET	3	10.54	8.61	7.86	6.56
10F7709	600CEE	6				
10F7710	600CET	6	9.89	8.09	7.12	6.49

SPECIFICATIONS

Rated Voltage .....115-250 VAC

Power Line Freq. .....50-60 Hz

Rated Current ....1, 3 and 6 amps

Leakage Current ..Line-to-Ground
@115 VAC, 60 Hz: 0.25 ma max.
@ 250 VAC, 50 Hz: 0.50 ma max.

Test Voltage:
Line-to-Ground: 2250 VDC, one min.
Line-to-Line: 1450 VDC, one min.

RFI Power Line Filters

All units are U.L. Recognized under the Component Recognition. Program for U.L. 478 Electronic Data Processing Units and Systems.

NOTES:

1. **All lug terminals are 0.250 x .032 with .060 x .090 hole**
2. **All wires are UL type 1015, 105°C, 20 AWG**
3. **All screws are 8-32 UNC**
4. **All mounting holes are .188 (4.78) I.D. unless otherwise specified.**

Applications

Data Processing equipment tape drives, disc drives printers mini-computers video monitors and displays point of sale terminals

Rated Voltage: . . . . . 115-250 VAC
Power Line Frequency: . . . . . 50-400 Hz
Rated Current: . . . . . 1-30 Amperes
Leakage Current—Line-to-ground

SPECIFICATIONS

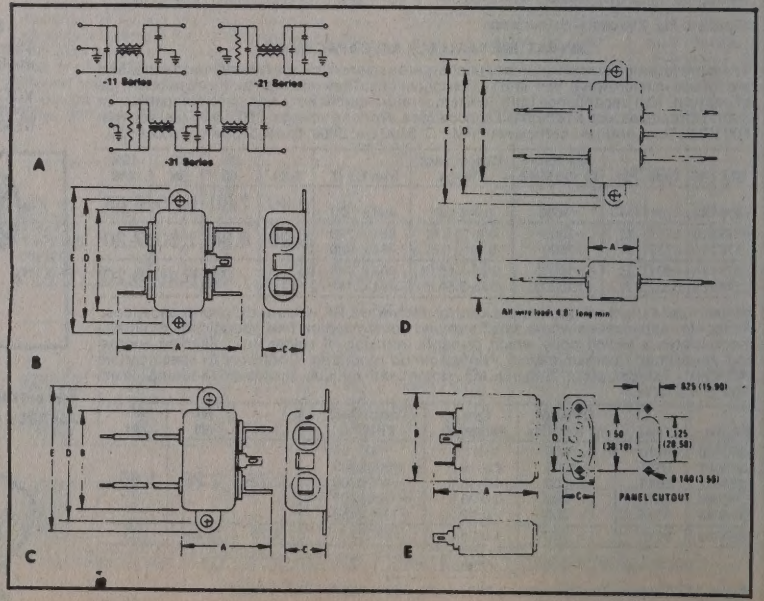
Applicable to -11, -21, and -31 Series

Test Voltages:
Line-to-Ground: 2250 VDC (One minute)
Line-to-Line: 1450 VDC, One minute
@115 VAC 60 Hz: 0.5 ma max.
@250 VAC 50 Hz: 1.0 ma max.

TYPICAL INSERTION LOSS IN dB
50 ohm system-common mode

-11 Series and -21 Series					
	FREQUENCY IN MHz				
CURRENT RATING	.15	.2	.5	10	20
1A & 3A	20	25	35	55	55
2A, 5A, 10A, 20A & 30A	15	20	30	55	55

-31 Series					
	FREQUENCY IN MHz				
CURRENT RATING	.15	.2	.5	10	20
1A & 3A	45	50	70	70	70
2A, 5A, 10A & 20A	20	30	60	70	70

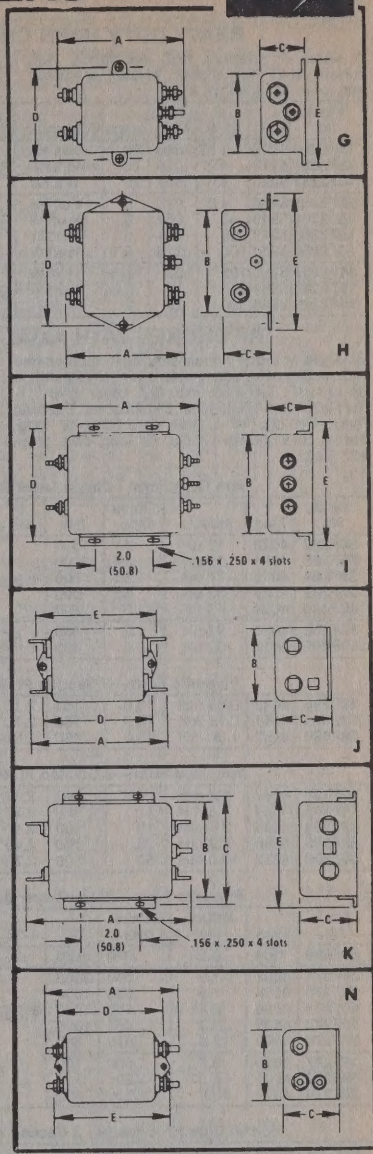


RFI POWER LINE FILTERS

APF-11 Series

-11 Series of RFI/EMI power line filters are all purpose, low cost filters designed to provide effective reduction of broadband line-to-ground (common mode) interference. All units are U.L. Recognized under the Component Recognition Program for U.L. 478, Electronic Data Processing Units and Systems.

Stk. No.	(Amps)	Type Number	Fig.	A	B	C	D	E	EACH 1-24	25-49	50-99	100-499
10F7718		APF111L	B	1.98	1.75	.63	2.13	2.50	9.90	8.09	7.12	6.16
10F7719		APF111LW	C	1.48	1.75	.63	2.13	2.50	11.44	9.35	8.23	7.12
10F7720	1	APF111W	D	.94	1.75	.63	2.13	2.50	10.79	8.82	7.77	6.72
10F7721		APF111CL	E	2.40	2.00	.75	1.50	·····	12.88	10.52	9.27	8.02
10F7723		APF211L	B	1.98	1.75	.63	2.13	2.50	8.89	7.27	6.40	5.54
10F7724		APF211LW	C	1.48	1.75	.63	2.13	2.50	10.38	8.48	7.47	6.46
10F7725	2	APF211W	D	.94	1.75	.62	2.13	2.50	9.90	8.09	7.12	6.16
10F7726		APF211CL	E	2.40	2.00	.75	1.50	·····	11.80	9.64	8.49	7.34
10F7728		APF311L	B	2.35	1.75	.75	2.13	2.50	10.28	8.40	7.40	6.40
10F7729	3	APF311LW	C	1.83	1.75	.75	2.13	2.50	11.85	9.68	8.53	7.38
10F7730		APF311W	D	1.31	1.75	.75	2.13	2.50	11.18	9.14	8.05	6.96
10F7733	5	APF511L	B	2.35	1.75	.75	2.13	2.50	9.51	7.77	6.85	5.92
10F7735	5	APF511W	D	1.31	1.75	.75	2.13	2.50	10.25	8.38	7.38	6.38
10F7738	10	APF1011L	B	2.35	1.75	1.13	2.13	2.50	10.74	8.78	7.73	6.69
10F8474	10	APF1011W	D	1.31	1.75	1.13	2.13	2.50	11.36	9.28	8.18	7.07
10F7740	10	APF1011CL	E	2.65	2.00	1.13	1.50	·····	13.06	10.67	9.40	8.13
10F7743	10	APF2011L	B	3.10	2.00	1.13	2.38	2.78	14.78	12.08	10.64	9.20
10F7744	20	APF2011S	-	3.35	2.00	1.13	2.375	2.75	17.35	14.18	12.49	10.80
10F7745	30	APF3011S	-	5.22	3.31	1.50	3.75	4.13	33.15	27.09	23.87	20.64



APF-21 SERIES

The -21 Series of RFI/EMI power line filters are all purpose filters similar to the APF-11 Series with the added feature of effectively reducing broadband line-to-line interference. This is accomplished by the addition of line-to-line capacitors.

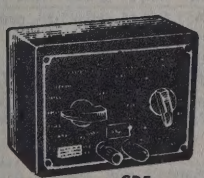
Stk. No.	Amps	Type Number	Fig.	A	B	C	D	E	1-24	25-49	50-99	100-499
10F7746	1	APF121L	B	2.85	2.00	.88	2.38	2.78	13.42	10.96	9.66	8.35
10F7749	1	APF121CL	E	2.65	2.00	.88	1.50	·····	15.78	12.90	11.36	9.82
10F7751	2	APF221L	B	2.85	2.00	.88	2.38	2.78	11.51	9.41	8.29	7.17
10F7753	2	APF221W	D	1.81	2.00	.88	2.38	2.78	12.80	10.46	9.21	7.97
10F7756	3	APF321L	B	2.85	2.00	1.13	2.38	2.78	13.62	11.13	9.81	8.48
10F7761	5	APF521L	B	2.85	2.00	1.13	2.38	2.78	11.59	9.47	8.34	7.22
10F7764	5	APF521CL	E	2.65	2.00	1.13	1.50	·····	15.01	12.26	10.80	9.34
10F7766	10	APF1021L	B	3.10	2.00	1.13	2.38	2.78	12.59	10.29	9.07	7.84
10F7769	10	APF1021S	G	3.35	2.00	1.13	2.38	2.75	14.65	11.97	10.55	9.12
10F7771	20	APF2021S	H	3.35	2.50	1.50	2.94	3.32	19.28	15.75	13.88	12.00
10F7772	30	APF3021S	I	5.23	3.31	1.50	3.75	4.12	37.27	30.45	26.83	23.20

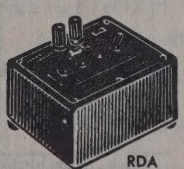
APF-31SERIES

The -31 Series of RFI/EMI power line filters are all purpose filters. They are a step up in performance over the -11 and -21 Series in the reduction of both line-to-ground and line-to-line broadband interference, while providing the same low leakage current as the -11 and -21. The -31 Series is schematically a "T" filter and performs exceptionally well when used with low impedance systems.

Stk. No.	Amp	Part Number	Fig.	A	B	C	D	E	1-24	25-49	50-99	100-499
10F7773	1	APF131L	J	3.10	1.75	1.13	2.38	2.75	19.10	15.60	13.75	11.89
10F7779	3	APF331L	J	3.60	2.00	1.13	2.94	3.32	18.30	14.95	13.17	11.39
10F7781	3	APF331W		2.56	2.00	1.13	2.94	3.32	19.46	15.90	14.00	12.11
10F7782	5	APF531L	J	3.60	2.00	1.13	2.94	3.32	17.22	14.07	12.40	10.72
10F7784	5	APF531W		2.56	2.00	1.13	2.94	3.32	19.15	15.65	13.78	11.92
10F7785	10	APF1031L	J	3.60	2.00	1.50	2.94	3.32	18.25	14.91	13.14	11.36
10F7787	10	APF1031W		2.56	2.00	1.50	2.94	3.32	18.76	15.33	13.51	11.68
10F7788	10	APF1031S	N	3.85	2.00	1.50	2.94	3.32	21.46	17.54	15.45	13.36
10F7789	20	APF2031L	K	4.97	3.32	1.50	3.75	4.12	38.04	31.01	27.38	23.68
10F7790	20	APF2031S	I	5.23	3.32	1.50	3.75	4.12	38.52	31.48	27.73	23.98

CAPACITOR AND RESISTOR DECADES


CDE


RDA

CD Capacitor and RD Resistor Decade boxes provide precision values needed for breadboarding and substitution. Direct-reading value ranges, six-way molded nylon terminal posts, and calibration chart for capacitance boxes to improve accuracy. Capacitor decade box CDE uses toggle switches, all other boxes have rotary-type switches. Resistor decade box RDC rated at 2 watts maximum, types RDA and RDB rated at 10 watts maximum dissipation. Individual capacitor boxes available in tantalum electrolytic type. Size: 3¹³⁄₁₆x5x3⅝", weight 2 lbs.

CAPACITOR DECADE RATINGS

Type	Tol.	Dielectric	Max. Volt.	Min.	Max.	Steps
CDA-2	±2%	Silv. Mica	600VDC, 220VAC	.0001	.011	.0001
CDB-3	±3%	Paper		.01	1.1	.01
CDC-3	±3%	Paper		1.0	10.0	1.0
CDE	−10%, +50%	Etched Cath. Alum. Elec.	450VDC	10	150	10

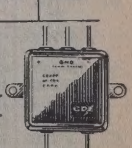
RESISTOR DECADE RATINGS

Type	Resistor	Resistance, Ohms L. Range	H. Range	Max.	Step	Tol.
RDA	Wire Wound	1-10	10-100	110	1	*
RDB	Non-Induc. W. Wound	100-1K	1K-10K	11K	100	+3%
RDC	Carbon Precision	10K-100K	100K-1M	1.1M	10K	+1%

(*) Low Range ±5%, High Range ±3%

Stock No.	Type	1-9	10-Up	Stock No.	Type	1-9	10-Up
62F657	CDA	30.30	27.30	**62F655**	RDA	48.53	43.93
62F645	CDB	34.20	30.90	**62F656**	RDB	34.21	30.94
62F646	CDC	44.40	40.20	**62F654**	RDC	37.95	34.27
62F647	CDE	29.70	26.88				

TYPE IF FILTERS



5 amp portable devices designed for RFI suppression of fluorescent light sources, office machines and other small appliances. Electrical appliances are plugged into line sockets provided.

Stock No.	Type	Volts	1-24	25-99	100-Up
48F006	IF54	110-220 AC/DC	12.72	10.10	7.48

J.W. Miller Chokes

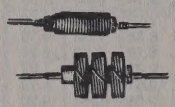
HEAVY DUTY HASH CHOKES

A series of relatively high inductance, high current hash filter chokes. Molded powdered iron form. Av. ship. wt. 2 oz.

Stock No.	Type	Uh 20%	Ohms Max.	Amps	Dimensions	1-99	100-249	250-499	500-Up
15F2250	5218	3.35	.010	20	1/32x15/16				
15F2251	5219	4.9	.016	15	1/2 x1 1/4	3.45	2.53	1.90	1.67
15F2252	5220	8.8	.021	10	1/2 x1 1/4				
15F2253	5230	4.0	.012	8	5/16x29/32				
15F2254	5240	40.	.082	3	9/16x1 1/4	2.82	2.07	1.55	1.36
15F2255	5248	68.	.054	5	17/32x1 1/4				
15F2256	5250	100.	.216	2	9/16x1 1/4				
15F2257	5252	125.	.08	3.5	1/2 x1 1/4				
15F2258	5254	250.	.17	2.5	7/16x1 1/4	3.30	2.42	1.82	1.60
15F2259	5256	500.	.26	2	9/16x1/4				

RF CHOKES WITH AXIAL LEADS

Solenoid or 3-pi universal windings. Impregnated with moisture, fungus-resistant varnish. Operation up to UHF. Tol. ±5% exc. Sgl. Layer Phen. .1-1uH-20%, 1.1-10uH-10%. Dimensions: Phenolic form—3/16" dia. 3/4" L. Iron core form 7/8" long; Ferrite core chokes 1/4" dia. 7/8" long. Avg. Ship. wt.: 2 oz.



Iron Core Form - Single Layer Solenoid

Stock No.	Type	Induct.	Ohms Max.	mA	1-99	100-249	250-499	500-Up
59F282	4622	10 uH	.11	1500				
59F283	4624	15 uH	.17	1000				
59F284	4626	24 uH	.34	800	1.44	1.06	.79	.70
59F285	4628	39 uH	.65	600				
59F286	4629	55 uH	1.0	500				
59F288	4631	.82 uH	1.9	450				
59F289	4632	100 uH	3.0	400	1.56	1.14	.86	.75

Phenolic Form—3 Section PI Winding

59F296	4649	0.55 mH	13.0	160	2.16	1.58	1.19	1.04
59F298	4651	0.75 mH	16.0	160	2.70	1.98	1.49	1.31
59F299	4652	1.00 mH	19.0	160	2.37	1.74	.1.30	1.15

Iron Core Form—3 Section PI Windings

59F302	4662	1.0 mH	8.6	160	2.37	1.74	1.30	1.15
59F303	4664	1.5 mH	11	160	2.37	1.74	1.30	1.15
59F304	4666	2.4 mH	15	160	2.40	1.76	1.32	1.16
59F305	4668	3.9 mH	20	160	2.40	1.76	1.32	1.16
59F309	4672	10.0 mH	50	100	2.70	1.98	1.49	1.31

Phenolic Form—Single Layer Solenoid

Stock No.	Type	Induct. uH	Ohms Max.	mA	1-99	100-249	250-499	500-Up
59F266	4584	0.22	.020	2800	1.95	1.43	1.07	.94
59F272	4602	1.0	.050	2000				
59F273	4604	1.5	.093	1800				
59F274	4606	2.4	.190	1500	1.32	.97	.73	.64
59F275	4608	3.9	.450	1000				
59F276	4609	5.5	.670	850				
59F277	4610	6.2	.830	700				
59F278	4611	8.2	1.20	600				
59F279	4612	10.0	1.50	500				

Ferrite Core RF Chokes - 3 Section PI Windings

59F312	6302	2.5 mH	9.0	160	2.40	1.76	1.32	1.16
59F313	6304	5.0 mH	14	160	2.52	1.85	1.39	1.22
59F314	6306	10.0 mH	31	100	2.76	2.02	1.52	1.33
59F315	6308	25.0 mH	82	65	2.76	2.02	1.52	1.33
59F316	6310	50.0 mH	127	65	3.12	2.29	1.72	1.51

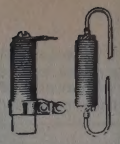
SERIES 48A—ADJUSTABLE COILS

Freq. Range: 30MHz. -250 MHz. Min. Q: 100. DC Current: 2 A
#20 AWG. Coil OD: .310", Lgth: .75"

Stock No.	Type	Inductance Range #H	No. of Turns	1-99	100-249	250-499	500-Up
15F2292	48A518mpc	.046-.055	1 1/2				
15F2293	48A778mpc	.071-.082	2 1/2				
15F2294	48A117mpc	.099-.122	3 1/2	3.00	2.20	1.65	1.45
15F2295	48A147mpc	.118-.157	4 1/2				
15F2296	48A187mpc	.150-.179					
15F2297	48A187mpc	.181-.215					
15F2298	48A257mpc	.209-.246		3.00	2.20	1.65	1.45
15F2299	48A287mpc	.241-.284					
15F2300	48A317mpc	.270-.311					

FREQUENCY SELECTIVE R.F. CHOKES

Maximum efficiency and highest impedance at specific operating frequencies. Designed to cover the major amateur, industrial and citizens bands and will also operate efficiently at frequencies approximating the recommended frequencies.



Stk. No.	Type	uh	Freq. Mhz	1-99	100-249	Bulk Packed 250-499	Bulk Packed 500-Up
59F255	RFC-14	84	7-20	6.00	4.40	3.30	2.90
59F256	RFC-21	38.5	15-30	4.20	3.08	2.31	2.03
59F258	RFC-50	8.2	30-90	3.54	2.60	1.95	1.71
59F259	RFC-144	1.72	75-180	1.77	1.30	.97	.86

SUB-MINIATURE RF CHOKES

- **Moisture Resistance**
- **Fungus Proof Varnish Coating**

Iron core R.F. chokes designed to meet demand for high reliability, ultra-miniature components. Ideally suited to network and filter design, delay lines, and computer applications. Coils are impregnated with a moisture resistant lacquer; can be fungus-proofed per JAN-T-152 using varnish per MIL-V-173A. Can be encapsulated in epoxy resin to conform to Grade 1, Class B of MIL-C-15305. Wt.: 2 oz.

Stock No.	Type	Induct *	Min. Q@F	1-99	100-249	250-499	500-Up
59F212	70F106A1	1.0 uH	41 @ 25 MHz				
59F213	70F126A1	1.2 uH	45 @ 7.9 MHz				
59F214	70F156A1	1.5 uH	42 @ 7.9 MHz				
59F217	70F276A1	2.7 uH	34 @ 7.9 MHz				
59F218	70F336A1	3.3 uH	40 @ 7.9 MHz	1.50	1.10	.83	.73
59F219	70F396A1	3.9 uH	35 @ 7.9 MHz				
59F220	70F476A1	4.7 uH	43 @ 7.9 MHz				
59F221	70F566A1	5.6 uH	41 @ 7.9 MHz				
59F222	70F686A1	6.8 uH	40 @ 7.9 MHz				
59F224	70F105A1	10 uH	36 @ 7.9 MHz				
59F226	70F155A1	15 uH	52 @ 2.5 MHz				
59F228	70F225A1	22 uH	51 @ 2.5 MHz				
59F230	70F335A1	33 uH	50 @ 2.5 MHz				
59F231	70F395A1	39 uH	48 @ 2.5 MHz				
59F232	70F475A1	47 uH	44 @ 2.5 MHz	1.53	1.12	.84	.74
59F233	70F565A1	56 uH	45 @ 2.5 MHz				
59F234	70F685A1	68 uH	42 @ 2.5 MHz				
59F235	70F825A1	82 uH	41 @ 2.5 MHz				
59F236	70F104A1	100 uH	25 @ 2.5 MHz				
59F237	70F154A1	150 uH	47 @ 790 KHz				
59F238	70F224A1	220 uH	46 @ 790 KHz				
59F239	70F334A1	330 uH	41 @ 790 KHz				
59F240	70F474A1	470 uH	35 @ 790 KHz				
59F241	70F684A1	680 uH	37 @ 790 KHz				
59F242	70F824A1	820 uH	33 @ 790 KHz				
59F243	70F103A1	1.0 mh	30 @ 790 KHz				
59F244	70F153A1	1.5 mh	40 @ 250 KHz	1.74	1.28	.96	.84
59F245	70F223A1	2.2 mh	40 @ 250 KHz				
59F246	70F333A1	3.3 mh	52 @ 250 KHz				
59F247	70F473A1	4.7 mh	49 @ 250 KHz				
59F248	70F683A1	6.8 mh	51 @ 250 KHz				
59F249	70F823A1	8.2 mh	48 @ 250 KHz	1.83	1.34	1.01	.88
59F250	70F102A1	10.0 mh	41 @ 250 KHz	2.04	1.50	1.12	.99
59F058	70F252AF	25 mh	59 @ 79 KHz	2.40	1.76	1.32	1.16
59F060	70F332AF	33 mh	61 @ 79 KHz	2.40	1.76	1.32	1.16

(*) 0.1 to 1.0 μH ± 20%, 1.1 to 15 μH ± 10%, over 15 μH ± 5%.

SHIELDED SUBMINIATURE ADJUSTABLE RF COILS

Small Q changes. Tuning adj. from top or bottom. Magnetic and electrostatic shielding. PC terminals, base and shield, 1/2" sq.x5/8"H. 2 oz.

Stock No.	Type No.	Inductance uh (*mh)	Res. Max.	Max. Ma.	1-99	100-249	250-499	500-Up
15F2311	9050	1.5-3.0	.66	80				
15F2313	9052	7.0-14.0	1.38	80	4.62	3.39	2.54	2.23
15F2315	9054	28.0-60.0	3.00	100				
15F2316	9055	60.0-120.0	4.00	100	4.74	3.48	2.61	2.29
15F2317	9056	120.0-280.0	5.75	80				
15F2318	9057	280.0-650.0	12.00	80	5.58	4.09	3.07	2.70
15F2319	9058	650.0-1.3*	15.0	100				
15F2322	9060	*3.0-10.0*	76.0	30	6.33	4.64	3.48	3.06
15F2324	9062	*15.0-40.0*	150.0	30				
15F2325	9063	*20.0-60.0*	175.0	25	6.45	4.73	3.55	3.12

J.W. MILLER COILS AND CHOKES

Stock No.	Part Number	Inductance Minimum	Min. Q @ F	1-99	100-249	250-499	500-up
81F3005	9101	.099 uH	64 @ 25 MHz	5.70	4.18	3.14	2.76
81F3006	9102	.129 uH	70 @ 25 MHz				
81F3011	9107	.830 uH	43 @ 25 MHz				
81F3014	9110	5.35 uH	50 @ 7.9 MHz	6.00	4.40	3.30	2.90
81F3015	9111	12.50 uH	31 @ 2.5 MHz				
81F3017	9113	64.57 uH	36 @ 2.5 MHz				
81F3019	9115	422 uH	40 @ 790 kHz				
81F3021	9117	3.36 mH	40 @ 250 kHz				

9100 SERIES SHIELDED ADJUSTABLE R F COILS

These ultra compact adjustable coils offer a good inductance range with relatively small changes in Q. Tuning is accessible from either top or bottom of the assembly. Magnetic shielding is achieved by the use of cup cores while the copper shield offers effective electrostatic shielding. Printed circuit terminals on base and shield. Applications between 10 kHz and 200 MHz. Dimensions: .440" Sq. × .550" High. *Minimum self resonant frequency measured at maximum inductance.

ADJUSTABLE R.F. COILS

Vertical Mounted Printed Circuit Velvetork Adjustable R.F. Coils
COILS WOUND ON FORM NO. 23A013

The coil form is Polyester impregnated Alpha-Cellulose tubing with internally bonded resilient ribs which provide both thread and torque control. Coils may be adjusted from either end of form.

Dimensions (form only) Over Collar ⅜" Dia. × ¾" long.
*Minimum self resonant frequency measured at maximum inductance.

Stock No.	Part Number	Minimum Core Position Inductance Maximum	Q @ F	1-99	100-249	250-499	500-up
15F2335	23A107RPC	.095 uh	77 @ 25.0 MHz	2.34	1.72	1.29	1.13
15F2337	23A227RPC	.185 uh	88 @ 25.0 MHz				
15F2339	23A477RPC	.420 uh	100 @ 25.0 MHz				
15F2343	23A156RPC	1.20 uh	65 @ 7.9 MHz	2.34	1.72	1.29	1.13
15F2346	23A476RPC	3.40 uh	68 @ 7.9 MHz				
15F2349	23A105RPC	7.10 uh	68 @ 7.9 MHz	2.34	1.72	1.29	1.13
15F2350	23A155RPC	10.0 uh	58 @ 2.5 MHz	2.76	2.02	1.52	1.33
15F2353	23A475RPC	31.0 uh	58 @ 2.5 MHz	2.46	1.80	1.35	1.19

Stock No.	Part Number	Minimum Core Position Inductance Maximum	Q @ F	1-99	100-249	250-499	500-up
15F2354	23A685RPC	43.5 uh	56 @ 2.5 MHz	2.58	1.89	1.42	1.25
81F3023	23A104RPC	76.0 uh	52 @ 2.5 MHz	2.61	1.91	1.44	1.26
15F2356	23A334RPC	240.0 uh	66 @ 790 kHz	3.24	2.38	1.78	1.57
81F3025	23A474RPC	360.0 uh	68 @ 790 kHz	3.24	2.38	1.78	1.57
15F2358	23A103RPC	910.0 uh	66 @ 790 kHz	3.24	2.38	1.78	1.57
15F2360	23A473RPC	3.40 mh	42 @ 250 kHz	3.24	2.38	1.78	1.57
15F2362	23A823RPC	7.40 mh	42 @ 250 kHz	3.39	2.49	1.86	1.64
81F3031	23A472RPC	27.50 mh	28 @ 79 kHz	3.72	2.73	2.05	1.80
81F3032	23A822RPC	50.00 mh	34 @ 79 kHz	3.72	2.73	2.05	1.80

Molded Shielded Miniature R F Chokes

An extremely useful series of chokes where extraneous coupling presents problems in dense packaging. Electromagnetic shielding limits coupling to less than 3% when two units are placed side by side. Conforms to MIL-C-15305 and MS 75087/88/89 (LT10K)

Stock No.	Part Number	M S Type	Measured on Model 260A Q-Meter Inductance Microhenries ±10%	Q Min.	Test Freq. MHz	1-99	100-249	250-499
81F3034	9250-101	75087-1	0.10	50	25			
81F3035	9250-121	75087-2	.12	51	25			
81F3036	9250-151	75087-3	.15	51	25	1.86	1.36	1.02
81F3037	9250-181	75087-4	.18	50	25			
81F3038	9250-221	75087-5	.22	49	25			
81F3039	9250-271	75087-6	.27	47	25			
81F3040	9250-331	75087-7	.33	46	25			
81F3041	9250-391	75087-8	.39	44	25	1.86	1.36	1.02
81F3042	9250-471	75087-9	.47	44	25			
81F3043	9250-561	75087-10	.56	43	25			
81F3044	9250-681	75087-11	.68	42	25			
81F3045	9250-821	75087-12	.82	40	25			
81F3046	9250-102	75088-1	1.00	44	25	1.86	1.36	1.02
81F3047	9250-122	75088-2	1.20	44	7.9			
81F3048	9250-152	75088-3	1.50	44	7.9			
81F3049	9250-182	75088-4	1.80	44	7.9			
81F3050	9250-222	75088-5	2.20	44	7.9			
81F5737	9250-272	75088-6	2.70	44	7.9	2.16	1.58	1.19
81F3051	9250-332	75088-7	3.30	44	7.9			
81F3052	9250-392	75088-8	3.90	44	7.9			
81F3053	9250-472	75088-9	4.70	44	7.9			
81F3054	9250-562	75088-10	5.60	44	7.9			
81F3055	9250-682	75088-11	6.80	50	7.9	2.16	1.58	1.19
81F3056	9250-822	75088-12	8.20	50	7.9			
81F3057	9250-103	75088-13	10.0	50	7.9			
81F3058	9250-123	75088-14	12.0	55	2.5			
81F3059	9250-153	75089-1	15.0	45	2.5			
81F3060	9250-183	75089-2	18.0	45	2.5	2.16	1.58	1.19
81F3061	9250-223	75089-3	22.0	45	2.5			
81F3062	9250-273	75089-4	27.0	45	2.5			
81F3063	9250-333	75089-5	33.0	45	2.5			
81F3064	9250-393	75089-6	39.0	50	2.5			
81F3065	9250-473	75089-7	47.0	50	2.5	2.55	1.87	1.40
81F3066	9250-563	75089-8	56.0	50	2.5			
81F3067	9250-683	75089-9	68.0	50	2.5			
81F3068	9250-823	75089-10	82.0	50	2.5			
81F3069	9250-104	75089-11	100.0	50	2.5			
81F3070	9250-124	75089-12	120.0	55	.79	3.12	2.29	1.72
81F3071	9250-154	75089-13	150.0	55	.79			
81F3072	9250-184	75089-14	180.0	55	.79			
81F3073	9250-224	75089-15	220.0	55	.79			
81F3074	9250-274	75089-16	270.0	55	.79			
81F3075	9250-334	75089-17	330.0	55	.79	3.12	2.29	1.72
81F3076	9250-394	75089-18	390.0	60	.79			
81F3077	9250-474	75089-19	470.0	60	.79			
81F3078	9250-564	75089-20	560.0	60	.79	3.12	2.29	1.72
81F3079	9250-684	75089-21	680.0	60	.79	3.12	2.29	1.72
81F3080	9250-824	75089-22	820.0	60	.79	3.12	2.29	1.72
81F3081	9250-105	75089-23	1,000.0	60	.79	3.12	2.29	1.72
81F3082	9250-125	75089-24	1,200.0	45	.25	4.05	2.97	2.23
81F3083	9250-155	75089-25	1,500.0	45	.25	4.05	2.97	2.23
81F3084	9250-185	75089-26	1,800.0	45	.25			

Mold Size .156 ± .010 diameter; .375 ± .010 length. Leads: AWG#22 TWC; 1.437 ± .188 length. Power Rating: 25 Watt Max. at 90°C.
*Phenolic core material
*Iron core material

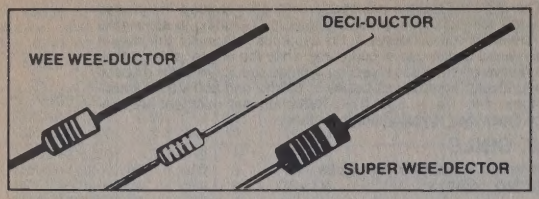
Stock No.	Part Number	M S Type	Measured on Model 260A Q-Meter Inductance Microhenries ±10%	Q Min.	Test Freq. MHz	1-99	100-249	250-499
81F3085	9250-225	75089-27	2,200.0	45	.25			
81F3086	9250-275	75089-28	2,700.0	45	.25	4.05	2.97	2.23
81F3087	9250-335	75089-29	3,300.0	45	.25			
81F3088	9250-395	75089-30	3,900.0	45	.25			
81F3089	9250-475	75089-31	4,700.0	45	.25			
81F3090	9250-565	75089-32	5,600.0	44	.25	4.05	2.97	2.23
81F3091	9250-685	75089-33	6,800.0	40	.25			
81F3092	9250-825	75089-34	8,200.0	40	.25			
81F3093	9250-106	75089-35	10,000.0	40	.25	4.05	2.97	2.23
81F3094	9250-126	75089-36	12,000.0	30	.079	4.50	3.30	2.48
81F3095	9250-156	75088-37	15,000.0	30	.079	4.50	3.30	2.48
81F3096	9250-186	75089-38	18,000.0	30	.079	4.50	3.30	2.48
81F3097	9250-226	75089-39	22,000.0	27	.079	4.50	3.30	2.48
81F3098	9250-276	75089-40	27,000.0	27	.079			
81F3099	9250-336	75089-41	33,000.0	27	.079			
81F3100	9250-396	75089-42	39,000.0	27	.079	4.50	3.30	2.48
81F3101	9250-476	75089-43	47,000.0	23	.079			
81F3102	9250-566	75089-44	56,000.0	23	.079			
81F3103	9250-686	75089-45	68,000.0	23	.079	4.59	3.37	2.52
81F3104	9250-826	75089-46	82,000.0	21	.079	4.59	3.37	2.52
81F3105	9250-107	75089-47	100,000.0	18	.079	4.59	3.37	2.52

Molded R F Chokes

Stock No.	Part Number	M S Type	Measured on Model 260A Q-Meter Inductance Microhenries	Q Min.	Testing Frequency	1-99	100-249	250-499
15F2260	9310-00*	18130-1	.15 ± 20%	50	25 MHz			
15F2261	9310-02*	18130-2	.22 ± 20%	50	25 MHz			
15F2262	9310-04*	18130-3	.33 ± 20%	45	25 MHz	.90	.66	.50
15F2263	9310-06*	18130-4	.47 ± 20%	45	25 MHz			
15F2264	9310-07*	18130-5	.56 ± 10%	50	25 MHz			
15F2265	9310-08*	18130-6	.68 ± 10%	50	25 MHz			
59F100	9310-10*	18130-7	.82 ± 10%	50	25 MHz			
59F101	9310-12*	18130-8	1.00 ± 10%	50	25 MHz	.90	.66	.50
15F2266	9310-14*	18130-9	1.20 ± 10%	33	7.9 MHz			
15F2267	9310-16*	18130-10	1.50 ± 10%	33	7.9 MHz			
15F2268	9310-18*	18130-11	1.80 ± 10%	33	7.9 MHz			
15F2269	9310-20*	18130-12	2.20 ± 10%	33	7.9 MHz			
15F2270	9310-22*	18130-13	2.70 ± 10%	33	7.9 MHz	.90	.66	.50
15F2271	9310-24*	18130-14	3.30 ± 10%	33	7.9 MHz			
15F2272	9310-26*	18130-15	3.90 ± 10%	33	7.9 MHz			
15F2273	9310-28*	18130-16	4.70 ± 10%	33	7.9 MHz	.90	.66	.50
15F2274	9310-30*	18130-17	5.60 ± 10%	45	7.9 MHz			
15F2275	9310-32*	18130-18	6.80 ± 10%	50	7.9 MHz	1.02	.75	.56
15F2276	9310-34*	18130-19	8.20 ± 10%	50	7.9 MHz			
15F2277	9310-36*	18130-20	10.0 ± 10%	55	7.9 MHz			
15F2278	9310-38*	18130-21	12.0 ± 10%	65	2.5 MHz			
15F2279	9310-40*	18130-22	15.0 ± 10%	65	2.5 MHz	1.02	.75	.56
59F102	9310-42*	18130-23	18.0 ± 10%	75	2.5 MHz			
59F103	9310-44*	18130-24	22.0 ± 10%	75	2.5 MHz			
59F104	9310-46*		24.0 ± 10%	60	2.5 MHz			
15F2280	9310-48*	18130-25	27.0 ± 10%	60	2.5 MHz	1.14	.84	.63
15F2281	9310-50*		30.0 ± 10%	65	2.5 MHz			
15F2282	9310-52*	18130-26	33.0 ± 10%	65	2.5 MHz			

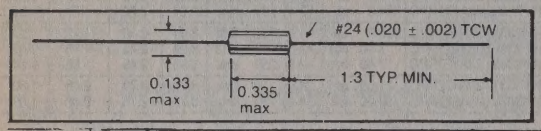
Size: .162 ± .010 diameter; .410 ± .020 length
Leads AWG #22TCW; 1.438 ± .188 length
Meets MIL-C-15305, Grade 1, Class A

Nytronics Components Group, Inc.
Fixed Inductors



WEE WEE-DUCTOR

This shielded inductor has great inductance-to-size ratio and meets the stringent requirements of MIL-C-15305C, Grade 1, Class B. The smallest shielded inductor for high density circuits. Dimensions: 0.133 " diameter × 0.335" length. Operating Temperature: –55°C to +125°C. Dielectric strength: 700 volts RMS. Tolerance: ± 10%. Weight 0.50 grams max.



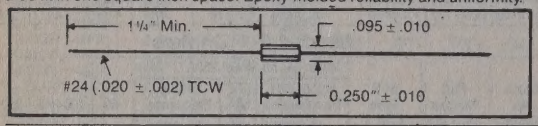
Stk. No.	Type WEE-WEE	µH	QMin @ MHz		Stk. No.	Type WEE-WEE	µH	QMin @ MHz	
35F1894	0.10	.10	42	25	**35F1906**	10	10	51	7.9
35F1895	0.15	.15	42	25	**35F1907**	15	15	45	2.5
					35F1908	22	22	42	2.5
					35F1909	33	33	46	2.5
35F1898	0.47	.47	41	25	**35F1910**	47	47	42	2.5
35F1899	0.68	.68	56	25	**35F1911**	68	68	46	2.5
35F1900	1.0	1.0	42	25	**35F1912**	100	100	43	2.5
35F1902	2.2	2.2	36	7.9	**35F1913**	150	150	49	0.79
35F1903	3.3	3.3	38	7.9	**35F1917**	680	680	56	0.79
					35F1918	1000	1000	49	0.79

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.1-82	3.74	2.49	1.76	1.37
1.0-12	4.26	2.82	2.02	1.55
15-1000	5.04	3.18	2.39	1.84

DECI-DUCTOR

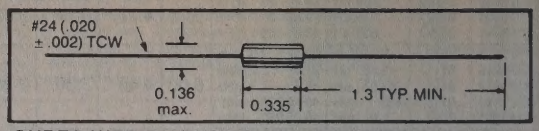
Subminiature inductor. Designed to meet all the environmental specifications of MIL-C-15305C, Grade 1, Class B. Tolerance: ± 10%. Dielectric strength: 700 volts RMS. Operating temp: –55°C to +125°C. Shock: 50G, 11MS. Weight 0.35 grams. Dimensions: 0.100" diameter by 0.250" length. One hundred fit in one-square inch space. Epoxy-molded reliability and uniformity.



Stk. No.	Type DD-	µH	QMin @ MHz		Stk. No.	Type DD-	µH	QMin @ MHz	
35F1845	0.10	.10	40	25	**35F1869**	10.0	10.0	60	7.9
35F1847	0.15	.15	38	25	**35F1870**	12.0	12.0	45	2.5
35F1848	0.18	.18	38	25	**35F1871**	15.0	15.0	47	2.5
35F1849	0.22	.22	35	25	**35F1872**	18.0	18.0	50	2.5
35F1850	0.27	.27	35	25	**35F1873**	22.0	22.0	50	2.5
35F1851	0.33	.33	32	32	**35F1874**	27.0	27.0	50	2.5
35F1853	0.47	.47	32	25	**35F1875**	33.0	33.0	50	2.5
35F1855	0.68	.68	33	25	**35F1876**	39.0	39.0	50	2.5
35F1856	0.82	.82	30	25	**35F1877**	47.0	47.0	50	2.5
35F1857	1.00	1.00	30	25	**35F1878**	56.0	56.0	50	2.5
35F1859	1.50	1.50	32	7.9	**35F1879**	68.0	68.0	52	2.5
35F1860	1.80	1.80	35	7.9	**35F1880**	82.0	82.0	52	2.5
35F1861	2.20	2.20	35	7.9	**35F1881**	100	100	50	2.5
35F1862	2.70	2.70	37	7.9	**35F1882**	120	120	28	0.79
35F1863	3.30	3.30	45	7.9	**35F1885**	220	220	26	0.79
35F1864	3.90	3.90	45	7.9	**35F1887**	330	330	26	0.79
35F1865	4.70	4.70	45	7.9	**35F1889**	470	470	27	0.79
35F1866	5.60	5.60	52	7.9	**35F1891**	680	680	28	0.79
35F1867	6.80	6.80	52	7.9	**35F1893**	1000	1000	28	0.79
35F1868	8.20	8.20	60	7.9					

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.10-1.0	1.69	1.12	.80	.62
1.2-27	1.83	1.23	.87	.67
33-100	2.79	1.85	1.32	1.02
120-1000	3.38	2.26	1.61	1.24



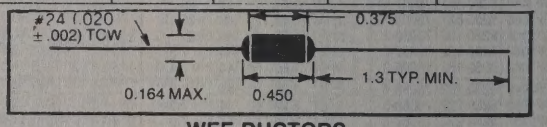
SUPER WEE-DUCTOR SWD—INDUSTRIAL TYPES

Meets the requirements of MIL-C-15305C, Grade 1, Class B. Tolerance: ± 10%. Dielectric strength: 700 volts. Operating temperature: –55°C to +125°C. Weight, 0.75 grams maximum; Shielding at 1000 Hz, less than 3% coupling. Size: 0.157" dia. × 0.395"L.

Stk. No.	Type SWD-	µH	QMin @ MHz		Stk. No.	Type SWD-	µH	QMin @ MHz	
35F1925	0.10	.10	50	25	**35F1959**	68	68	51	2.5
35F1929	0.22	.22	49	25	**35F1960**	82	82	45	2.5
35F1930	0.27	.27	47	25	**35F1961**	100	100	52	2.5
35F1933	0.47	.47	44	25	**35F1964**	180	180	60	.79
35F1937	1.0	1.0	47	25	**35F1965**	220	220	58	.79
35F1939	1.5	1.5	45	7.9	**35F1966**	270	270	60	.79
35F1940	1.8	1.8	43	7.9	**35F1967**	330	330	54	.79
35F1941	2.2	2.2	45	7.9	**35F1969**	470	470	60	.79
35F1942	2.7	2.7	46	7.9	**35F1970**	560	560	60	.79
35F1943	3.3	3.3	44	7.9	**35F1971**	680	680	60	.79
35F1945	4.7	4.7	44	7.9	**35F1972**	820	820	57	.79
35F1946	5.6	5.6	47	7.9	**35F1973**	1000	1000	65	.79
					35F1974	1200	1200	45	.25
35F1948	8.2	8.2	50	7.9	**35F1975**	1500	1500	49	.25
35F1949	10	10	49	7.9	**35F1976**	1800	1800	47	.25
35F1950	12	12	55	2.5	**35F1977**	2200	2200	50	.25
35F1951	15	15	44	2.5	**35F1979**	3300	3300	43	.25
35F1952	18	18	45	2.5	**35F1981**	4700	4700	44	.25
35F1953	22	22	46	2.5	**35F1984**	8200	8200	42	.25
35F1954	27	27	49	2.5	**35F1985**	10000	10000	39	.25
35F1955	33	33	45	2.5	**35F1989**	22000	22000	27	.079
35F1956	39	39	53	2.5	**35F1993**	47000	47000	23	.079
35F1957	47	47	52	2.5	**35F1995**	68000	68000	23	.079
35F1958	56	56	49	2.5	**35F1997**	100000	100000	18	.079

PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.1-.82	2.58	1.73	1.24	.96
1.0-12	2.72	1.81	1.29	1.00
15-8200	3.70	2.46	1.74	1.36
10,000-100,000	5.63	3.77	2.70	2.08



WEE-DUCTORS

Meets MIL-C-15305C env. req. Grade 1, Class B. Tol.: 0.1 to 22µH ± 10%; 20µH to 1000 ± 5%; 1200µH to 56,000µH ± 10%; 68,000 H to 180,000µH ± 20%, Dielectric: 700V rms. Temp. 55 to 125°C. Wt.: 0.75 gm max. Shielding: <3% coupling at 1000 cycles.

Stk. No.	Type WEE-	µH	QMin @ MHz		Stk. No.	Type WEE	µH	QMin @ MHz	
35F2175	0.10	.10	63	25	**35F2191**	47	47	46	2.5
					35F2192	68	68	40	2.5
					35F2193	100	100	63	.79
35F2178	0.33	.33	48	25	**35F2194**	150	150	63	.79
35F2179	0.47	.47	48	25	**35F2195**	220	220	57	.79
35F2180	0.68	.68	45	25	**35F2196**	330	330	50	.79
35F2181	1.0	1.0	42	7.9	**35F2197**	470	470	66	.790
35F2182	1.5	1.5	41	7.9	**35F2198**	680	680	71	.790
35F2183	2.2	2.2	42	7.9	**35F2199**	1000	1000	62	.790
35F2184	3.3	3.3	40	7.9	**35F2200**	1500	1500	51	.250
35F2185	4.7	4.7	40	7.9	**35F2201**	2200	2200	50	.250
35F2186	6.8	6.8	40	7.9	**35F2203**	4700	4700	48	.250
35F2187	10	10	46	2.5	**35F2205**	10000	10000	36	.079
35F2188	15	15	47	2.5	**35F2207**	22000	22000	32	.079
					35F2209	47000	47000	25	.079
35F2189	22	22	47	2.5	**35F2211**	100000	100000	20	.079
35F2190	33	33	43	2.5	**35F2212**	150000	150000	20	.060

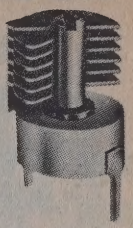
PRICE LOCATOR

µH Range	1-24	25-49	50-99	100-249
.10-0.82	2.58	1.73	1.24	.96
1.0-22	2.72	1.81	1.29	1.00
27-1000	3.77	2.53	1.80	1.38
1200-4700	4.62	3.07	2.21	1.68
5600-56000	5.29	3.54	2.53	1.94
68000-180,000	7.42	4.95	3.51	2.72

Fixed and Variable Capacitors

JOHNSON

SUB-MINIATURE TYPE "T" AIR VARIABLE CAPACITORS



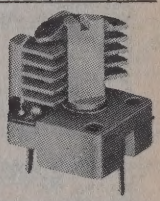
FEATURES
- Air dielectric, extremely stable
- Plates machined from solid extrusion
- Low loss ceramic base for stability
- Silver plating standard
- Mounting same as Micro-J® series
- Stator attachment with high temperature solder (232°C)

SPECIFICATIONS
- Torque: 108–576 gm. cm. (1.5–8.0 oz. in.)
- Working voltage: 125 VDC
- Insulation resistance: $>10^5$ megohm
- Q factor: >2000 at 1 MHz
- Temperature coefficient: +45 ±45 PPM/°C
- Operating temperature range: −55°C to +125°C
- Nominal air gap: 0.20 (.008)

APPLICATIONS
- Communications equipment
- Test instruments
- Crystal oscillators and filters
- Remote control circuits
- Satellite communications equipment
- Thickness monitoring of thin film applications

STOCK NO.	PART NO.	MARKING	NOMINAL CAPACITY (pF) MINIMUM +20%/−100%	NOMINAL CAPACITY (pF) MAXIMUM ±10%	GUARANTEED CAPACITY (pF) MAX./MIN.	GUARANTEED CAPACITY (pF) MIN./MAX.	TOTAL PLATES	LENGTH	1-9	10-99	100-249	250-499
81F4424	187-0103-005	T3-5	1.3	5.4	1.56	4.86	6	9.12 (.359)	1.36	1.14	1.07	.95
81F4425	187-0106-005	T6-5	1.7	11.0	2.04	9.90	12	11.94 (.470)				
81F4426	187-0109-005	T9-5	1.9	15.7	2.28	14.13	18	14.76 (.581)				

MINIATURE TYPE "U" AIR VARIABLE CAPACITORS



FEATURES
- Air dielectric, extremely stable
- Plates machined from solid extrusion
- Low loss ceramic base for stability
- Silver plating standard
- Designed for use in low to microwave frequencies

SPECIFICATIONS
- Torque: 180–720 gm. cm. (2.5–10.0 oz. in.)
- Insulation resistance: $>10^5$ megohm
- Q factor: >2000 at 1 MHz
- Operating temperature range: −55°C to +125°C
- Temperature coefficient: +45 ±15 PPM/°C
- Nominal air gap: 0.25 (.010)

APPLICATIONS
- Communications equipment
- Test instruments
- Crystal oscillators and filters
- Remote control circuits
- Satellite communications equipment
- Thickness monitoring of thin film applications

STOCK NO.	PART NO.	MARKING	NOMINAL CAPACITY (pF) MINIMUM +10% +.2pF/−100%	NOMINAL CAPACITY (pF) MAXIMUM ±10%	GUARANTEED CAPACITY (pF) MAX./MIN.	GUARANTEED CAPACITY (pF) MIN./MAX	TOTAL PLATES	LENGTH	WORKING VOLTAGE	1-9	10-99	100-249	250-499
81F4411	189-0501-005	189-501-5	1.2	4.2	1.52	3.78	4	10.72 (.422)	325VDC	1.42	1.19	1.05	.93
81F4412	189-0502-005	189-502-5	1.3	6.7	1.63	6.03	6	11.91 (.469)	325VDC				
81F4413	189-0503-005	189-503-5	1.4	9.2	1.74	8.28	8	13.11 (.516)	325VDC				
81F4414	189-0504-005	189-504-5	1.5	11.6	1.85	10.44	10	14.30 (.563)	325VDC				
81F4415	189-0505-005	189-505-5	1.7	14.1	2.07	12.69	12	15.47 (.609)	325VDC				
81F4416	189-0506-005	189-506-5	1.8	16.7	2.18	15.03	14	17.09 (.673)	325VDC				
81F4417	189-0507-005	189-507-5	2.0	19.3	2.40	17.37	16	18.26 (.719)	250VDC				
81F4418	189-0509-005	189-509-5	2.4	24.5	2.84	22.05	20	20.65 (.813)	250VDC				

MICRO J® 100 SERIES CERAMIC CAPACITOR

FEATURES
- High capacity (35 pF) in small size
- Excellent shock and vibration resistance
- Precision lapped bearing surfaces for smooth linear tuning
- Terminal attachment with high temperature solder (232°C)
- Silver plating standard

SPECIFICATIONS
- Torque: 36–216 gm. cm. (0.5–3.0 oz. in.)
- Working voltage: 100 VDC
- Q factor: >500 at 1 MHz
- Operating temperature range: −55°C to +125°C

APPLICATIONS
- Crystal oscillators and filters
- Communictions equipment, (radios and antennas)
- Test instruments
- Hybrid circuits

Compact size makes these units ideal for circuits where minimum mounting space is required. Units offer high capacity in a rugged package. Capacitors are designed for use in low to microwave frequency ranges. Available in vertical and horizontal mounting styles. High reliability results from monolithic rotor construction. Unit has a wide capacity range with NPO temperature characteristics.

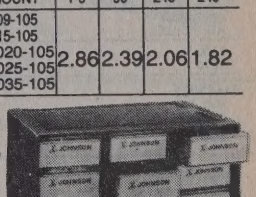
MARKING	GUARANTEED CAPACITY (pF) MINIMUM +0%/−100%	GUARANTEED CAPACITY (pF) MAXIMUM −0%/+50%	TEMP. COEFFICIENT (PPM/°C) −55°C	TEMP. COEFFICIENT (PPM/°C) +125°C	STOCK NO.	VERTICAL PC MOUNT	1-9	10-99	100-249	250-499	STOCK NO.	HORIZONTAL PC MOUNT	1-9	10-99	100-249	250-499
AJ2,5-9	2.5	9.0	+560/−250	+340/−420	**81F4419**	274-0009-005	2.62	2.19	1.90	1.68	**81F4428**	274-0009-105	2.86	2.39	2.06	1.82
AJ-3-15	3.0	15.0	+560/−250	+340/−420	**81F4420**	274-0015-005					**81F4429**	274-0015-105				
AJ3,5-20	3.5	20.0	+560/−250	+340/−420	**81F4421**	274-0020-005					**81F4430**	274-0020-105				
AJ5-25	5.0	25.0	+560/−250	+340/−420	**81F4422**	274-0025-005					**81F4431**	274-0025-105				
AJ5-35	5.0	35.0	+560/−250	+340/−420	**81F4423**	274-0035-005					**81F4432**	274-0035-105				

CENTRALAB, INC. — A NORTH AMERICAN PHILIPS Company

Capacitors

Air, Ceramic, and Tubular Variable Capacitors

DESIGN AND PROTOTYPING KIT



Kit contains an assortment of 232 capacitors in horizontal, vertical, PC, stripline and panel mounting styles. In capacity ranges from .25 pF to 34pF. 40 Tubular variables, 30 Micro T™ ceramic variables, 30 Type "T" air variables, 102 Type "U" and "V" air variables.

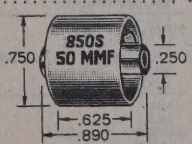
81F4427 Type 189-0099-001 NET. 409.00

PRICING

Key	1-99	100-Up
E	10.47	7.99
F	35.00	26.80
G	30.38	23.25
H	9.12	6.98
M	10.02	7.68

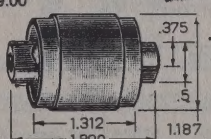
TRANSMITTING CAPACITOR

Threaded Terminals



Type 850. 7500 VDCW except (*) 5000 T.C. N=N750, Z=NPO, (†) XST, (‡) X5U. Body Size: .625" Lt. x .750" dia.

Stk. No.	Type	pF	Tol.	Key
19F248	8505-25Z	25	±10%	A
19F254	8505-50Z	50	±10%	A
19F252	8505-100N*	100	±10%	K
19F249	8585-1000†*	1000	±20%	E



TRANSMITTING CAPACITOR

Threaded Terminals

15,000 VDC except (*) which work at 7,500 VDC. Negative 750 temperature coefficients, except (†), which are NPO zero. Tol. 10%, Body size: 1.312" Lt. x 1.187".

Stk. No.	Type	pF	Tol.	Key
19F454	857-25Z	25	±10%	B
19F455	857-50Z	50	±10%	B
19F456	857-100N†	100	±10%	C
91F457	857-200N*	200	±10%	C

TRANSMITTING CAPACITORS

WIRE LEAD

5000 VDCW. Tol. 10%. NPO temperature coefficients except (*) which are N750. Type 853—.500" dia. x .437" Lt.

Stk. No.	Type	pF	Tol.	Key
19F274	853-40N*	40	±10%	D

SWITCH INDEX

Manufacturer's Type	Page
APM	
1030, 1200, 1613, 3030	255
4080-82	255
5030, 5040, 9030, 9040, 9060	255
ALCO	
AS, AT, APA, APB	223
CET, DBS, DLS, DSS, DYS, DTS	229
DPS	228
DRS	226
FR, FRE, FRP, G	230
KSS	223
MHS	223
MPA	225
MPE, MPG, MPN, MPS	225
MRC, MRJ, MRB, MRS, MRJB	226
MSP	225
MSPF, MSPM, MSPS	225
MSS, MSSA	229
MST, MTA, MTB, MTE, MTF	222
MTG, MTL, MTM	222
PICO	226
RS	230
SKC, SK, SKFC	227
SLS	223
SKF	227
SW	227
SWK	227
T2000	227
T2100, T2200, T2300, T2400	227
TPA, TPD, TPF	224
TSA, TSAD	223
TSS, TSD	220, 221
TT, TTE, TTN	220, 224
"TINY" SERIES	224
Caps, Plates, Seals	230
Circuit Breakers	226
Knobs	742, 743, 744
6, 16	228
Accessories & Hardware	230
ARROW HART	
A1000, A2000, A3000, A4000	242
B2000	242
C1000	242
D1000, D2000	242
E1000, E2000	242
F1000	242
H1000	242
L1000, L2000	242
PM	244
T	244
1500	244
3300, 16000	245
20900, 21000	243
26000	245
80000	243, 253, 245
81000	243, 244, 245
82000	244, 245
83000, 84000	243, 245
CENTRALAB	
JV	274
MRK, MPS, MRP	275
P (shaft and index assembly knobs)	274
PA	272, 273
PBS	275
PS	273
RRD, SSD	274
XD, YD, ZD	274
1400	274
2500	274
CHERRY	
B70, B80	258
E13, E18, E19, E21	256
E22, E23, E33, E34	256
E51	256
E61, E62	256
E63	256
E69, E72, E79	256
L10, L11, L20	257
M	259
P4	259
T10, T11, T20, T50, T65, T71	257
T20L, T55, T56L	246, 257
W	259
Accessories & Hardware	257
CHICAGO SWITCH	
23, 150, 161, 163, 171	260
C. W. INDUSTRIES	
G, GF, GR, GS, GT, S	221
CRAMER	
241, 390, 391, 392, 393, 394	
402, 472, 561, 635, 636	238
C & K	
A, BD, C, K	238
F100, F200	239

Manufacturer's Type	Page
C & K (Cont'd)	
J1, J2, L101, L102, L201, L202	236
R102, R103, R104, R202,	
R203, R204	238
S101, S202	236
T, TP	235
3M	240
301, 302, 303, 304, 306, 307	240
7100, 7200, 7300, 7400	234
8000	235
8100, 8200, 8500, 8600	234
9200	238
Thumbwheel Hardware	240
EATON/CUTLER HAMMER	
MP	252
MR	252
PB	251
PS	247
SA	251
SB	253
SF, SW	251
T01, T02, T08	247
SW, W	247
WKN	253
15	249
7200	251
7300, 7400	249
7500, 7580, 7590	248, 249
7600	248, 250
7700	248
8080, 8083	253
8100	252
8200, 8300	249
8320	248
8400	251
8500	250
8800 JAN-S-23 / MIL-S-3950	250
8800 MIL-S-8834	250
8800 MIL-S-83731	250
DIALIGHT	
183, 184, 187, 188	232
300, 301, 303	232
325, 327, 328, 329, 332, 333	232
506	249
513, 533, 582, 586	232
554	233
565	233
581, 586	232
908, 913, 922	233
EATON/COMPU-LITE	
800 SERIES	254
770	254
GENERAL TIMERS	
AB, AT	293
AP16, AP18	292
DA11, DA21, DP11	292
ED, EF	293
MP	293
H	292
RE, RG	293
7010	293
GRAYHILL	
2, 10	276
19	277
22, 23, 29, 30, 35, 39	276
42D, 44D	277
46	276
50, 51	277
55D	280
70	279
71	277
76, 78	278
19000	277
82	279
87	280
GORDOS, GRIGSBY, BARTON	
MR, WR	357
HAMLIN	
H	265
DRR, DRT, DRVT	265
MARC	265
MDC	265
MINI	265
MLC	265
MMRR	265
MSRR	265
MTRR	265
SRR, SRT	265
5700, 5800, 5900	266
KESSLER-ELLIS	
32, 8000, 8100, 8500, 8600,	
K, SCPS	296

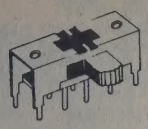
Manufacturer's Type	Page
IMLEC	
IF, II, IR	241
MF, MI, MR	241
TR	241
INDUSTRIAL TIMER	
C, CH, CSF	294
CM	295
DTH	294
GP, GPC	295
H	294
MC, MPB, MTD	294
P	294
RC	295
SF, SAR	294
TDAB, TDAF	294
TM	294
90	294
INTERMATIC	
D111, ED811, D811, E1000, E1020,	297
E1022, E1311, F, K1100, K4100,	297
K4200, T101, T171, T173,	297
T175, T1975, T7401B, T78D1B, 745073R,	297
V45075R, V46401, V46107,	297
V47171, V47177, V48171,	297
V48177	297
WH	297
LICON	
01	261
02, 04	261
06	261
10, 11	264
14, 16, 18	258, 264
22, 26	258, 264
30	257, 264
50	263
71, 76, 78	257, 264
76	261
80	261
LINEMASTER	
GEM	285
L	285
T-51, T-52	285
WP	285
72	285
121, 476, 491, 515, 522, 632	285
OAK	
A, F, H	270
JC	270
K, L	271
MF	271
200	271
400, 415	271
591-599	271
OHMITE	
111	281
212	281
312, 412, 608	281
711	281
RAYTHEON	
Knobs	741
REDINGTON	
20, 29, 110, 500, 1274, CU,	
P128, R300, P1063, R1526, PR-3704	286, 287
SINGER	
801, 812, 813, 821	367
SWITCHCRAFT	
BXL	284
BXR	284
CM	283
LUS	283
PL	273, 284
100, 200, 335, 532	283
900, 1000	283
3000, 6000	282
13000	282
16000	283
27000	283
35000, 37000	282
41000	282
60000, 65000, 67000	282
84000	283
UNIMAX	
A	269
DA	269
IHL	268
KS	269
TC	269
2H, 2LM	269
VEEDER ROOT	
1023, 1205, 1490, 1667, 7400	288
7900	289
6100, 7100, 7700	290

7

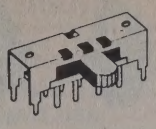
Slide, Rocker and Toggle Switches

CW INDUSTRIES

MINIATURE SYDEWYNDER™ SWITCHES



GPI 152-3013



GPI 154-3013

MINIATURE SYDEWYNDER™ SWITCHES

For application up to 3 Amps. PC Board Mtg. UL listed. Side actuated.

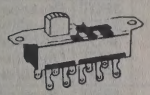
STK. NO.	TYPE	CIRCUIT	RATING @125V	1-9	10-24	25-99	100-249
81F4870	GPI 152-3013	DP-DT	3A AC, .5A DC	2.60	1.95	1.43	1.39
81F4871	GPI 154-3013	DP-3 POS	3A AC, 0.5A DC	3.08	2.31	1.69	1.54

MINIATURE SWITCHES

GF126-3011

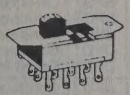
G133-3011

GT126-6011

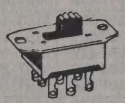


G141S-3011

G128S-3011



G168S-3011



GF161-3011

MINIATURE SWITCHES

For applications up to 3 amps except *GT126-6011* up to 6 amps *G133-3011* spring return. *G128S-3011* with mtg ears. *G141S-3011*, *GF161-3011* and *G168S-3011* with mtg ears solder termination. All UL listed.

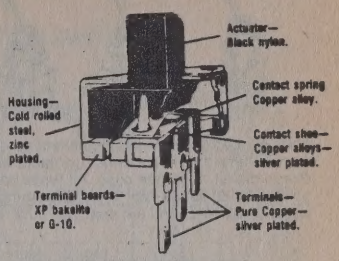
STK. NO.	TYPE	CIRCUIT	RATING @125V	1-9	10-24	25-99	100-249
81F4865	GF126-3011	DP-DT	3A AC, 0.5A DC	1.82	1.37	1.00	.91
81F4866	GT126-6011	DP-DT	6A AC, 0.5A DC	6.24	4.68	3.43	3.12
81F4868	G133-3011	SP-DT	3A AC, .5 DC	2.24	1.68	1.23	1.12
81F4867	G128S-3011	DP-3 Pos	3A AC, 0.5A DC	2.16	1.62	1.19	1.08
81F4869	G141S-3011	DP-4 Pos	3A AC, 0.5A DC	3.18	2.39	1.75	1.59
81F4872	GF161-3011	3P-DT	3A AC, 0.5A DC	2.92	2.19	1.61	1.46
81F4873	G168S-3011	3P-Pos	3A AC, 0.5A DC	3.42	2.57	1.88	1.71

Reliable Design:

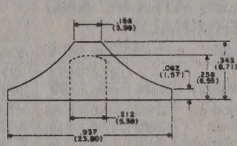
Applications include electrical and electronic instruments, communications and business equipment, appliances, vending machines, automobiles . . . where reliability, cost and quality are major considerations in switch selection.

Designed to provide long, reliable operating life and trouble-free performance. Designed for use in a wide range of applications requiring panel and printed circuit mountings . . . single and multipole . . . low and high voltage . . . low and high current.

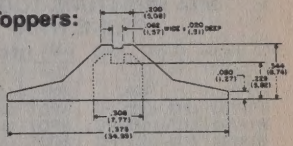
SPRING AND SHOE MOVING CONTACT



Toppers:



Topper for P/N G-02-56 Miniature Switches



Topper for P/N G-02-72 Standard Switches

Control panel styling and appearance can be changed by adding an auxiliary black plastic "topper" button, press fit over the switch button.

MICRO-MINIATURE SWITCHES
All rated .05A AC-DC @ 125V.

G105-0513

G107-0513

GS113-0512

GS115-0511

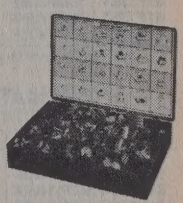
G105-0513 Fully enclosed, vertically mounted PC switch for low current applicattions requiring min. area. UL listed *G107-0513* Fully enclosed PC mount, for high density pkg. UL listing. *GS113-0512* with mtg ears. *GS115-0511* Low profile with mtg ears.

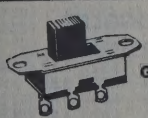
STK NO.	TYPE	CIRCUIT	1-9	10-24	25-99	100-249
81F4861	G105-0513	SP-ST	2.52	1.89	1.39	1.26
81F4862	G107-0513	SP-DT	4.14	3.11	2.28	2.07
81F4863	GS113-0512	DP-DT	2.36	1.77	1.30	1.18
81F4864	GS115-0511	SP-DT	1.74	1.31	.96	.87

BREADBOARDING KIT

Switch sampler containing 23 different switch types, ideal for bread boarding, prototyping, circuit design, value engineering, packaging or product design in applications such as automotive, television, electronic games, appliances, test equipment and computers. Contains over 200 items, including top, side, rocker, and toggle actuated slide switches. Switch configurations range from single-pole, double throw to double-pole, four position and cover current ratings from 0.5 amps to 13 amps. Also included in the kit are decorative toppers.

81F4886 NET 98.50





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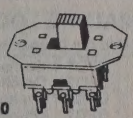
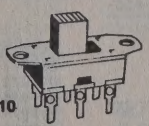


GF642-6010



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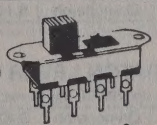
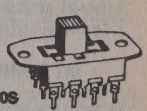


G1128S-1110



G660S

GG350-3010

G1138S-1110

G2012-1315

GR5-626-6010

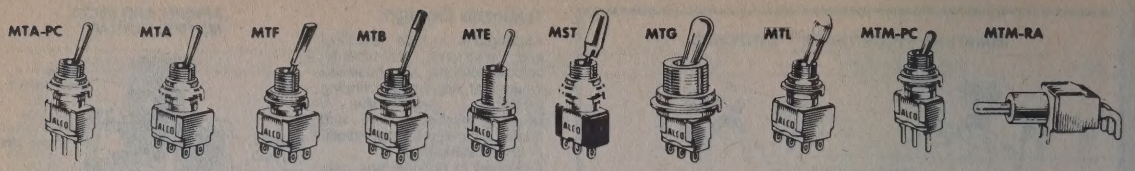
GR29-1126-1110

STK. NO.	TYPE	CIRCUIT	RATED @125V	1-9	10-24	25-99	100-249
81F4874	GF624-6014	SP-DT	6.0A AC, 0.5A DC	1.26	95	69	63
81F4876	GF642-6010	4P-DT	6.0A AC, 0.5A DC	3.64	2.73	2.00	1.82
81F4875	GF1126-1110	DP-DT	11.0A AC 0.5A DC	2.18	1.64	1.20	1.09
81F4877	G1128S-1110	DP-3 Pos	11.0A AC, 0.5A DC	2.44	1.83	1.34	1.22
81F4878	G660S-6010	4P-3 Pos	6.0A AC, 0.5A DC	4.56	3.42	2.51	2.28
81F4880	GG350-3010	DP-DT	3.0A AC, 0.5A DC	1.58	1.19	.87	.79
81F4879	G1138S-1110	DP-4 Pos	11.0A AC, 0.5A DC	3.30	2.48	1.82	1.65
81F4881	G2012-1315	SP-DT	13.0A AC,	3.84	2.88	2.11	1.92
81F4882	GR5-626-6010	DP-DT	6.0A AC, 0.5A DC	3.12	2.34	1.72	1.56
81F4883	GR29-1126-1110	DP-DT	11.0A AC, 0.5A DC	4.66	3.50	2.56	2.33

STANDARD SWITCHES

All genral purpose. UL listed. *GF624-6014* for up to 6A, with mtg ears, solderless or solder terminals. *GF1126-1110* for up to 11A, with mtg ears, PC or solder termination. *GF642-6010* for up to 6A, with ears, PC or solder termination. *G1128S-1110* for up to 11A, with mounting ears, PC or solder termination. *G660S-6010* for up to 6A, with mtg ears, PC or solder termination. *G1138S-1110* for up to 11A, with mtg ears, PC or solder termination. *GG350-3010* side actuated, for up to 3A, with mtg ears, PC or solder termination. *GG2012-1315* pop in mtg, for up to 13A. *GR5-626-6010* rocker actuated for up to 6A, with mtg ears, PC or solder termination. *GR29-1126-1110* rocker actuated for up to 11A, with mtg ears, PC or solder termination.

ALCOSWITCH Subminiature Toggle Switches



Have molded-in terminals to prevent solder, flux and other contaminants from entering contact area. Contacts and terminals have gold finish. Green diallyl phthalate case. All types have ¼"-40 high torque bushings except **MTG Series** has 15/32"-32 bushings. Rated 6 amps @ 125VAC, 3 amps @ 250VAC. PC pin spacing: .170" on centers.

MTA MINIATURE TOGGLES WITH PC AND WIRE WRAP TERMINALS

PC terms: 0.250" long. WW type: 0.031" x 0.050" x 0.740" long.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F792	MTA-106D-PC	SPDT	On-none-on	2.30	1.96	1.84	1.73
61F793	MTA-106E-PC	SPDT	On-off-on	2.80	2.38	2.24	2.10
61F794	MTA-106F-PC	SPDT	On-none-on†	2.90	2.32	2.47	2.32
61F795	MTA-206N-PC	DPDT	On-none-on	3.20	2.72	2.56	2.40
61F796	MTA-206P-PC	DPDT	On-off-on	3.75	3.19	3.00	2.81
61F797	MTA-206R-PC	DPDT	On-none-on†	3.85	3.27	3.08	2.89
61F798	MTA-106D-WW	SPDT	On-none-on	2.55	2.17	2.04	1.91
61F799	MTA-206N-WW	DPDT	On-none-on	3.70	3.15	2.96	2.78

(†) denotes Momentary positions.

MTA MINIATURE BAT HANDLE TOGGLES

Solder Terminals accept two #20 AWG wires.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F1245	MTA-106D	SPDT	On-none-on	2.25	1.91	1.80	1.69
61F1246	MTA-106E	SPDT	On-off-on	2.75	2.34	2.20	2.06
61F800	MTA-106F	SPDT	On-none-on†	2.85	2.42	2.28	2.14
61F801	MTA-106G	SPDT	On-off-on†	2.95	2.51	2.36	2.21
61F802	MTA-106H	SPDT	On-off-on†	2.95	2.51	2.36	2.21
61F1247	MTA-260N	DPDT	On-none-on	3.10	2.64	2.48	2.33
61F1248	MTA-206P	DPDT	On-off-on	3.65	3.10	2.92	2.74
61F803	MTA-206R	DPDT	On-none-on†	3.75	3.19	3.00	2.81
61F804	MTA-206S	DPDT	On-off-on†	3.85	3.27	3.08	2.89
61F805	MTA-206T	DPDT	On-off-on†	3.85	3.27	3.08	2.89
61F1249	MTA-206PA	DPDT	On-on-on*	4.45	3.78	3.56	3.34
61F1250	MTA-306D	3PDT	On-none-on	5.35	4.55	4.28	4.01
61F1251	MTA-306E	3PDT	On-off-on	5.85	4.97	4.68	4.39
61F1252	MTA-406N	4PDT	On-none-on	6.95	5.91	5.56	5.21
61F1253	MTA-406P	4PDT	On-off-on	7.45	6.33	5.96	5.59

(†) denotes Momentary positions (*) denotes useable as SP3T

MTF MINIATURE FLAT HANDLE TOGGLES

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F806	MTF-106D	SPDT	On-none-on	3.00	2.55	2.40	2.25
61F807	MTF-106E	SPDT	On-off-on	3.50	2.98	2.80	2.63
61F808	MTF-106G	SPDT	On-off-on†	3.70	3.15	2.96	2.78
61F809	MTF-206N	DPDT	On-none-on	3.85	3.27	3.08	2.89
61F810	MTF-206P	DPDT	On-off-on	4.40	3.74	3.52	3.30
61F811	MTF-206R	DPDT	On-none-on†	4.50	3.83	3.60	3.38
61F812	MTF-306D	3PDT	On-none-on	6.10	5.19	4.88	4.58

(†) denotes Momentary

MTB MINIATURE BATON LEVER TOGGLES

0.6" long baton with black plastic tip. Solder lug terms.

61F813	MTB-106D	SPDT	On-none-on	2.40	2.04	1.92	1.80
61F814	MTB-106E	SPDT	On-off-on	2.90	2.47	2.32	2.18
61F815	MTB-206N	DPDT	On-none-on	3.25	2.76	2.60	2.44
61F816	MTB-206P	DPDT	On-off-on	3.80	3.23	3.04	2.85

MTE MINIATURE WATERPROOF TOGGLES

Bat handle. "O" ring seals inside bushing. Solder lug terms.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F871	MTE-106D	SPDT	On-none-on	2.85	2.42	2.28	2.14
61F872	MTE-106E	SPDT	On-off-on	3.35	2.85	2.68	2.51
61F817	MTE-106F	SPDT	On-none-on†	3.45	2.93	2.76	2.59
61F873	MTE-206N	DPDT	On-none-on	3.70	3.15	2.96	2.78
61F874	MTE-206P	DPDT	On-off-on	4.25	3.61	3.40	3.19
61F875	MTE-206PA	DPDT*	On-on-on	5.05	4.29	4.04	3.79
61F876	MTE-306D	3PDT	On-none-on	5.95	5.06	4.76	4.46
61F878	MTE-406N	4PDT	On-none-on	7.55	6.42	6.04	5.66
61F879	MTE-406P	4PDT	On-off-on	8.05	6.84	6.44	6.04

(†) denotes Momentary, (*) denotes useable as SP3T

MST MINIATURE TOGGLE SWITCHES

Contact rating: 5A @ 125 VAC or 3A @ 250 VAC; Case material black DAP resin; initial contact resistance: 10 milliohms, max.; Dielectric strength: 1kV RMS @ sea level; ¼-40 bushing and epoxy sealed terminals. Suffix PC: Printed Circuit terminals on .177" centers.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F854	MST-105D	SPDT	On-none-on	2.25	1.91	1.80	1.69
61F855	MST-105E	SPDT	On-off-on	2.75	2.34	2.20	2.06
61F856	MST-105F	SPDT	None-on-on†	2.85	2.42	2.28	2.14
61F857	MST-105G	SPDT	On†-off-on†	2.95	2.51	2.36	2.21
61F858	MST-105H	SPDT	On-off-on†	2.95	2.51	2.36	2.21
61F850	MST-115D	SPDT	On-none-on*	2.10	1.79	1.68	1.58
61F859	MST-205N	DPDT	On-none-on	3.10	2.64	2.48	2.33
61F860	MST-205P	DPDT	On-off-on	3.65	3.10	2.92	2.74
61F864	MST-205PA	DPDT	On-on-on**	4.45	3.78	3.56	3.34
61F861	MST-205R	DPDT	None-on-on	3.75	3.19	3.00	2.81
61F862	MST-205S	DPDT	On†-off-on†	3.85	3.27	3.08	2.89
61F1184	MST-205SA	DPDT	On†-on-on†	4.65	3.95	3.72	3.49
61F863	MST-205T	DPDT	On-off-on†	3.85	3.27	3.08	2.89
61F865	MST-205TA	DPDT	On-on-on†	4.65	3.95	3.72	3.49
61F851	MST-215N	DPDT	On-none-on*	2.95	2.51	2.36	2.21
61F866	MST-305D	3PDT	On-none-on	5.35	4.55	4.28	4.01
61F867	MST-305E	3PDT	On-off-on	5.85	4.97	4.68	4.39
61F868	MST-305H	3PDT	On-off-on†	6.05	5.14	4.84	4.54
61F852	MST-315D	3PDT	On-none-on*	5.10	4.34	4.08	3.83
61F869	MST-405N	4PDT	On-none-on	6.95	5.91	5.56	5.21
61F870	MST-405P	4PDT	On-off-on	7.45	6.33	5.96	5.59
61F853	MST-415N	4PDT	On-none-on*	6.60	5.61	5.28	4.95
59F430	MST-105D-PC	SPDT	On-none-on	2.30	1.96	1.84	1.73
59F431	MST-105E-PC	SPDT	On-off-on	2.80	2.38	2.24	2.10
59F432	MST-105F-PC	SPDT	None-on-on†	2.90	2.47	2.32	2.18
59F433	MST-205N-PC	DPDT	On-none-on	3.20	2.72	2.56	2.40
59F434	MST-205P-PC	DPDT	On-off-on	3.75	3.19	3.00	2.81
59F435	MST-205PA-PC	DPDT	On-on-on**	4.55	3.87	3.64	3.41

(†) denotes Momentary; (*) denotes white cap; (**) denotes usable as SP3T

MTG MUSTANG TOGGLES

Bat Handle. 15/32" bushing. Solder lug terminals.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F1187	MTG-106D	SPDT	On-none-on	3.25	2.76	2.60	2.44
61F819	MTG-106E	SPDT	On-off-on	3.75	3.19	3.00	2.81
61F884	MTG-206N	DPDT	On-none-on	4.10	3.49	3.28	3.08
61F885	MTG-206P	DPDT	On-off-on	4.65	3.95	3.72	3.49
61F886	MTG-206PA	DPDT	On-on-on*	5.45	4.63	4.36	4.09
61F887	MTG-306D	3PDT	On-none-on	6.35	5.40	5.08	4.76
61F888	MTG-306E	3PDT	On-off-on	6.85	5.82	5.48	5.14
61F889	MTG-406N	4PDT	On-none-on	7.95	6.76	6.36	5.96
61F890	MTG-406P	4PDT	On-off-on	8.45	7.18	6.76	6.34

(*) denotes usable as SP3T

MTL MINIATURE LOCKING TOGGLES

Lever lock must be pulled out to operate. Solder lug terminals.

61F972	MTL-106D	SPDT	On-none-on	3.90	3.32	3.12	2.93
61F973	MTL-106E	SPDT	On-off-on†	4.40	3.74	3.52	3.30
61F974	MTL-206N	DPDT	On-none-on	4.75	4.04	3.80	3.56
61F975	MTL-206P	DPDT	On-off-on	5.30	4.51	4.24	3.98
61F989	MTL-206PA	DPDT	On-on-on*	6.10	5.19	4.88	4.58
61F990	MTL-306D	3PDT	On-none-on	7.00	5.95	5.60	5.25
61F991	MTL-406N	4PDT	On-none-on	8.60	7.31	6.88	6.45

(†) denotes Momentary; (*) denotes useable as SP3T

MTM MINIATURE SHORT LEVER TOGGLE 0.27" LONG TOGGLE PC TERMINALS

PC pin spacing: 170" on centers; RA pin spacing: .185" on centers. RA types have right angle PC terminals & unthreaded bushing.

Stk. No.	Type	Contacts	Operation	1-24	25-49	50-99	100-249
61F820	MTM-106D-PC	SPDT	On-none-on	2.30	1.96	1.84	1.73
61F822	MTM-206N-PC	DPDT	On-none-on	3.20	2.72	2.56	2.40
61F824	MTM-106D-RA	SPDT	On-none-on	2.85	2.42	2.28	2.14
61F825	MTM-106E-RA	SPDT	On-off-on	3.35	2.85	2.68	2.51
61F826	MTM-206N-RA	DPDT	On-none-on	4.25	3.61	3.40	3.19
61F827	MTM-206P-RA	DPDT	On-off-on	4.80	4.08	3.84	3.60

Toggle, Pushbutton, and Slide Switches

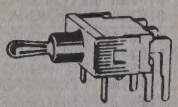
SPACE SAVER SERIES

Contact Rating: Gold plated, 0.4 VA max. @ 20VDC or Peak AC. Initial Contact Resistance: 50 milliohms max. Insulation Resistance: 1,000 megohms minimum @500VDC. Dielectric Strength: 500 volts RMS at sea level. Case Material: Thermoplastic U.L. 94V-O. Gold Plating: Gold over nickel barrier. Life Expectancy: 10,000 cycles. Terminal Seal: Potted epoxy base standard at no extra cost.

BATON TOGGLE SWITCHES

AT1DG-PC-1

AT2DG-PC-1


AT2DG-RA-1

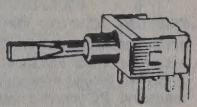
Stk. No.	Type	1-24	25-49	50-99	100-249
81F530	AT1DG-PC-1 SPDT On-None-On	1.95	1.66	1.56	1.46
81F531	AT1EG-PC-1 SPDT On-Off-On	2.45	2.08	1.96	1.84
81F550	AT1FG-PC-1 SPDT On-None-On*	2.45	2.08	1.96	1.84
81F551	AT1GG-PC-1 SPDT On*-Off-On*	2.65	2.25	2.12	1.99
81F552	AT1HG-PC-1 SPDT On-Off-On*	2.65	2.25	2.12	1.99
81F553	AT2DG-PC-1 DPDT On-None-On	2.85	2.42	2.28	2.14
81F554	AT2EG-PC-1 DPDT On-Off-On	3.40	2.89	2.72	2.55
81F555	AT2FG-PC-1 DPDT On-None-On*	3.40	2.89	2.72	2.55
81F556	AT2GG-PC-1 DPDT On*-Off-On*	3.60	3.06	2.88	2.70
81F557	AT2HG-PC-1 DPDT On-Off-On*	3.60	3.06	2.88	2.70
81F558	AT1DG-RA-1 SPDT On-None-On	2.25	1.91	1.80	1.69
81F559	AT1EG-RA-1 SPDT On-Off-On	2.75	2.34	2.20	2.06
81F560	AT1FG-RA-1 SPDT On-None-On*	2.75	2.34	2.20	2.06
81F561	AT1GG-RA-1 SPDT On*-Off-On*	2.95	2.51	2.36	2.21
81F562	AT1HG-RA-1 SPDT On-Off-On*	2.95	2.51	2.36	2.21
81F563	AT2DG-RA-1 DPDT On-None-On	3.60	3.06	2.88	2.70
81F564	AT2EG-RA-1 DPDT On-Off-On	4.15	3.53	3.32	3.11
81F565	AT2FG-RA-1 DPDT On-None-On*	4.15	3.53	3.32	3.11
81F566	AT2GG-RA-1 DPDT On*-Off-On*	4.35	3.70	3.48	3.26
81F567	AT2HG-RA-1 DPDT On-Off-On*	4.35	3.70	3.48	3.26

* denotes Momentary

FLAT TOGGLE SWITCHES

AT1DG-PC-7

AT2DG-PC-7


AT2DG-RA-7

Stk. No.	Type	1-24	25-49	50-99	100-249
81F568	AT1DG-PC-7 SPDT On-None-On	2.25	1.91	1.80	1.69
81F569	AT1EG-PC-7 SPDT On-Off-On	2.75	2.34	2.20	2.06
81F570	AT1FG-PC-7 SPDT On-None-On*	2.75	2.34	2.20	2.06
81F571	AT1GG-PC-7 SPDT On*-Off-On*	2.95	2.51	2.36	2.21
81F572	AT1HG-PC-7 SPDT On-Off-On*	2.95	2.51	2.36	2.21
81F573	AT2DG-PC-7 DPDT On-None-On	3.15	2.68	2.52	2.36
81F574	AT2EG-PC-7 DPDT On-Off-On	3.70	3.15	2.96	2.78
81F575	AT2FG-PC-7 DPDT On*-None-On*	3.70	3.15	2.96	2.78
81F576	AT2GG-PC-7 DPDT On*-Off-On*	3.90	3.32	3.12	2.93
81F577	AT2HG-PC-7 DPDT On-Off-On*	3.90	3.32	3.12	2.93
81F578	AT1DG-RA-7 SPDT On-None-On	2.55	2.17	2.04	1.91
81F579	AT1EG-RA-7 SPDT On-Off-On	3.05	2.59	2.44	2.29
81F580	AT1FG-RA-7 SPDT On-None-On*	3.05	2.59	2.44	2.29
81F581	AT1GG-RA-7 SPDT On*-Off-On*	3.25	2.76	2.60	2.44
81F582	AT1HG-RA-7 SPDT On-Off-On*	3.25	2.76	2.60	2.44
81F583	AT2DG-RA-7 DPDT On-None-On	3.90	3.32	3.12	2.93
81F584	AT2EG-RA-7 DPDT On-Off-On	4.45	3.78	3.56	3.34
81F585	AT2FG-RA-7 DPDT On-None-On*	4.45	3.78	3.56	3.34
81F586	AT2GG-RA-7 DPDT On*-Off-On*	4.65	3.95	3.72	3.49
81F587	AT2HG-RA-7 DPDT On-Off-On*	4.65	3.95	3.72	3.49

* denotes Momentary

SLIDE SWITCHES

AS1DG-PC

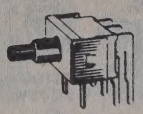
AS2EG-PC

AS2EG-RA

Stk. No.	Type	1-24	25-49	50-99	100-249
81F612	AS1DG-PC SPDT On-None-On	1.95	1.66	1.56	1.46
81F613	AS1EG-PC SPDT On-Off-On	2.35	2.00	1.88	1.76
81F614	AS2DG-PC DPDT On-None-On	3.05	2.59	2.44	2.29
81F615	AS2EG-PC DPDT On-Off-On	3.85	3.27	3.08	2.89
81F616	AS1DG-RA SPDT On-None-On	2.20	1.87	1.76	1.65
81F617	AS1EG-RA SPDT On-Off-On	2.60	2.21	2.08	1.95
81F618	AS2DG-RA DPDT On-None-On	3.75	3.19	3.00	2.81
81F619	AS2EG-RA DPDT On-Off-On	4.55	3.87	3.64	3.41

PUSHBUTTON SWITCHES

APB1FG-PC

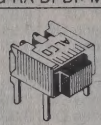

APB2RG-RA

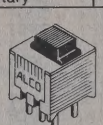
APA1FG-RA

APA2RG-PC

Stk. No.	Type	1-24	25-49	50-99	100-249
81F588	APA1BG-PC SPST Normally Closed	2.05	1.74	1.64	1.54
81F589	APA1CG-PC SPST Normally Open	1.85	1.57	1.48	1.39
81F590	APA1FG-PC SPDT Momentary	2.55	2.17	2.04	1.91
81F591	APA2LG-PC DPST Normally Closed	3.25	2.76	2.60	2.44
81F592	APA2MG-PC DPST Normally Open	2.85	2.42	2.28	2.14
81F593	APA2RG-PC DPDT Momentary	3.95	3.36	3.16	2.96
81F594	APA1BG-RA SPST Normally Closed	2.30	1.96	1.84	1.73
81F595	APA1CG-RA SPST Normally Open	2.10	1.79	1.68	1.58
81F596	APA1FG-RA SPDT Momentary	2.80	2.38	2.24	2.10
81F597	APA2LG-RA DPST Normally Closed	3.95	3.36	3.16	2.96
81F598	APA2MG-RA DPST Normally Open	3.55	3.02	2.84	2.66
81F599	APA2RG-RA DPDT Momentary	4.65	3.95	3.72	3.49
81F600	APB1BG-PC SPST Normally Closed	2.30	1.96	1.84	1.73
81F601	APB1CG-PC SPST Normally Open	2.10	1.79	1.68	1.58
81F602	APB1FG-PC SPDT Momentary	2.80	2.38	2.24	2.10
81F603	APB2LG-PC DPST Normally Closed	3.50	2.98	2.80	2.63
81F604	APB2MG-PC DPST Normally Open	3.10	2.64	2.48	2.33
81F605	APB2RG-PC DPDT Momentary	4.20	3.57	3.36	3.15
81F606	APB1BG-RA SPST Normally Closed	2.55	2.17	2.04	1.91
81F607	APB1CG-RA SPST Normally Open	2.35	2.00	1.88	1.76
81F608	APB1FG-RA SPDT Momentary	3.05	2.59	2.44	2.29
81F609	APB2LG-RA DPST Normally Closed	4.20	3.57	3.36	3.15
81F610	APB2MG-RA DPST Normally Open	3.80	3.23	3.04	2.85
81F611	APB2RG-RA DPDP Momentary	4.90	4.17	3.92	3.68

TSA11DG-PC


TSA11DG-RA


TSA21NG-PC

TSA21NG-RA

Stk. No.	Type	1-24	25-49	50-99	100-249
81F620	TSA11DG-PC SPDT On-None-On	1.95	1.66	1.56	1.46
81F621	TSA11EG-PC SPDT On-Off-On	2.35	2.00	1.88	1.76
81F622	TSA21NG-PC DPDT On-None-On	2.85	2.42	2.28	2.14
81F623	TSA21PG-PC DPDT On-Off-On	3.45	2.93	2.76	2.59
81F624	TSAD21DDG-PC 2xSPDT On-None-On	3.75	3.19	3.00	2.81
81F625	TSAD21EEG-PC 2xSPDT On-Off-On	3.85	3.27	3.08	2.89
81F626	TSA11DG-RA SPDT On-None-On	2.20	1.87	1.76	1.65
81F627	TSA11EG-RA SPDT On-Off-On	2.60	2.21	2.08	1.95
81F628	TSA21NG-RA DPDT On-None-On	2.85	2.42	2.28	2.14
81F629	TSA21PG-RA DPDT On-Off-On	4.15	3.53	3.32	3.11
81F630	TSAD21DDG-RA 2xSPDT On-None-On	3.75	3.19	3.00	2.81
81F631	TSAD21EEG-RA 2xSPDT On-Off-On	4.55	3.87	3.64	3.41

MHS TYPE

Subminiature slide switch for PC applications with positive wiping action. Available with two actuator styles, slide and baton. Rated: 300ma @ 125VAC.

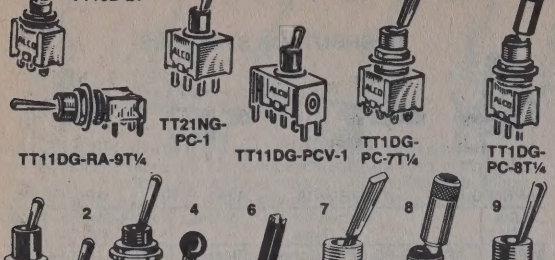
MHS-223K

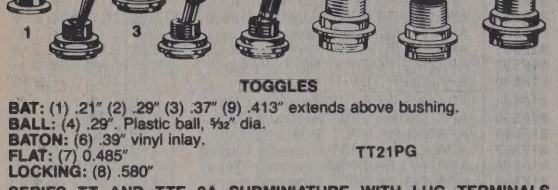
MHS-222

Stk. No.	Type	1-24	25-99	100-499	500-999
81F540	MHS-122 SPDT On-None-On	.80	.56	.48	.42
81F541	MHS-123 SPDT On-Off-On	.80	.56	.48	.42
81F542	MHS-133 SP3T On-On-On	.85	.60	.51	.44
81F543	MHS-222 DPDT On-None-On	.85	.60	.51	.44
81F544	MHS-223 DPDT On-Off-On	.90	.63	.54	.47
81F545	MHS-233 DP3T On-On-On	1.00	.70	.60	.52
81F546	MHS-122K SPDT On-None-On	1.10	.77	.66	.57
81F547	MHS-123K SPDT On-Off-On	1.10	.77	.66	.57
81F548	MHS-133K SP3T On-On-On	1.15	.81	.69	.60
81F549	MHS-222K DPDT On-None-On	1.20	.84	.72	.62
81F703	MHS-223K DPDT On-Off-On	1.20	.84	.72	.62
81F704	MHS-233K DP3T On-On-On	1.30	.91	.78	.68

ALCOSWITCH TT "Tiny" Series Switches

WORLD'S SMALLEST TOGGLE SWITCH





TOGGLES

BAT: (1) .21" (2) .29" (3) .37" (9) .413" extends above bushing.
BALL: (4) .29". Plastic ball, 5/32" dia.
BATON: (6) .39" vinyl inlay.
FLAT: (7) 0.485" TT21PG
LOCKING: (8) .580"

7

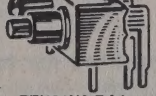
SERIES TT AND TTE 3A SUBMINIATURE WITH LUG TERMINALS

Silver contacts: rated 3 A @ 125 VAC or 28 VDC; gold flashed solder lug terminals. Instrument grade. Can be mounted only ⅜" apart on panel. Uniform 0.1" spacing between all terminals and mounting studs permits mounting on standard "perf" boards. TTE models have watertight bushings and panel seals.

*Color-Black, Red or White available on special order

Stock No.	Type	Con-tacts	Action	Each 1-24	25-49	50-99	100-249
13F3990	TT13A-6T(*)	SPST	On None Off	2.50	2.13	2.00	1.88
13F3991	TT13D-6T(*)	SPDT	On None On	2.35	2.00	1.88	1.76
13F3992	TT13E-6T(*)	SPDT	On Off On	2.85	2.42	2.28	2.14
13F3993	TT23K-6T(*)	DPST	On None Off	3.55	2.84	3.02	2.84
13F3994	TT23N-6T(*)	DPDT	On None On	3.25	2.76	2.60	2.44
13F3995	TT23P-6T(*)	DPDT	On Off On	3.80	3.23	3.04	2.85
13F3996	TT13A-6T¼(*)	SPST	On None Off	2.55	2.17	2.04	1.91
13F3997	TT13D-6T¼(*)	SPDT	On None On	2.80	2.04	1.92	1.80
13F4000	TT23N-6T¼(*)	DPDT	On None On	3.30	2.81	2.64	2.48
13F4001	TT23P-6T¼(*)	DPDT	On Off On	3.85	3.27	3.08	2.89
14F3132	TT13D-7T¼	SPDT	On None On	2.70	2.30	2.16	2.03
14F3133	TT13E-7T¼	SPDT	On Off On	3.20	2.72	2.56	2.40
14F3137	TT23N-7T¼	DPDT	On None On	3.60	3.06	2.88	2.70
14F3138	TT23P-7T¼	DPDT	On Off On	4.15	3.53	3.32	3.11
13F4002	TT13A-9T¼	SPST	On None Off	2.35	2.00	1.88	1.76
13F4003	TT13D-9T¼	SPDT	On None On	2.20	1.87	1.76	1.65
13F4004	TT13E-9T¼	SPDT	On Off On	2.70	2.30	2.16	2.03
13F4005	TT23K-9T¼	DPST	On None Off	3.40	2.89	2.72	2.55
13F4006	TT23N-9T¼	DPDT	On None On	3.10	2.64	2.48	2.33
13F4007	TT23P-9T¼	DPDT	On Off On	3.65	3.10	2.92	2.74
13F3970	TT13A-2T	SPST	On None Off	2.20	1.87	1.76	1.65
13F3971	TT13D-2T	SPDT	On None On	2.05	1.74	1.64	1.54
13F3972	TT13E-2T	SPDT	On Off On	2.55	2.17	2.04	1.91
13F3974	TT23N-2T	DPDT	On None On	2.95	2.51	2.36	2.21
13F3975	TT23P-2T	DPDT	On Off On	3.50	2.98	2.80	2.63
13F3976	TT13A-3T	SPST	On None Off	2.20	1.87	1.76	1.65
61F780	TT13D-3T	SPDT	On None On	2.05	1.74	1.64	1.54
61F781	TT13E-3T	SPDT	On Off On	2.55	2.17	2.04	1.91
13F3977	TT23K-3T	DPST	On None Off	3.25	2.76	2.60	2.44
61F782	TT23N-3T	DPDT	On None On	2.95	2.51	2.36	2.21
61F783	TT23P-3T	DPDT	On Off On	3.50	2.98	2.80	2.63
14F3135	TTE13D-8T¼	SPDT	On None On	4.05	3.44	3.24	3.04
14F3140	TTE23N-8T¼	DPDT	On None On	4.95	4.21	3.96	3.71

TTN21N2-PC-4


TTN21N2-RA1

TTN23N2-2T

.LED Switches. LED incorporated in same case. Solder type. PC or RA. Contact rated: toggle, 3A @ 115 VAC or 28 VDC; Pushbutton, 0.4 VA maximum @ 20 VDC or Peak AC.

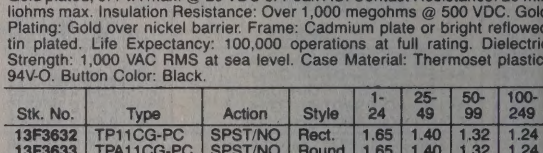
Stk. No.	Type	Action	Con-tact	1-24	25-49	50-99	100-249
14F3118	TTN23N2-2T	DPDT	Silver	5.05	4.29	4.04	3.79
14F3119	TTN23N2-3T	DPDT	Silver	5.05	4.29	4.04	3.79
14F3120	TTN23N2-4T	DPDT	Silver	5.30	4.51	4.24	3.98
14F3121	TTN23N2-6T	DPDT	Silver	5.35	4.55	4.28	4.01
14F3122	TTN21N2-PC-4	DPDT	Gold	5.20	4.42	4.16	3.90
14F3123	TTN21N2-RA-1	DPDT	Gold	5.95	5.06	4.76	4.46
14F3124	TTN21N2-RA-4	DPDT	Gold	6.25	5.31	5.00	4.69

SERIES TT SUBMINIATURE TOGGLE SWITCHES WITH PC AND RIGHT ANGLE PC TERMINALS

Gold plated contacts. Terminals spaced for 0.1" PC grids. -PC types have upright PC terminals; -RA types, right-angle PC terminals; -WW types, 0.590" extended PC terminals.

Stock No.	Type	Con-tacts	Action	Each 1-24	25-49	50-99	100-249
13F4038	TT11AG-PC-1	SPST	On None Off	2.10	1.79	1.68	1.58
61F784	TT11DG-PC-1	SPDT	On None On	1.95	1.66	1.56	1.46
61F785	TT11EG-PC-1	SPDT	On Off On	2.45	2.08	1.96	1.84
61F786	TT21NG-PC-1	DPDT	On None On	2.85	2.42	2.28	2.14
14F3142	TT11DG-PC-7T¼	SPDT	On None On	2.70	2.30	2.16	2.03
14F3144	TT21NG-PC-7T¼	SPDT	On None Off	3.60	3.06	2.88	2.70
14F3145	TT21PG-PC-7T¼	DPDT	On Off On	4.15	3.53	3.32	3.11
14F3146	TT11DG-PC-8T¼	SPDT	On None On	3.30	2.81	2.64	2.48
14F3147	TT21NG-PC-8T¼	DPDT	On Off On	4.20	3.57	3.36	3.15
13F4040	TT11AG-PC-9T¼	SPST	On None Off	2.35	2.00	1.88	1.76
13F4041	TT11DG-PC-9T¼	SPDT	On None On	2.20	1.87	1.76	1.65
13F4044	TT21NG-PC-9T¼	DPDT	On None On	3.10	2.64	2.48	2.33
13F4045	TT21PG-PC-9T¼	DPDT	On Off On	3.65	3.10	2.92	2.74
13F4046	TT11DG-WW-2T	SPDT	On None On	2.40	2.04	1.92	1.80
13F4047	TT11EG-WW-2T	SPDT	On Off On	2.90	2.47	2.32	2.18
13F4048	TT21NG-WW-2T	DPDT	On None On	3.65	3.10	2.92	2.74
14F3148	TT11DG-PCV-1	SPDT	On None On	2.35	2.00	1.88	1.76
14F3149	TT21NG-PCV-1	DPDT	On None On	3.25	2.76	2.60	2.44
14F3150	TT11DG-PCV-2	SPDT	On None On	2.40	2.04	1.92	1.80
14F3151	TT21NG-PCV-2	DPDT	On Off On	3.30	2.81	2.64	2.48
61F788	TT11DG-RA-1	SPDT	On None On	2.25	1.91	1.80	1.69
61F789	TT11EG-RA-1	SPDT	On Off On	2.75	2.34	2.20	2.06
61F790	TT21NG-RA-1	DPDT	On None On	3.60	3.06	2.88	2.70
14F3153	TT21NG-RA-7T¼	DPDT	On None On	4.35	3.70	3.48	3.26
14F3155	TT21NG-RA-8T¼	DPDT	On None On	4.95	4.21	3.96	3.71
14F3156	TT21RG-PC-9T¼	DPDT	On Off On	3.65	3.10	2.92	2.74
14F3157	TT11FG-PC-9T¼	SPDT	On None On	2.70	2.30	2.16	2.03
13F4050	TT11DG-RA-9T¼	SPDT	On None On	2.50	2.13	2.00	1.88
13F4052	TT21NG-RA-9T¼	DPDT	On None On	3.85	3.27	3.08	2.89

TP/TPA SERIES


TPA11CG-PC TP11CG-PC TPA11CG-RA TP11CG-RA

- **For Instrumentation, Telecoms, Computers**
- **Good Solderability**
- **Compact For PC Use**
- **10,000 Operation Life**

Suffix RA in type number signifies Right Angle terminals for edge PC board mounting. PC models have 4 stabilizing standoffs. Dual actuator types conserve space. Choice of small, round or rectangular buttons. Contact Rating: Gold plated, 0.4 VA max. @ 20 VDC or Peak AC. Contact Resistance: 20 milliohms max. Insulation Resistance: Over 1,000 megohms @ 500 VDC. Gold Plating: Gold over nickel barrier. Frame: Cadmium plate or bright reflowed tin plated. Life Expectancy: 100,000 operations at full rating. Dielectric Strength: 1,000 VAC RMS at sea level. Case Material: Thermoset plastic. 94V-O. Button Color: Black.

Stk. No.	Type	Action	Style	1-24	25-49	50-99	100-249
13F3632	TP11CG-PC	SPST/NO	Rect.	1.65	1.40	1.32	1.24
13F3633	TPA11CG-PC	SPST/NO	Round	1.65	1.40	1.32	1.24
13F3637	TP11CG-RA	SPST/NO	Rect.	1.90	1.62	1.52	1.43
13F3638	TPA11CG-RA	SPST/NO	Round	1.90	1.62	1.52	1.43

TPD/TPF SERIES

TPD11CG-RA TPF11CQ-RA

TPD11CG-PC TPF11CG-PC

¼" bushing. Contact Rating: Gold Plated, 0.4 VA max. @ 20 VDC or peak AC. Contact Resistance: 20 milliohms max. Insulation Resistance: Over 1,000 megohms @ 500 VDC. Dielectric Strength: 1,000 VAC RMS at sea level. Life Expectancy: 100,000 operations at full rating. Gold Plating: Gold over nickel barrier. Frame: Cadmium plate or bright reflowed tin plated. Case Material: Thermoset plastic. Type number suffix RA signifies Right Angle terminals suitable for edge board mounting to protrude through panel. Button Color: Black. Action: Normally Open. Large round button style.

Stk. No.	Type	Action	Bushing	1-24	25-49	50-99	100-249
13F3650	TPD11CG-PC	SPST/NO	.250	2.05	1.74	1.64	1.54
13F3651	TPF11CG-PC	SPST/NO	¼-40	2.15	1.83	1.72	1.61
13F3653	TPF21MG-PC	DPST/NO	¼-40	3.15	2.68	2.52	2.36
13F3654	TPD11CG-RA	SPST/NO	.250	2.30	1.96	1.84	1.73
13F3655	TPF11CG-RA	SPST/NO	¼-40	2.40	2.04	1.92	1.80
13F3656	TPD21MG-RA	DPST/NO	.250	3.75	3.19	3.00	2.81
13F3657	TPF21MG-RA	DPST/NO	¼-40	3.85	3.27	3.08	2.89

Precision Switches ALCOSWITCH

PUSHBUTTON MINIATURE SWITCHES

MSP

MSPS

MSPM

MPA-103

MPA-106

MPE

MPN

MPG

MSPF

MSP MINIATURE PUSHBUTTON SWITCHES

MSP-105, MSP-205. 5 A, 125 VAC. Silver contacts and terminals. Bushing ¼"—40 w/keyway. Blk. phenolic case. Life: 25,000 cycles. MSP-103. 3A, 125 VAC. Silver plated brass contacts & terminals. Bushing ¼"—40. Dia. .408" MSPS-103C. Dia. .310". Rated 0.5 A @ 125 VAC.

Stock No.	Model	Cont.	Operation	1-25	26-49	50-99	100-249
61F908	MSP-105D	SPDT	Push-On-Off	3.55	3.02	2.84	2.66
61F906	MSP-105F	SPDT	Momentary	3.55	3.02	2.84	2.66
61F909	MSP-205N	DPDT	Push-On-Off	4.50	3.83	3.60	3.38
61F907	MSP-205R	DPDT	Momentary	4.50	3.83	3.60	3.38
61F1212	MSP-103B	SPST	NC Black Button	1.45	1.23	1.16	1.09
61F1213	MSP-103C	SPST	NO Red Button	1.45	1.23	1.16	1.09
61F1214	MSP-103C-B	SPST	NO Black Button	1.45	1.23	1.16	1.09
61F2072	MSPS-103B	SPST	NC Black Button	.80	.68	.64	.60
61F1215	MSPS-103C	SPST	NO Red Button	.80	.68	.64	.60

MAGNETIC REPULSION PUSHBUTTONS

Momentary switch. Ceramic magnets eliminate springs. Contacts are glass encapsulated reeds. Rated 100 mA @ 50 VDC, resistance 100 milliohms. Contacts bounce 1 millisecond. Plunger travel 5/64". Oper. force, under 2 ozs. SPST. Accepts C-22.

Stk. No.	Model	Description	1-24	25-99	100-499
61F1207	MSPM101B	N.C., Solder lug	5.25	4.73	4.46
61F1208	MSPM101C	N.O., Solder lug			
61F1209	MSPM101B-1	N.C., .110" Terminal			

SUBMINIATURE PUSHBUTTON SWITCHES

Cylindrical pushbutton switch, gold flashed terminals molded in DAP base. One piece bushing, ¼—40. Rating: 3 amps @ 125 VAC D and F Series. 1 amp @ 125 VAC, B and C Series. Supplied with C5 black cap.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
25F2020	MPA-103B	SPST	NC	1.65	1.40	1.32	1.24
25F2021	MPA-103C	SPST	NO	1.65	1.40	1.32	1.24
25F2022	MPA-103D	SPDT	Push-On-Off	2.95	2.51	2.36	2.21
25F2023	MPA-103F	SPDT	Momentary	2.95	2.51	2.36	2.21

MINIATURE PUSHBUTTONS

Supplied with black C-22 button.

Stk. no.	Type	Cont.	Operation	1-24	25-49	50-99	100-249
61F752	MPA-106D	SPDT	Push on/off	3.55	3.02	2.84	2.66
61F753	MPA-106F	SPDT	Momentary	3.55	3.02	2.84	2.66
61F754	MPA-206N	DPDT	Push on/off	4.50	3.83	3.60	3.38
61F755	MPA-206R	DPDT	Momentary	4.50	3.83	3.60	3.38

MPE MINIATURE WATERPROOF PUSHBUTTONS

"O" rings inside bushing and at panel. 6 amps at 125 VAC ¼" bushing. Gold flash terminals. Green DAP case. Supplied with black button.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
61F959	MPE-106D	SPDT	Push-On-Off	4.25	3.61	3.40	3.19
61F957	MPE-106F	SPDT	Momentary	4.25	3.61	3.40	3.19
61F960	MPE-206N	DPDT	Push-On-Off	5.20	4.42	4.16	3.90
61F958	MPE-206R	DPDT	Momentary	5.20	4.42	4.16	3.90
61F961	MPE-406N	4PDT	Push-On-Off	8.65	7.35	6.92	6.49
61F1211	MPE-406R	4PDT	Momentary	8.65	7.35	6.92	6.49

MPG MUSTANG PUSHBUTTONS

15/32" bushing with solder lug terminals. PC suffix for PC terminals. 6 A @ 125 VAC. Green DAP case.

Stk. No.	Model	Cont.	Operation	1-24	25-49	50-99	100-249
61F756	MPG-106D	SPDT	Push on/off	4.35	3.70	3.48	3.26
61F757	MPG-106F	SPDT	Momentary	4.35	3.70	3.48	3.26
61F993	MPG-206N	DPDT	Push on/off	5.30	4.51	4.24	3.98
61F994	MPG-206R	DPDT	Momentary	5.30	4.51	4.24	3.98
61F758	MPG-406N	4PDT	Momentary	8.75	7.00	7.44	7.00

MSPF MOMENTARY PUSHBUTTONS

Rating: 0.5 A @ 125 VAC. 15/32" bushing. Extra-large black button. Threaded types include N-35 decorative nut, washer, and hex nut. Contacts: Heavy silver plate on brass.

Stk. No.	Type	Cont.	Operation	1-24	25-49	50-99	100-249
11F402	MSPF-101B	SPST	NC Momentary	1.95	1.66	1.56	1.46
11F403	MSPF-101C	SPST	NO Momentary	1.95	1.66	1.56	1.46
11F404	MSPF-101BC	2 Ckt	NO/NC Mom.	2.35	2.00	1.88	1.76

MPN ILLUMINATED PUSHBUTTON SWITCHES

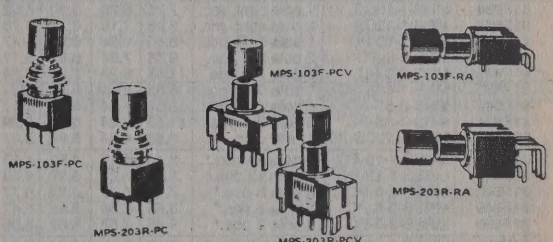
Snap action. DPDT. DAP case. Silver contacts. 6A @ 125 VAC. 15/32" mounting hole. Button, guard,lamp must be ordered separately. (tt) Transparent button colors: Amber, Blue, Red, Clear, Green. State color when ordering. Accepts groove base lamp listed below.

Stk. No.	Model	Cont.	Operation	1-25	26-49	50-99	100-499
61F1216	MPN-206N	DPDT	Push-on-off	7.95	6.76	6.36	5.96
61F1217	MPN-206R	DPDT	Momentary	7.95	6.76	6.36	5.96
61F1218	RS-XP††	.....	½" Round Button	.25	.23	.21	.19
61F1222	CGR-½	.....	½" Round Chrome Guard	.95	.86	.80	.71

INCANDESCENT T-1¾ LAMPS (Multiples of 10)

Stock No.	Type	V	Amps	MCSP	10 min.	20-90	100-over
61F1226	379—T-1¾ Mid.	6.3	.200	.40	.61	.55	.49
61F1227	386—Grooved	14.0	.080	.30	.61	.55	.49
61F1228	388—Base	28.0	.040	.30	.55	.44	.41

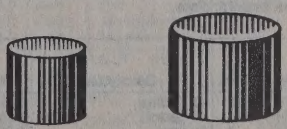
MPS SNAP ACTION MOMENTARY SWITCHES



Rating: 3A @ 115 VAC or 28 VDC. Life expectancy: 50,000 operations. Operating force: 7 to 14 oz. Single Pole; 14 to 25 oz. Double Pole. Supplied with C-22 black button. PC pin-spacing: .177" on centers.

Stk. No.	Model	Operation	Cont.	1-25	26-49	50-99	100-249
81F517	MPS-103D	Push-On-Off	SPDT	3.65	3.10	2.92	2.74
12F1200	MPS-103F	Momentary	SPDT	2.95	2.51	2.36	2.21
81F518	MPS-203N	Push-On-Off	DPDT	4.55	3.87	3.64	3.41
12F1201	MPS-203R	Momentary	DPDT	3.85	3.27	3.08	2.89
81F519	MPS-103D-PC	Push-On-Off	SPDT	3.75	3.19	3.00	2.81
12F1202	MPS-103F-PC	Momentary	SPDT	3.05	2.59	2.44	2.29
81F520	MPS-203N-PC	Push-On-Off	DPDT	4.65	3.95	3.72	3.49
12F1203	MPS-203R-PC	Momentary	DPDT	3.95	3.36	3.16	2.96
12F1204	MPS-103F-RA	Momentary	SPDT	3.65	3.10	2.92	2.74
12F1205	MPS-203R-RA	Momentary	DPDT	5.25	4.46	4.20	3.94
12F1206	MPS-103F-PCV	Momentary	SPDT	3.55	3.02	2.84	2.66
12F1207	MPS-203R-PCV	Momentary	DPDT	4.45	3.78	3.56	3.34

COLOR CODED BUTTONS

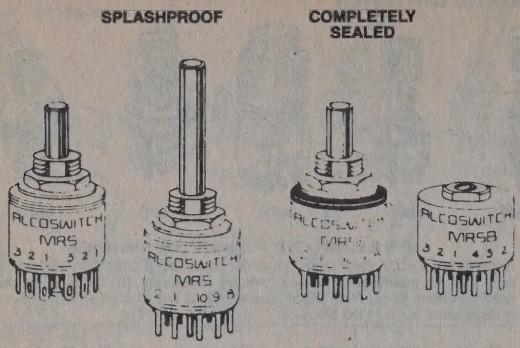

C-22 C-23

C-22 and C-23 fit MPA and MPE Series Switches.

Type	Black Stk. No.	Red Stk. No.	Green Stk. No.	1-25	26-49	50-99	100-499
C-22 ##	61F764	61F765	61F766	.19	.17	.16	.14
C-23**	61F767	61F768	61F769	.23	.21	.19	.17

Small ** Large

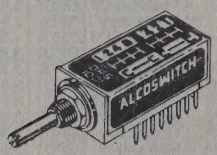
ALCOSWITCH MINIATURE ROTARY SWITCHES



MRS MINIATURE ROTARY SWITCH

MRS Series: Rating 150ma @ 115 VAC. Contact Resistance: 50 milliohms. 0.5" dia. case size. Available with PC or solder terminals, long or short shaft or knob standard. Splashproof and completely sealed models std.

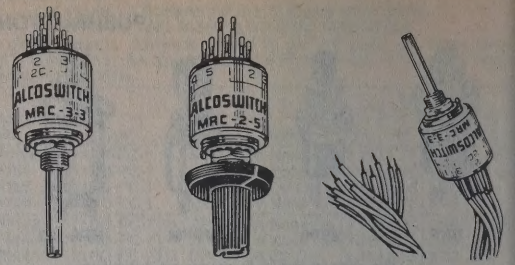
Stock No.	Type	Description	1-24	25-49	50-99	100-249
81F5739	MRS-1-10	1 pole 2-10 pos.	7.85	6.80	5.50	5.02
81F5740	MRS-1-12	1 pole 2-12 pos.	8.95	7.16	6.27	5.73
81F5741	MRS-2-5	2 pole 2-5 pos.	8.85	7.08	6.20	5.66
25F2026	MRS-3-3	3 pole 2-3 pos.	10.85	8.68	7.60	6.94
81F642	MRS-1-10S	1 pole 2-10 pos.	7.85	6.28	5.50	5.02
25F2027	MRS-1-12S	1 pole 2-12 pos.	8.95	7.16	6.27	5.73
25F2037	MRS-2-5S	2 pole 2-5 pos.	8.85	7.08	6.20	5.66
25F2038	MRS-3-3S	3 pole 2-3 pos.	10.85	8.68	7.60	6.94
81F632	MRS-1-10C	1 pole cont. rot.	7.85	6.28	5.50	5.02
81F633	MRS-1-12C	1 pole cont. rot.	8.95	7.16	6.27	5.73
81F634	MRS-1-10CS	1 pole cont. rot.	7.85	6.28	5.50	5.02
81F635	MRS-1-12CS	1 pole cont. rot.	8.95	7.16	6.27	5.73
81F636	MRS-1-10-PC	1 pole 2-10 pos.	8.55	6.84	5.99	5.47
81F637	MRS-2-5-PC	2 pole 2-5 pos.	9.55	7.64	6.69	6.11
81F641	MRS-3-3-PC	3 pole 2-3 pos.	11.55	9.24	8.09	7.39
81F639	MRS-1-10S-PC	1 pole 2-10 pos.	8.55	6.84	5.99	5.47
81F640	MRS-2-5S-PC	2 pole 2-5 pos.	9.55	7.64	6.69	6.11
81F644	MRS-3-3S-PC	3 pole 2-3 pos.	11.55	9.24	8.09	7.39
81F645	MRS-1-10CS-PC	1 pole cont. rot.	8.55	6.84	5.99	5.47
81F646	MRSB-1-10-PC	1 pole 10 pos.*	6.45	5.16	4.52	4.13
81F647	MRSB-1-12-PC	1 pole 12 pos.*	7.55	6.04	5.29	4.83
81F648	MRSB-2-5-PC	2 pole 5 pos.*	7.45	5.96	5.22	4.77
81F649	MRSB-2-6-PC	2 pole 6 pos.*	8.55	6.84	5.99	5.47
81F650	MRSB-3-3-PC	3 pole 3 pos.*	9.45	7.56	6.62	6.05
81F651	MRSE-1-10	1 pole 10 pos.*	8.65	6.92	6.06	5.54
81F652	MRSE-1-12	1 pole 12 pos.*	9.75	7.80	6.83	6.24
81F653	MRSE-2-5	2 pole 5 pos.*	9.65	7.72	6.76	6.18
81F654	MRSE-2-6	2 pole 6 pos.*	10.75	8.60	7.53	6.88
81F655	MRSE-3-3	3 pole 3 pos.*	11.65	9.32	8.16	7.46
81F656	MRSE-1-10-PC	1 pole 10 pos.*	9.35	7.48	6.55	5.98
81F657	MRSE-2-5-PC	2 pole 5 pos.*	10.35	8.38	7.25	6.62
81F705	MRSE-3-3-PC	3 pole 3 pos.*	12.35	9.88	8.65	7.90



DRS-1001

Encoded rotary in DIP mounting package. Contact rating: 125mA @ 28VDC/VAC resistive. Heavy gold-plate over nickel contacts and terminals. Terminal seal: polybutylene terephthalate.

Stock No.	Type	Pole Pos. Code	Description	1-24	25-49	50-99	100-249
81F706	DRS-1-12	1	12 Decimal	9.95	8.96	8.46	7.96
81F707	DRS-2-6	2	6 Decimal	9.95	8.96	8.46	7.96
81F708	DRS-3-4	4	Decimal	9.95	8.96	8.46	7.96
81F709	DRS-4-3	4	3 Decimal	9.95	8.96	8.46	7.96
81F710	DRS-1001	1	10 BCD & BCD Compliment	9.95	8.96	8.46	7.96



MRC-3-3S **MRC-2-5** **MRC-3-3SL**

MRC SERIES MINIATURE ROTARY SWITCHES

Terminals are permanently molded into DAP base. #Available with knobs. Cylinders are .610" diameter with switch depth behind panel of .620", less terminals. Adjustable stop.

Stock No.	Type	Description	1-24	25-49	50-99	100-249
61F830	MRC-1-10 #	1 pole, 2-10 pos.	8.95	6.71	6.09	5.64
61F831	MRC-2-5 #	2 pole, 2-5 pos.	9.45	7.09	6.43	5.95
61F832	MRC-3-3 #	3 pole, 2-3 pos.	9.90	7.43	6.73	6.24
61F833	MRC-4-2 #	4 pole, 2 pos.	10.45	7.84	7.11	6.58
61F834	MRC-1-10S	1 pole, 2-10 pos.	8.95	6.71	6.09	5.64
61F835	MRC-2-5S	2 pole, 2-5 pos.	9.45	7.09	6.43	5.95
61F836	MRC-3-3S	3 pole, 2-3 pos.	9.90	7.43	6.73	6.24
61F837	MRC-4-2S	4 pole, 2 pos.	10.45	7.84	7.11	6.58
11F432	MRC-1-10SL	1 pole, 2-10 pos.	9.95	7.46	6.77	6.27
11F433	MRC-2-5SL	2 pole, 2-5 pos.	10.45	7.84	7.11	6.58
11F436	MRC-1-10L #	1 pole, 2-10 pos.	9.95	7.46	6.77	6.27
11F437	MRC-2-5L #	2 pole, 2-5 pos.	10.45	7.84	7.11	6.58
11F439	MRC-4-2L #	4 pole, fixed	11.45	8.59	7.79	7.21

(*) Fixed

MRJ PC MOUNTABLE ROTARY SWITCHES

Designed for maximum number of positions in minimum amount of space. Primary use is for printed circuits. Full compliment of gold on contact surfaces. Molded-in terminals, all MRJ Series are break-before-make. 0.4 VA max. @ 20 VDC or Peak AC Contact Rating.

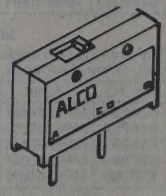
MRJB-2-6

MRJ-2-6
MRJE-2-6

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
10F7791	MRJ-1-12	1 pole, 2-10 pos.	7.50	5.63	5.10	4.73
10F7792	MRJ-2-6	2 poles, 2-6 pos.	7.75	5.81	5.27	4.88
10F7793	MRJ-3-4	3 poles, 2-4 pos.	7.95	5.96	5.51	5.01
10F7794	MRJ-4-3	4 poles, 2-3 pos.	8.15	6.11	5.54	5.13
10F7795	MRJE-1-12	1 pole, 12 pos.	8.10	6.08	5.51	5.10
10F7796	MRJE-3-4	3 poles, 4 pos.	8.55	6.41	5.81	5.39
10F7797	MRJE-4-3	4 poles, 3 pos.	8.75	6.56	5.95	5.51
10F7798	MRJB-2-6	2 poles, 6 pos.	5.20	3.90	3.54	3.28
10F7799	MRJB-1-12	1 pole, 12 pos.	4.95	3.71	3.37	3.12
10F7800	MRJB-3-4	3 poles, 4 pos.	5.45	4.09	3.71	3.43

SC SERIES SUB-MINIATURE CIRCUIT PROTECTORS

SPST for low voltage applications. Bi-metallic element employed for overload detection. Contact rating: 100, 250, 500 mA; 1.0, 1.5, or 3 A @ 24 VAC or DC. Life cycle: 500 on-off rations.



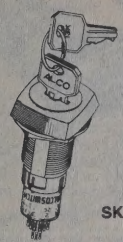
Stk. No.	Type	Rating	1-24	25-99	100-249	250-499
10F7109	SC-0.1A	0-100mA				
10F8610	SC-0.25A	250mA				
10F7110	SC-0.50A	0-500mA	5.55	4.72	4.44	4.16
10F7111	SC-1.0A	1.0A				
10F8611	SC-1.5A	1.5A				
10F7116	SC-3.0AR	3.0A	4.10	3.49	3.28	3.08

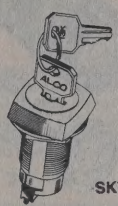
Keylock and 7/8" Oil-tight Switches & Pilots

ALCOSWITCH

SQUARE FLANGE KEYLOCK SWITCHES

SKF


SKFC

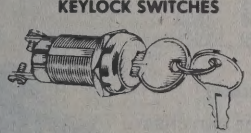

SKT

SKF Series. Rating: 4 amps @ 125VAC. SPST. Screw-type terminals. SKFC Series. Rating 500 ma @ 125VAC or 28 VDC (resistive). Non-shorting (break before make). Contact resistance: 10 milliohms max. Contacts: solid silver. Type numbers ending in "L" are with 8½" color coded wire leads; others come with turret lugs. SKT Series. Silver contacts and wired terminals. Rating: 3 amps @ 125 VAC or 28 VDC (resistive). DPDT.

Stock No.	Type	Position ½	Remove Key	1-24	25-99	100-249	250-499
11F445	SKF-13-1	off/on	pos. 1	3.95	3.36	3.08	3.08
11F446	SKF-13-2	off/on	pos. ½	3.95	3.36	3.08	3.08
11F447	SKF-13-3	on/off	pos. 1	3.95	3.36	3.08	3.08
11F450	SKT-33-1	off/on	pos. 1	6.50	5.53	5.07	4.42
11F451	SKT-33-2	off/on	pos. ½	6.50	5.53	5.07	4.42
11F440	SK-13K	spare key	for above	.70	.60	.55	.48

Stock No.	Type	No. of Poles	Max. Position	EACH 1-24	25-49	50-99	100-249
11F410	SKFC-1-6	1	6	10.65	7.99	7.24	6.71
11F413	SKFC-1-9	1	9				
11F414	SKFC-1-10	1	10				
11F416	SKFC-2-4	2	4	11.05	8.29	7.51	6.96
11F419	SKFC-3-3	3	3	11.35	8.51	7.72	7.15
11F420	SKFC-4-4	4	4	11.85	8.89	8.06	7.47
11F423	SKFC-1-8-L	1	8	12.45	9.34	8.47	7.84
11F425	SKFC-1-10-L	1	10				
11F427	SKFC-2-4-L	2	4	12.85	9.64	8.74	8.10
11F429	SKFC-3-2-L	3	2	13.15	9.86	8.94	8.28
11F430	SKFC-3-3-L	3	3				

KEYLOCK SWITCHES



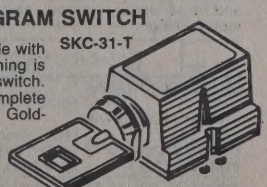
Roller-type mechanical action with positive contact. Choice of 25 keys. Rated 5 A resis. 115 VAC; 15A 24 VDC. Flatted ¾" dia. barrel fits panels to ¾" thick.

Stock No.	Type	Position ½	Remove Key	1-24	25-99	100-499	500-999
57F2159	SWK-12	on/off	pos. ½	5.65	4.80	4.41	3.84
61F845	SWK-12-1	on/off	pos. 2	5.65	4.80	4.41	3.84
61F846	SWK-12-3	on/off	pos. 1	5.65	4.80	4.41	3.84
61F847	SWK-13-1	off/on	pos. 1	3.65	3.10	2.85	2.48
61F848	SWK-13-2	off/on	pos. ½	3.65	3.10	2.85	2.48
61F849	SWK-13-3	on/off	pos. 1	3.65	3.10	2.85	2.48
11F452	SWK-23-1	off/mom. on	pos. 1	3.80	3.23	2.96	2.58
11F453	SWK-23-3	on/mom. off	pos. 1	3.80	3.23	2.96	2.58
11F454	SWK-12K	Spare key for	SWK-12	.95	.81	.74	.65
11F455	SWK-13K	Spare key for	SWK-13	.70	.60	.55	.48

SKC-KEYCODE PROGRAM SWITCH

As many as 31 code keys are available with pick-proof program switch. Programming is achieved by inserting coded key into switch. This opens and closes contacts to complete a specific BCD outputs. Contacts: Gold-plated, 0.4VA @ 20VDC or peak AC.

SKC-31-T

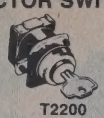


Stk. No.	Type	Description	1-24	25-49	50-99
10F7801	SKC-1-PC	PC	4.95	4.46	3.96
10F7802	SKC-31-T	Turret	4.95	4.46	3.96

KEYLOCK OR SELECTOR SWITCHES

T2302

T2310


T2200

T2210

2 or 3 position, maintained momentary, key or selector type. Selector types –0 have black lever, –2 red lever. Meets NEMA 13 requirements. Includes legend plate. Contact blocks not included. (*) Indicates spring return from right; (†) spring return from left and right.

SERIES T2200 SWITCHES

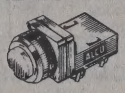
Switch No.	Type	Switch Action	Key Remvbl. from Pos. #	1-9	10-99	100-499
65F397	T2200	Key, 0 1	0	11.95	10.76	9.56
65F398	T2201	Key, 0 1	0, 1	11.95	10.76	9.56
65F399	T2202	Key, 0 1	0	11.95	10.76	9.56
65F400	T2203	Key, 0 1	0, 1	11.95	10.76	9.56
65F401	T2250*	Key, 0 (1)	0	12.45	11.21	9.96
65F402	T2210	Key, 2 0 1	0	11.95	10.76	9.56
65F404	T2230	Key, 2 0 1	0, 1, 2	11.95	10.76	9.56
65F406	T2260*	Key, 2 0 (1)	0	12.45	11.21	9.96
65F407	T2270*	Key, 2 0 (1)	0, 2	12.45	11.21	9.96
65F408	T2280†	Key, (2) 0 (1)	0	12.45	11.21	9.96
65F409	G-001	Additional Keys		.80	.72	.64

SERIES T2300 and T2400 SWITCHES

Stk. No.	Type	Switch Action	Lever Lgth.	1-9	10-99	100-499
65F377	T2302-0	Lev, 0 1	Short	6.95	6.26	5.56
65F378	T2302-2	Lev, 0 1	Short			
65F379	T2402-0	Lev, 0 1	Long			
65F380	T2402-2	Lev, 0 1	Long			
65F385	T2310-0	Lev, 2 0 1	Short	6.95	6.26	5.56
65F386	T2310-2	Lev, 2 0 1	Short			
65F390	T2370-2*	Lev, 2 0 (1)	Short	7.95	7.16	6.36
65F393	T2380-0†	Lev, (2) 0 (1)	Short	7.95	7.16	6.36
65F395	T2480-0†	Lev, (2) 0 (1)	Long			

MINIATURE MOTOR START POWER SWITCHES

SW-251


SW-251L

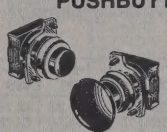
SW-251D

SW-251S

Oil tight pushbutton switches are compact, flexible and low in cost. Mount in 1" hole. Positive double break silver contacts rated to carry 6 amps, 230 VAC. Supplied with single (NO-NC) block. Additional blocks available to convert switches to double pole. Three way selector switch has bar knob with pointer. Black.

Stk. No.	Type	Description	1-9	10-99	100-499	500-999
57F2151	SW-251	Standard button	6.95	5.91	5.56	4.87
57F2152	SW-251D	Mushroom button	7.85	6.67	6.28	5.50
61F843	SW-251L	Long button	6.95	5.91	5.56	4.87
61F844	SW-251S-2	Selector, No-none-NC	8.75	7.44	7.00	6.13
57F2153	SW-251S-3	Selector, No-off-NC	8.75	7.44	7.00	6.13
57F2154	SU-51	No-NC block	4.25	3.61	3.40	2.98

PUSHBUTTON OR MUSHROOM SWITCHES



Oil-tight momen. oper. fully guarded flush pushbuttons. Buttons 1 1/16" dia. Mushroom 1⅜" dia. All fit ⅞" panel hole. Snap mount contact blocks (not included).

Stk. No.	Type	Color	Button	1-9	10-99	100-499	500-999
14F3110	T2010-0	Black	Flush	3.95	3.56	3.16	2.96
14F3111	T2010-2	Red	Flush				
14F3112	T2010-5	Green	Flush				
14F3113	T2020-2	Red	Ext.				
14F3114	T2050-0	Black	Mushroom				
14F3115	T2050-2	Red	Mushroom				

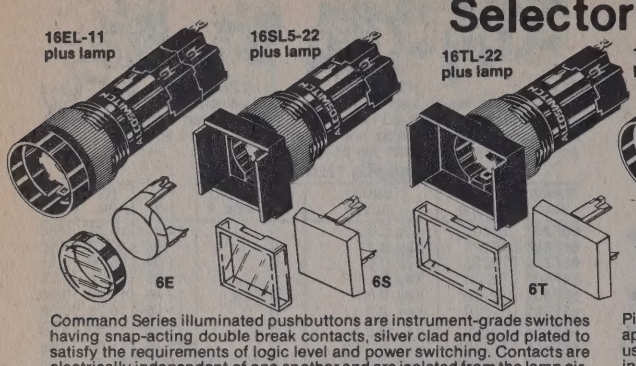
CONTACT BLOCKS

For use with all Series 2000 switches. U.L. recognized and CSA certified ratings: 6A @ 600 VAC. Contact blocks snap mounted on all pushbuttons, keylocks, selectors and mushrooms. **Type F** are quick connect. **Type V** are screw terminals. (*) identifies early make; (†) late break.

Desc.	Stk. No.	Type	Net	Stk. No.	Type	Net
N.O.*	14F3106	FA0	2.85	14F3108	VA0	2.85
N.C.†	14F3107	FR0		14F3109	VR0	
N.C.	65F434	F40		65F432	V40	
N.O.	65F449	F50		65F447	V50	

ALCOSWITCH® Command Series

Illuminated Pushbuttons, Pilot Lights, Keylocks and Selectors

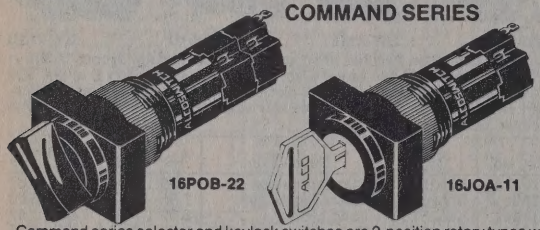


Command Series illuminated pushbuttons are instrument-grade switches having snap-acting double break contacts, silver clad and gold plated to satisfy the requirements of logic level and power switching. Contacts are electrically independent of one another and are isolated from the lamp circuit. Maintained models have latching feature for visible indication of status. Uses T-1-3/4 midget flange base lamp, relampable from front of panel. Legends may be provided using printed transparent tape affixed to inner button. Order button sets and lamps separately. Contact rating: 1A @ 125 VAC or 24 VDC.

Stk. No.	Model	Contacts	Action	1-9	10-19	20-99	100-499
81F705	16EL-11	1 N.O.& 1 N.C.	Momentary	6.35	6.03	5.72	5.08
81F712	16EL5-11	1 N.O.& 1 N.C.	Push on/off	6.95	6.60	6.26	5.56
81F713	16EL-22	2 N.O.& 2 N.C.	Momentary	9.35	8.88	8.42	7.48
81F714	16EL5-22	2 N.O.& 2 N.C.	Push on/off	9.95	9.45	8.96	7.96
81F721	16SL-11	1 N.O.& 1 N.C.	Momentary	6.35	6.03	5.72	5.08
81F722	16SL5-11	1 N.O.& 1 N.C.	Push on/off	6.95	6.60	6.26	5.56
81F658	16SL-22	2 N.O.& 2 N.C.	Momentary	9.35	8.88	8.42	7.48
81F659	16SL5-22	2 N.O.& 2 N.C.	Push on/off	9.95	9.45	8.96	7.96
81F666	16TL-11	1 N.O.& 1 N.C.	Momentary	6.35	6.03	5.72	5.08
81F667	16TL5-11	1 N.O.& 1 N.C.	Push on/off	6.95	6.60	6.26	5.56
81F668	16TL-22	2 N.O.& 2 N.C.	Momentary	9.35	8.88	8.42	7.48
81F669	16TL522	2 N.O.& 2 N.C.	Push on/off	9.95	9.45	8.96	7.96

† Sold in packs of 10 only; prices are per button.

COMMAND SERIES



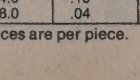
Command series selector and keylock switches are 2-position rotary types with snap-acting double break contacts. All models have 90° throw. Contacts are silver-clad and gold-plated to provide reliable operation at logic levels as well as for power switching applications. Contacts are electrically isolated from one another. Keylock types are supplied with two keys, and maintained keylock models are available with key removable in the counter-clockwise (left) position only, or in both left and right positions.

KEYLOCK

Stk. No.	Model	Contacts	Action	1-9	10-19	20-99	100-499
81F676	16JOA-11	1 N.O.& 1 N.C.	Momen. rt.	15.95	15.15	14.36	12.76
81F677	16J2A-11	1 N.O.& 1 N.C.	Maintained	15.95	15.15	14.36	12.76
81F678	16J2B-11	1 N.O.& 1 N.C.	Maintained	15.95	15.15	14.36	12.76
81F679	16JOA-22	2 N.O.& 2 N.C.	Momen. rt.	18.95	18.00	17.06	15.16
81F680	16J2A-22	2 N.O.& 2 N.C.	Maintained	18.95	18.00	17.06	15.16
81F681	16J2B-22	2 N.O.& 2 N.C.	Maintained	18.95	18.00	17.06	15.16
81F682	6-61	Spare Key		.85	.81	.77	.68

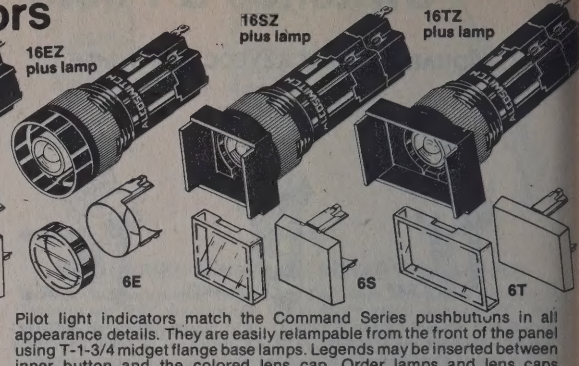
SELECTOR

81F683	16P0B-11	1 N.O.& 1 N.C.	Momen. rt.	9.95	9.45	8.96	7.96
81F684	16P2B-11	1 N.O.& 1 N.C.	Maintained	9.95	9.45	8.96	7.96
81F685	16P0B-22	2 N.O.& 2 N.C.	Momen. rt.	12.95	12.30	11.66	10.36
81F686	16P2B-22	2 N.O.& 2 N.C.	Maintained	12.95	12.30	11.66	10.36



Stk. No.	Model	Rated Volts	Design Amps	10	20-90	100-Up
	815/7335	5.0	.115	.57	.51	.46
57F2252	381	6.3	.20	.51	.46	.41
57F2253	382	14.0	.08	.51	.46	.41
	8918	14.0	.10	.53	.48	.42
57F2254	387	28.0	.04	.51	.46	.41

† Sold in packs of 10 only; prices are per piece.



Pilot light indicators match the Command Series pushbuttons in all appearance details. They are easily relampable from the front of the panel using T-1-3/4 midget flange base lamps. Legends may be inserted between inner button and the colored lens cap. Order lamps and lens caps separately. Max. dissipation: 1.2 watts.

Stk. No.	Model	Description	1-9	10-19	20-99	100-499	500-999
81F687	16EZ	Round	2.25	2.14	2.03	1.80	1.58
81F688	16SZ	Square	2.25	2.14	2.03	1.80	1.58
81F689	16TZ	Rectangular	2.25	2.14	2.03	1.80	1.58

Sold in packs of 10 only; prices are per button.

ROUND LENS BUTTON SETS

Stk. No.	Type	Color	1-9	10-99	100-499
81F715	6E-2	Red	.24	.22	.19
81F716	6E-3	Orange			
81F717	6E-4	Yellow			
81F718	6E-5	Green			
81F719	6E-6	Blue			
81F720	6E-9	White			

SQUARE LENS BUTTON SETS

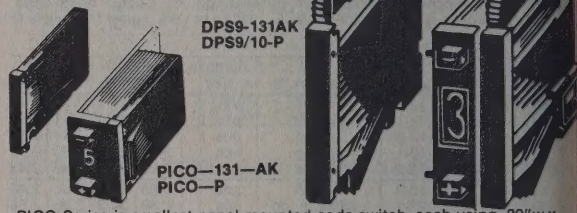
81F660	6S-2	Red	.24	.22	.19
81F661	6S-3	Orange			
81F662	6S-4	Yellow			
81F663	6S-5	Green			
81F664	6S-6	Blue			
81F665	6S-9	White			

RECTANGULAR LENS BUTTON SETS

81F670	6T-2	Red	.24	.22	.19
81F671	6T-3	Orange			
81F672	6T-4	Yellow			
81F673	6T-5	Green			
81F674	6T-6	Blue			
81F675	6T-9	White			

BI-DIRECTIONAL

PUSHBUTTON CODE SWITCHES



PICO Series is smallest panel mounted code switch, each using .30"w x .59"h panel space with less than 1" extension behind panel. DPS9 Series models retrofit popular thumbwheel switches and use .315"w x 1.3"h panel space, 1.54" rear extension. All switches have heavy gold contact surfaces and large wheel numbers, and feature fast, easy snap-together, snap-mount design.

Stk. No.	Type	Description	Wheel	1-9	10-49	50-99	100-249
81F692	PICO-131-AK-2	BCD,1-2-4-8	0-9	6.40	5.76	5.12	4.80
81F693	PICO-137-AK-2	BCD, Cmplmnt.	0-9	6.40	5.76	5.12	4.80
81F694	PICO-400-AK	SPDT, Repeating	+&–	6.10	5.49	4.88	4.58
81F695	PICO-P	End Plate, Pair		.95	.86	.76	.71
81F696	DPS9-111-AK	Decimal (1-of-10)	0-9	4.25	3.83	3.40	3.19
81F697	DPS9-131-AK	BCD,1-2-4-8	0-9	4.25	3.83	3.40	3.19
81F698	DPS9-137-AK	BCD, Cmplmnt.	0-9	4.25	3.83	3.40	3.19
81F699	DPS9-141-AK	BCD plus Cmplmnt.	0-9	4.95	4.46	3.96	3.71
81F700	DPS9-SG-902	Hexidecimal	0-15	5.45	4.91	4.36	4.09
81F701	DPS9-400-AK	SPDT, Repeating	+&–	4.00	3.60	3.20	3.00
81F702	DPS9/10-P	End Plate, Pair		1.00	.90	.80	.75

Slide Switches and DIP's

ALCOSWITCH®

SLIDE SWITCHES

MSSA-1350R

MSS-2250R

MSS-4200

MINIATURE PC SLIDE SWITCHES

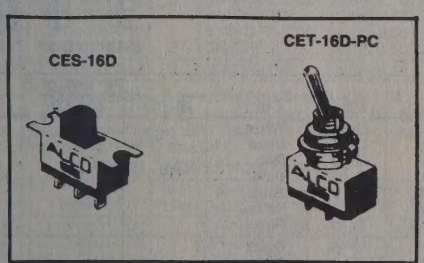
Designed for printed circuit applications. Require less space than conventional switches. Mounting styles are vertical or right angle. All have mounting tabs on the parameter of the frames for added stability on PC boards. Features positive wiping action. Contacts rated: Silver, 300 mA @ 125 VAC. Gold plated, .4 VA max. @ 20 VAC or DC. Life expectancy 15,000 oper. Contacts and Terminals: Epoxy sealed w/silver plate or .00004" gold plate over nickel. "R" in type number indicates right angle mounting.

MSS TYPE

Stk. No.	Type MSS	Description	1-24	25-99	100-499	500-999
65F354	1200	SPDT, Uprt., Sil., .197" Lever	.85	.60	.51	.44
65F355	1200G	SPDT, Uprt., Gold, .197" Lever	1.20	.84	.72	.62
57F2134	1200R	SPDT, Rt. Ang., Sil., .160" Lev.	.90	.63	.54	.47
57F2135	1200RG	SPDT, Rt. Ang., Gold, .160" Lev.	1.25	.88	.75	.65
59F815	1300	SP3T, Uprt., Sil., 150" Lever	.95	.67	.57	.49
65F356	1300G	SP3T, Uprt., Gold, .150" Lever	1.30	.91	.78	.68
65F359	1400	SP4T, Uprt., Sil., 140" Lever	1.05	.74	.63	.55
57F2136	2200	DPDT, Uprt., Sil., .092" Lever	.90	.63	.54	.47
57F2137	2200G	DPDT, Uprt., Gold, .092" Lever	1.40	.98	.84	.73
59F816	2200	DPDT, Uprt., Sil., 200" Lever	.90	.63	.54	.47
57F2138	2220G	DPDT, Uprt., Gold, 200" Lever	1.40	.98	.84	.73
57F2133	2250	DPDT, Uprt., Sil., 432" Lever	.90	.63	.54	.47
57F2140	2250R	DPDT, Rt. Ang., Sil., .375" Lev.	.95	.67	.57	.49
57F2141	2250RG	DPDT, Rt. Ang., Gold, .375" Lev.	1.45	1.02	.87	.75
57F2144	4200G	4PDT, Uprt., Gold, .323" Lever	2.25	1.58	1.35	1.17
57F2145	4200R	4PDT, Rt. Ang., Sil., 270" Lev.	1.30	.91	.78	.68
65F364	4300	4P3T, Uprt., Sil., 210" Lever	1.45	1.02	.87	.75
57F2146	4300G	4P3T, Uprt., Gold, 210" Lever	3.15	2.21	1.89	1.64
65F366	4200R	4P3T, Rt. Ang., Sil., 160" Lev.	1.60	1.12	.96	.83
57F2147	4350R	4P3T, Rt. Ang., Sil., 583" Lev.	1.65	1.16	.99	.86

MSSA TYPE

Stk. No.	Type Mssa-	Description	1-24	25-49	50-99	100-249
10F7803	1350	SP3T, .400" Lever	1.30	1.04	.98	.88
10F7810	1350R	SP3T, .375" Lever	1.40	1.12	1.05	.95
10F7804	1450	SP4T, 400" Lever	1.40	1.12	1.05	.95
10F7811	1450R	SP4T, .375" Lever	1.50	1.20	1.13	1.02
10F7805	2350	DP3T, .400" Lever	1.50	1.20	1.13	1.02
10F7812	2350R	DP3T, .375" Lever	1.60	1.28	1.20	1.09
10F7806	2450	DP4T, 400" Lever	1.65	1.32	1.24	1.12
10F7813	2450R	DP4T, .375" Lever	1.75	1.40	1.31	1.19
10F7807	3350	3P3T, .400" Lever	1.80	1.44	1.35	1.22
10F7814	3350R	3P3T, .375" Lever	1.90	1.52	1.43	1.29
10F7808	3450	3P4T, .400" Lever	1.95	1.56	1.46	1.33
10F7815	3450R	3P4T, .375" Lever	2.05	1.64	1.54	1.39
10F7809	4350	4P3T, .400" Lever	1.95	1.56	1.46	1.33
10F7816	4350R	4P3T, .375" Lever	2.05	1.64	1.54	1.39

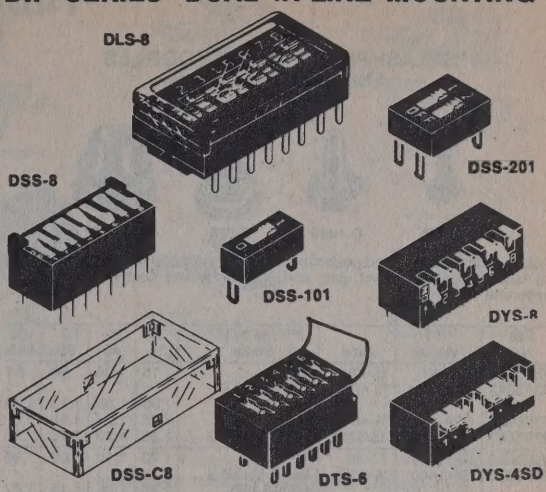


CES & CET (MINIATURE TOGGLE OR SLIDE)

Slide and toggle actuators coupled with a basic miniature toggle mechanism offers 6 amp rating in an economy package. Rated: 6 amp @ 125VAC; 3 amp @ 250VAC, 4 amp @ 28VDC.

Stock No.	Type			1-24	25-49	50-99	100-249
81F521	CET-16D	SPDT	ON-NONE-ON	1.85	1.57	1.48	1.39
81F522	CET-16D-PC	SPDT	ON-NONE-ON	1.85	1.57	1.48	1.39
81F523	CES-16D	SPDT	ON-NONE-ON	1.45	1.23	1.09	1.02
81F524	CES-16D-PC	SPDT	ON-NONE-ON	1.45	1.23	1.09	1.02

DIP SERIES—DUAL IN-LINE MOUNTING



DIP switches provide high reliability at low cost. All models are designed for soldering onto PC boards. Terminals and contacts are beryllium copper with gold plating over nickel to assure dependable service for low-energy level use. The low-profile DLS and DLS-SD models are supplied with a protective cover having an "actuator lock" feature that prevents accidental operation and protects the inner mechanism during cleaning cycles.

SPECIFICATIONS

Contact Rating: Non-switching: 50 VDC @ 100 ma. Switching: 5 VDC @ 100 ma. (max.) Initial Contact Resistance: 100 milliohms max. Insulation Resistance: 100 megohms min. Dielectric Strength: 500 VDC at sea level. Switch Capacitance: 5.0 picofarads between poles. Op. Temp:−10°C to +60°C. Contacts and Terminals: .00004" gold plate over nickel.

Stk. No.	Type	Action	Lever	1-24	25-49	50-99	100-249
61F996	DSS-4	4PST	Rocker	3.45	3.11	2.93	2.76
65F1830	DSS-C4	Cover	.....	.15	.14	.13	.12
61F997	DSS-6	6PST	Rocker	3.95	3.56	3.36	3.16
65F1831	DSS-C6	Cover	.....	.15	.14	.13	.12
61F998	DSS-7	7PST	Rocker	4.20	3.78	3.57	3.36
65F1832	DSS-C7	Cover	.....	.15	.14	.13	.12
61F999	DSS-8	8PST	Rocker	4.45	4.01	3.78	3.56
65F1833	DSS-C8	Cover	.....	.15	.14	.13	.12
61F1000	DSS-10	10PST	Rocker	4.95	4.46	4.21	3.96
10F7120	DSS-101	SPST	Slide	2.25	2.03	1.91	1.80
10F7121	DSS-201	DPST	Slide	2.50	2.25	2.13	2.00
61F1001	DBS-5	5PST	Rocker	3.70	3.33	3.15	2.96
65F1835	DBS-6	6PST	Rocker	3.95	3.56	3.36	3.16
61F1002	DLS-4	4PST	Slide	3.55	3.20	3.02	2.84
61F1003	DLS-6	6PST	Slide	4.05	3.65	3.44	3.24
61F1004	DLS-8	8PST	Slide	4.55	4.10	3.87	3.64
81F525	DLS-9	9PST	Slide	4.80	4.32	4.08	3.84
61F1005	DLS-10	10PST	Slide	5.05	4.55	4.29	4.04
81F526	DLS-2DS	(2)DPST	Slide	3.55	3.20	3.02	2.84
81F527	DLS-3DS	(3)DPST	Slide	4.05	3.65	3.44	3.24
81F528	DLS-4DS	(4)DPST	Slide	4.55	4.10	3.87	3.64
81F529	DLS-5DS	(5)DPST	Slide	5.05	4.55	4.29	4.04

Stk. No.	Type	Action	Lever	1-24	25-49	50-99	100-249
61F1006	DLS-2SD	(2)NO-NC	Slide	3.55	3.20	3.02	2.84
81F527	DLS-3SD	(3)N.O.-N.C.	Slide	4.05	3.65	3.44	3.24
65F1837	DLS-4SD	(4)NO-NC	Slide	4.55	4.10	3.87	3.64
81F529	DLS-5SD	(5)N.O.-N.C.	Slide	5.05	4.55	4.29	4.04
10F7117	DTS-4	4PST	Slide	2.90	2.61	2.47	2.32
10F7118	DTS-6	6PST	Slide	3.40	3.06	2.89	2.72
10F7119	DTS-8	8PST	Slide	3.90	3.51	3.32	3.12
61F748	DTS-4SD	(4)NO-NC	Slide	3.90	3.51	3.32	3.12
81F538	DYS-4	4PST	Piano	3.40	3.06	2.89	2.72
61F749	DYS-6	6PST	Piano	4.35	3.92	3.70	3.48
61F750	DYS-8	8PST	Piano	4.85	4.37	4.12	3.88
81F539	DYS-10	10PST	Piano	5.35	4.82	4.55	4.28
81F532	DYS-2DS	(2)DPST	Piano	3.85	3.47	3.27	3.08
81F533	DYS-3DS	(3)DPST	Piano	4.35	3.92	3.70	3.48
81F534	DYS-4DS	(4)DPST	Piano	4.85	4.37	4.12	3.88
81F535	DYS-5DS	(5)DPST	Piano	5.35	4.82	4.55	4.28
81F536	DYS-2SD	(2)N.O.-N.C.	Piano	3.85	3.47	3.27	3.08
81F537	DYS-3SD	(3)N.O.-N.C.	Piano	4.35	3.92	3.70	3.48
65F1841	DYS-4SD	(4)NO-NC	Piano	4.85	4.37	4.12	3.88
65F1842	DYS-5SD	(5)NO-NC	Piano	5.35	4.82	4.55	4.28

ALCOSWITCH Proximity Switches, Seals, Hardware and Relays

SPLASHPROOF SEALS-TOGGLES AND PUSHBUTTONS

B-1048 B-1440 B-588 BP-1532

Seals made for toggle and pushbutton switching applications. Protect against contaminants as dirt, dust, gas, and liquids. Sealing boot is flexible black neoprene.

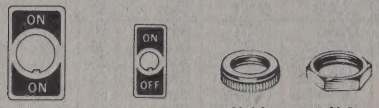
Stk. No.	Model	Size	Use With Series:	1-24	25-49	50-99	100-249
23F5645	B-1048	10-48	TT	1.15	1.06	.98	.91
23F5648	B-1440	¼-40	TT,MST,MTA, MSTS	1.30	1.20	1.11	1.03
67F886	BPA-1440	¼-40	TP	1.35	1.24	1.15	1.07
23F5651	B-1532	15/32-32	MTG & MSTG	1.45	1.33	1.23	1.15
23F5652	BP-1048	10-48	TP	1.20	1.10	1.02	.95
23F5655	BP-1440	¼-40	MSPM,MSP-3 MPA-3,MPC	1.35	1.24	1.15	1.07
23F5658	BP-1532	15/32-32	MSPF,MPG,SPV	1.45	1.33	1.23	1.15

PROTECTIVE BUTTON GUARDS/MPA and MPE SERIES

Stk. No.	Type	Style	Matching Button	1-24	25-99	100-499	500-999
57F2112	G12-C	Plain*	C22	.50	.45	.42	.38
57F2113	G12-A	Plain†	C22	.45	.41	.38	.34
57F2114	G12-B	Plain‡	C22	.45	.41	.38	.34
25F2035	G12K-C	Knurled*	C22	.55	.50	.46	.41
57F2110	G12K-A	Knurled†	C22	.50	.45	.42	.38
57F2111	G12K-B	Knurled‡	C22	.50	.45	.42	.38
57F2118	G13-C	Plain*	C23	.65	.59	.55	.49
57F2119	G13-A	Plain†	C23	.60	.54	.50	.45
57F2120	G13-B	Plain‡	C23	.60	.54	.50	.45
57F2115	G13K-C	Knurled*	C23	.70	.63	.59	.53
57F2116	G13K-A	Knurled†	C23	.65	.59	.55	.49
57F2117	G13K-B	Knurled‡	C23	.65	.59	.55	.49

(*) Chromed Brass (†) Nat. Aluminum. (‡) Blk. Aluminum.

ALUMINUM SWITCH PLATES AND NUTS



SPA 32 SPA 42 N-1A N-2

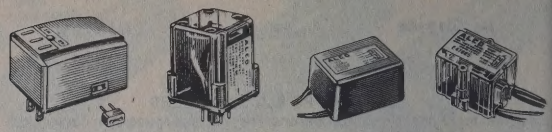
SWITCH HARDWARE (Pkg. of 25 only)

Stk. No.	Type	Description	EACH 25-75	100-175	200-Up
61F913	N-1	¼"-40 Knurled Nut	.09	.08	.07
61F914	N-1A	¼"-40 Perfect Fit Chrome Nut	.17	.15	.14
61F915	N-1B	15/32" Perfect Fit Nut	.23	.21	.18
61F916	N-2	¼"-40 Hex Nut	.09	.08	.07

SWITCH PLATES

Stk. No.	Type	Description	Price Per Pkg. of 10 1-9	10-19	20-49	50-99
61F948	SPA32/10	Aluminum. ¼" Dia.	2.00	1.80	1.60	1.50
61F949	SPA42/10	Aluminum. 15/32" Dia.	2.40	2.16	1.92	1.80

ISOLATED RELAYS



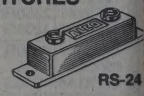
FRE-103 FRP-104 FR-102 FR-105

TYPE FRE-103. Same core as FR-102 except: side recpt. for remote switch, unit plugs into wall outlet, stylized plastic case.
TYPE FRP-104. Same core as FR-102 except: octal base panel or equipment mount, clear industrial dust cover.
TYPE FR-102. Pri. & sec. are stepdown trans. sec. shorted, pri. & outer core operate as relay. SPDT action, 115 VAC. 6" leads. Dust-proof case. Core assembly is for all of the following also.
TYPE FR-105. Same core as FR-102 except: SPST, more compact, UL.

Stk. No.	Type	Action	1-9	10-19	20-99	100-499
61F969	FR-102	SPDT	8.55	7.70	7.27	6.67
61F1206	FRE-103	SPDT	9.95	8.96	8.46	7.76
61F970	FRP-104	SPDT	9.15	8.24	7.78	7.14
59F803	FR-105A1	SPST	7.55	6.80	6.42	5.89

PROXIMITY MAGNETIC REED SWITCHES

RS-24 and RS-200: Alnico-5 magnet actuates reed switch within distance of 1". Rated 0.5 amp break, 1.0 amp carry over. 18 million operations. Miniature RS-11: Alnico-5 magnet actuated reed switch within distance of .39". Current rating: 0.15 amp break, 0.5 amp carry at 50 VDC, 200 VDC breakdown. Life: 10 million cycles. RS-51: Alnico-5 magnet actuates reed switch within distance of 1". Rated 0.5 amps @ VDC. Life: 10 million cycles.



RS-24

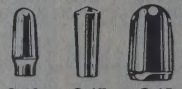
RS-11

Stock No.	Type	Description	1-24	25-49	50-99	100-249
61F1623	RS-24-NC	Norm. closed (apart)	4.75	4.04	3.80	3.33
61F971	RS-24-NO	Norm. open (apart)	4.45	3.78	3.56	3.12
61F1256	RS-11-NC	Norm. closed (apart)	4.05	3.44	3.24	2.84
61F1255	RS-11-NO	Norm. open (apart)	3.70	3.15	2.96	2.59
61F1270	RS-51-NC	Norm. closed (apart)	3.35	2.85	2.68	2.35
61F1271	RS-51-NO	Norm. open (apart)	3.05	2.59	2.44	2.14

RS-200-No Norm. open (apart).

COLOR CODED CAPS

C-10 and C-17 for MST, MTA & MTE. C-15 for MTG Series switches. Package of 25 only.



C-10 C-17 C-15

Stk. No.	Type	Color	Per Pkg. of 25 25-75	100-175	200-Up
61F881	C-10	White	.06	.05	.04
61F880	C-10	Black			
61F882	C-10	Red			
61F883	C-10	Blue			
57F2086	C-10	Grey			
57F2088	C-10	Yellow			
57F2089	C-10	Pink			
61F951	C-15	Black	.10	.09	.08
61F952	C-15	White			
61F953	C-15	Red			
61F954	C-15	Blue			
61F1202	C-17	Black	.08	.07	.06
61F1203	C-17	White			
61F1204	C-17	Red			
61F1205	C-17	Blue			

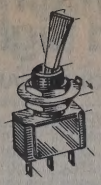
MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE FOR INDUSTRIAL ELECTRONICS EQUIPMENT

Miniature Switches

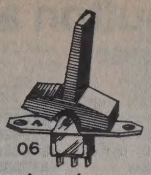
DIALIGHT

DPDT
SOLDER TERM

SPDT
P.C. TERM



SPDT
SOLDER TERM

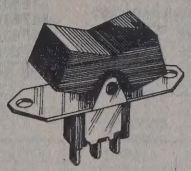


06 Large Lever

08 Lever Handle
Snap-In Mount

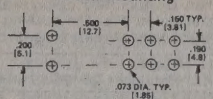
01 Rocker

05 Lever Handle

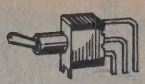


02 Large Rocker

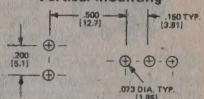
DPDT
Vertical Mounting



P.C. LAYOUT

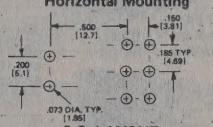


SPDT
Vertical Mounting



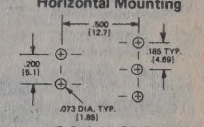
P.C. LAYOUT

DPDT
Horizontal Mounting



P.C. LAYOUT

SPDT
Horizontal Mounting



P.C. LAYOUT

MINI ROCKER & LEVER SUB-PANEL BRACKET MOUNTING

Rated: 5 amps/120 VDC, 2 amps/250 VAC. High Temp. case. UL app. material. Actuators: B.k. Nylon. Mount. Hrdw. Incl. Sold. Term. ( ) = Momen. Action.

Stk. No.	Type 572-	No. Poles	Switch Action Side	Switch Action Center	Switch Action Side	1-24	25-99	100-499	500-999
60F835	1121-0204-013	1	ON-NONE-ON			2.48	2.11	1.86	1.69
26F755	3121-0104-013	3	ON-NONE-ON			5.21	4.39	3.86	3.43
26F756	4121-0104-012	4	ON-NONE-ON			6.59	5.55	4.87	4.28
81F783	1221-0604-013	1	ON-OFF-ON			2.83	2.38	2.09	1.89
81F805	1321-0604-013	1	(ON)-OFF-(ON)			2.83	2.38	2.09	1.89
81F806	2721-0604-013	2	ON-ON-ON			4.02	3.39	2.99	2.65
81F770	1121-0104-013	1	ON-OFF-ON			2.83	2.38	2.09	1.89
81F771	1521-0104-013	1	ON-NONE-(ON)			2.83	2.38	2.09	1.89
81F772	2321-0104-013	1	(ON)-OFF-(ON)			3.66	3.09	2.76	2.46
81F773	2421-0104-013	1	ON-OFF-(ON)			3.66	3.09	2.76	2.46
81F774	2521-0104-013	1	ON-NONE-(ON)			3.66	3.09	2.76	2.46
81F775	2721-0104-013	1	ON-ON-ON			4.02	3.39	2.99	2.65
28F1881	1221-0204-013	1	ON-OFF-ON			2.83	2.38	2.09	1.89
81F808	1321-0204-013	1	(ON)-OFF-(ON)			2.83	2.38	2.09	1.89
28F1886	2121-0204-013	2	ON-NONE-ON			3.19	2.72	2.32	2.16
81F810	2221-0204-013	2	ON-OFF-ON			3.66	3.09	2.76	2.46
81F811	2721-0204-013	2	ON-ON-ON			4.02	3.39	2.99	2.65
81F776	1221-0504-013	1	ON-OFF-ON			2.83	2.38	2.09	1.89
81F777	1321-0504-013	1	(ON)-OFF-(ON)			2.83	2.38	2.09	1.89
81F778	2221-0504-013	2	ON-OFF-ON			3.66	3.09	2.76	2.46
81F779	2321-0504-013	2	(ON)-OFF-(ON)			3.66	3.09	2.76	2.46
81F780	2721-0504-013	2	ON-ON-ON			4.02	3.39	2.99	2.65
81F781	3121-0504-013	3	ON-NONE-ON			5.21	4.39	3.86	3.43
81F782	4121-0504-013	4	ON-NONE-ON			6.59	5.55	4.87	4.28

MINIATURE LEVER—SNAP-IN MOUNTING W/BEZEL

5A/120VDC, 2A/250VAC. UL appr. Actuator and bezel are blk. nylon. Solder Term Lever: .450"W x 644"L. Panel cut-out. 600" x 500" ( ) denotes momentary action.

Stk. No.	Type 572-	No. Poles	Switch Action Side	Switch Action Center	Switch Action Side	1-24	25-99	100-499	500-999
28F1892	1121-0804-040	1	ON-NONE-ON			2.94	2.57	2.32	2.15
28F1893	1221-0804-040	1	ON-OFF-ON			3.29	2.84	2.55	2.35
28F1894	1321-0804-040	1	(ON)-OFF-(ON)			3.29	2.84	2.55	2.35
28F1896	1521-0804-040	1	ON-NONE-(ON)			3.29	2.84	2.55	2.35
28F1898	2121-0804-040	2	ON-NONE-ON			3.65	3.18	2.78	2.62
28F1899	2221-0804-040	2	ON-OFF-ON			4.12	3.55	3.22	2.92
28F1900	2321-0804-040	2	(ON)-OFF-(ON)			4.12	3.55	3.22	2.92
28F1901	2421-0804-040	2	ON-OFF-(ON)			4.12	3.55	3.22	2.92
28F1905	2821-0804-040	2	ON-ON-(ON)			4.84	4.12	3.72	3.31

RIGHT ANGLE P.C. TERMINALS—SERIES 573

Rated .4VA @ 20VAC or 20VDC. Terminals are bent at 90° for PC board mounting. Chrome plated toggle .270" long. Non-threaded bushing .280" long x .245"D. Oper. Temp. –20°C to +65°C.

TOGGLE MOVES HORIZONTALLY

Stock No.	Type 573	No. Poles	Switch Action Side	Switch Action Center	Switch Action Side	1-24	25-99	100-499	500-999
60F832	1113-0301-100	1	ON-NONE-ON			2.31	1.94	1.69	1.52
29F328	1213-0301-100	1	ON-OFF-ON			2.66	2.21	1.92	1.72
81F814	1313-0301-100	1	(ON)-OFF-(ON)			2.66	2.21	1.92	1.72
60F833	2113-0301-100	2	ON-NONE-ON			3.25	2.78	2.38	2.22
81F816	2213-0301-100	2	ON-OFF-ON			3.72	3.15	2.82	2.52
81F817	2313-0301-100	2	(ON)-OFF-(ON)			3.72	3.15	2.82	2.52
81F818	2713-0301-100	2	ON-ON-ON			4.08	3.45	3.05	2.71

TOGGLE MOVES VERTICALLY

Stock No.	Type 573	No. Poles	Switch Action Side	Switch Action Center	Switch Action Side	1-24	25-99	100-499	500-999
29F338	1112-0301-100	1	ON-NONE-ON			2.31	1.94	1.69	1.52
81F820	1212-0301-100	1	ON-OFF-ON			2.66	2.21	1.92	1.72
81F821	1312-0301-100	1	(ON)-OFF-(ON)			2.66	2.21	1.92	1.72
81F822	2112-0301-100	2	ON-NONE-ON			3.25	2.78	2.38	2.22
81F802	2212-0301-100	2	ON-OFF-ON			3.72	3.15	2.82	2.52
81F803	2312-0301-100	2	(ON)-OFF-(ON)			3.72	3.15	2.82	2.52
81F804	2712-0301-100	2	ON-ON-ON			4.08	3.45	3.05	2.71

MINIATURE TOGGLE SWITCHES—250 mtg. hole

Rated 5 amps @ 120 VDC, 2 amps @ 250 VAC. High temperature case. UL approved material. Toggle actuators are chrome plated brass w/¼x40 NS bushing. Incl. Hrdwr. ( ) = Momen. Action.

Stk. No.	Type 571-	No. Poles	Switch Action Side	Switch Action Center	Switch Action Side	1-24	25-99	100-499	500-999
60F814	1121-0101-011	1	ON-NONE-ON			2.08	1.71	1.46	1.29
60F815	1221-0101-011	1	ON-OFF-ON			2.43	1.98	1.69	1.49
60F816	1321-0101-011	1	(ON)-OFF-(ON)			2.43	1.98	1.69	1.49
60F817	1421-0101-011	1	ON-OFF-(ON)			2.43	1.98	1.69	1.49
60F818	1521-0101-011	1	ON-NONE-(ON)			2.43	1.98	1.69	1.49
60F826*	1122-0101-011	1	ON-NONE-ON			2.20	1.83	1.58	1.41
60F821	1121-0501-011	1	ON-NONE-ON			2.66	2.29	2.04	1.87
60F822	1121-0501-011	1	ON-NONE-ON			2.66	2.29	2.04	1.87
60F825	1121-1201-011	1	ON-NONE-ON			2.08	1.71	1.46	1.29
26F750	1121-1404-011	1	ON-NONE-ON			2.20	1.83	1.58	1.41
60F828	2121-0101-011	2	ON-NONE-ON			2.79	2.32	1.92	1.76
60F829	2221-0101-011	2	ON-OFF-ON			3.26	2.69	2.36	2.06
28F1867	2321-0101-011	2	(ON)-OFF-(ON)			3.26	2.69	2.36	2.06
28F1868	2421-0101-011	2	ON-OFF-(ON)			3.26	2.69	2.36	2.06
28F1869	2521-0101-011	2	ON-NONE-(ON)			3.26	2.69	2.36	2.06
28F1871	2721-0101-011	2	ON-ON-ON			3.62	2.99	2.59	2.25
28F1873	2921-0101-011	2	(ON)-ON-(ON)			3.98	3.26	2.86	2.45
26F751	3121-0101-011	3	ON-NONE-ON			4.81	3.99	3.46	3.03
26F753	4121-0101-011	4	ON-NONE-ON			6.19	5.15	4.47	3.88
81F836	3221-0101-011	3	ON-OFF-ON			5.14	4.27	3.71	3.22
81F837	3321-0101-011	3	(ON)-OFF-(ON)			5.14	4.27	3.71	3.22
81F838	3421-0101-011	3	ON-OFF-(ON)			5.14	4.27	3.71	3.22
81F839	3521-0101-011	3	ON-NONE-(ON)			5.14	4.27	3.71	3.22
81F840	4221-0101-011	4	ON-OFF-ON			6.68	5.53	4.82	4.15
81F841	4321-0101-011	4	(ON)-OFF-(ON)			6.68	5.53	4.82	4.15
81F842	4421-0101-011	4	ON-OFF-(ON)			6.68	5.53	4.82	4.15
81F843	4521-0101-011	4	ON-NONE-(ON)			6.68	5.53	4.82	4.15
81F844	4721-0101-011	4	ON-ON-ON			7.62	6.26	5.42	4.98
81F845	4821-0101-011	4	ON-ON-(ON)			7.62	6.26	5.42	4.98
81F846	4921-0101-011	4	(ON)-ON-(ON)			7.62	6.26	5.42	4.98
81F847	1121-1404-014	1	ON-NONE-ON			2.20	1.83	1.58	1.41
81F848	1221-1404-014	1	ON-OFF-ON			2.55	2.10	1.81	1.61
81F849	1321-1404-014	1	(ON)-OFF-(ON)			2.55	2.10	1.81	1.61
81F850	2121-1404-014	2	ON-NONE-ON			2.91	2.44	2.04	1.88
81F851	2221-1404-014	2	ON-OFF-ON			3.38	2.81	2.48	2.18
81F852	2321-1404-014	2	(ON)-OFF-(ON)			3.38	2.81	2.48	2.18
81F853	2721-1404-014	2	ON-ON-ON			3.74	3.11	2.71	2.37
81F784	3121-1404-014	3	ON-NONE-ON			4.93	4.11	3.58	3.15
81F785	4121-1404-014	4	ON-NONE-ON			6.31	5.27	4.59	4.00
81F787*	1222-0101-011	1	ON-OFF-ON			2.55	2.10	1.81	1.61
81F788*	1322-0101-011	1	(ON)-OFF-(ON)			2.55	2.10	1.81	1.61
81F789*	2122-0101-011	2	ON-NONE-ON			3.03	2.56	2.16	2.00
81F790*	2222-0101-011	2	ON-OFF-ON			3.50	2.93	2.60	2.30
81F791*	2322-0101-011	2	(ON)-OFF-(ON)			3.50	2.93	2.60	2.30
81F792*	2722-0101-011	2	ON-ON-ON			3.86	3.23	2.83	2.49
81F793	1121-0601-014	1	ON-NONE-ON			2.66	2.29	2.04	1.87
81F794	1221-0601-014	1	ON-OFF-ON			3.01	2.56	2.27	2.07
81F795	1321-0601-014	1	(ON)-OFF-(ON)			3.01	2.56	2.27	2.07
81F796	1421-0601-014	1	ON-OFF-(ON)			3.01	2.56	2.27	2.07
81F797	1521-0601-014	1	ON-NONE-(ON)			3.01	2.56	2.27	2.07
81F798	2121-0601-014	2	ON-NONE-ON			3.37	2.90	2.50	2.34
81F799	2221-0601-014	2	ON-OFF-ON			3.84	3.27	2.94	2.64
81F800	2321-0601-014	2	(ON)-OFF-(ON)			3.84	3.27	2.94	2.64
81F801	2421-0601-014	2	ON-OFF-(ON)			3.84	3.27	2.94	2.64
81F766	2521-0601-014	2	ON-NONE-(ON)			3.84	3.27	2.94	2.64
81F767	2721-0601-014	2	ON-ON-ON			4.20	3.57	3.17	2.83
81F768	3121-0601-014	3	ON-NONE-ON			5.39	4.57	4.04	3.61
81F769	4121-0601-014	4	ON-NONE-ON			6.77	5.73	5.05	4.46

*P.C. Terminals. All other items are Solder Terminals.

DIALIGHT Pushbutton Switches Pushbutton and Lighted

MINIATURE PUSHBUTTON SWITCHES PANEL MTG.

Rated .4VA @ 20VAC/DC. Contact Rating A or 1 amp @ 120VAC/28VDC. Contact Rating B. Momentary Snap Action. UL Approved. Epoxy sealed solder terminals. Nickel plated threaded bushing fits .250" panel hole. White plunger accepts snap-on caps below.

Stk. No.	Type	Desc.	Cont. Rating	1-24	25-99	100-499	500-999
81F823	581-1111-011	SPDT	A	2.51	2.01	1.78	1.46
81F824	581-1121-011	SPDT	B	3.95	3.19	2.68	2.32
81F825	581-2111-011	DPDT	A	3.35	2.68	2.37	1.93
81F826	581-2121-011	DPDT	B	5.51	4.41	3.74	3.24

ROUND CAPS FOR 581 SERIES

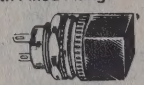
Stk. No.	Type	Size	Color	Each
81F827	586-4203	.200" Diam.	White	.04
81F828	586-4204	.200" Diam.	Black	.04
81F829	586-4205	.200" Diam.	Red	.04
81F830	586-4303	.310" Diam.	White	.06
81F831	586-4304	.310" Diam.	Black	.06
81F832	586-4305	.310" Diam.	Red	.06
81F833	586-4403	.375" Diam.	White	.06
81F834	586-4404	.375" Diam.	Black	.06
81F835	586-4405	.375" Diam.	Red	.06

Sold only in multiples of 5

Switch with Round Lens

Indicator Light with Fixed Flange

Switch with Square lens



Indicator light with Knurled Flange

Switches and matching lights are designed for single hole (keyed) mounting in panels up to 3/16" thick. 1250VAC breakdown voltage. Matching indicator lights use same pushbutton caps. Accommodates T-1¾ bulb with midget flanged base, incandescent. UL Listed.

TYPE 513 PANEL MOUNT

LOW LEVEL SWITCHES

Stk. No.	Type	Contact	Action	Low Level Contact Ratings (mA) 3-12 VDC Resistive	1-9	10-24	25-99
60F1003	513-0401-604	SPST N.O.	Mom. Non-snap	5-100	9.69	7.56	6.64
60F1004	513-0501-604	SPST N.C.	Mom. Non-snap	5-100	9.69	7.56	6.64
60F1005	513-0601-604	2-Circuit	Mom. Non-snap	5-100	10.56	8.28	7.32

STANDARD SWITCHES

Stock No.	Type	Contact	Action	Contact Rating (Amps) 125VAC Res.	125VAC Ind.	30VDC Res.	30VDC Ind.	1-9	10-24	25-99
60F1000	513-0101-604	SPST N.O.	Mom. Non-snap	3	—	3	—	8.63	6.70	5.96
60F1001	513-0201-604	SPST N.C.	Mom. Non-snap	3	—	3	—	8.63	6.70	5.96
60F1002	513-0301-604	2-Circuit	Mom. Non-snap	3	—	3	—	9.51	7.42	6.52
57F3702	513-1401-604	SPDT	Alternate	5	2	5	2	14.13	10.99	9.70
57F3701	513-1501-604	2-Circuit	Alternate	5	2	5	2	14.13	10.99	9.70
45F494	513-1601-604	SPDT	Mom. Snap	5	2	5	2	10.93	8.55	7.56

MATCHING INDICATOR LIGHTS

Companion series designed to match pushbutton switches. Incorporates unique anti-rotation (locked) feature for secure locking of socket terminal assembly in the mounting bushing and of the center terminal to the insulating disc. Insulation 1250VAC breakdown. Base with fixed flange for front mounting in 15/32" clearance hole.

Stk. No.	Type 183	1-9	10-24	25-99
60F1006	9730-14-602	2.79	2.24	1.94

Base with movable knurled flange nut for front or rear mounting in ½" clearance hole.

60F1007	9830-14-604	2.79	2.24	1.94

LENS CAP ½" ROUND ROTATABLE

Stk. No.	Type	Color	1-9	10-24	25-99
60F1047	183-1471	Red	1.24	1.03	.88
60F1048	183-1472	Green			
60F1051	183-1475	White			
60F1049	183-1473	Amber			

LENS CAP ½" SQUARE NON-ROTATABLE

60F1068	184-1871	Red	1.24	1.03	.88
60F1069	184-1872	Green			
60F1072	184-1875	White			
60F1070	184-1873	Amber			

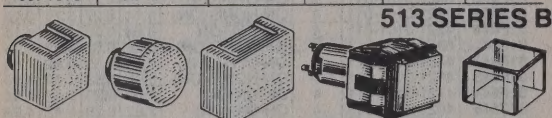
LENS CAPS ¾" ROUND NON-ROTATABLE

Stk. No.	Type	Color	1-9	10-24	25-99
60F1138	188-1471	Red	1.73	1.46	1.27
60F1139	188-1472	Green			
60F1142	188-1475	White			
60F1140	188-1473	Amber			

LENS CAPS ¾" SQUARE NON-ROTATABLE

60F1152	187-1871	Red	1.73	1.46	1.27
60F1153	187-1872	Green			
60F1156	187-1875	White			
60F1154	187-1873	Amber			

513 SERIES BEZEL MOUNT



300 KAP KOVER 301 303 513

UL Listed. Insulation resistance: more than 1000 megohms @ 500VDC. Contact ratings below are at 125VAC, 30VDC. Mounting bushing: aluminum, clear anodize finish. Coin silver, gold plated contacts. Heat resistant plastic black bezel. Stainless steel clip. Accommodates T-1¾ bulb with midget flanged base.

SERIES 300 LENS CAPS ⅝" SQUARE

Stk. No.	Type	Color	1-9	10-24	25-99
45F652	300-1871	Red	1.73	1.46	1.27
45F653	300-1872	Green			
45F654	300-1873	Amber			
45F656	300-1875	White			

SWITCHES FOR SERIES 300 LENS CAP

Stk. No.	Type	Contact	Rating Res.	Rating Ind.	1-9	10-24	25-99
45F628	513-0106-001	SPST N.O.	3	—	10.38	8.07	7.17
45F636	513-0306-001	2-Circuit	3	—	11.29	8.76	7.77
45F640	513-1406-001	SPDT	5	2	15.96	12.38	10.91
45F644	513-1506-001	2-Circuit	5	2	15.96	12.38	10.91

KAP KOVER

Fits over Series 300 push button cap, is accommodated by square bezel for snap-in mounting. Clear, colorless. Dim. .746" H × .746"W × .513"D. For both switches and matching indicators.

Stock No.	Type	1-9	10-24	25-99
45F742	515-0300	.89	.74	.63

SERIES 303 LENS CAPS ¾" × 1" RECTANGULAR

Stk. No.	Type	Color	1-9	10-24	25-99
45F664	303-3471	Red	1.92	1.61	1.41
45F665	303-3472	Green			
45F666	303-3473	Amber			
45F668	303-3475	White			

SWITCHES FOR SERIES 303 LENS CAPS

Stk. No.	Type	Contact	Rating Res.	Rating Ind.	1-9	10-24	25-99
45F638	513-0309-001	2-Circuit	3	—	11.29	8.76	7.77
45F642	513-1409-001	SPDT	5	2	15.96	12.38	10.91
45F630	513-0110-001	*SPDT N.O.	3	—	10.38	8.07	7.17
45F639	513-0310-001	*2-Circuit	3	—	11.29	8.76	7.77
45F643	513-1410-001	*SPDT	5	2	15.96	12.38	10.91

(*) With barrier.

MATCHING INDICATOR BASE ASSEMBLIES

Aluminum, clear anodize finish mtg. bushing, black bezel heat resistant plastic brass term.

Stock No.	Type No.	Accept Cap Size	1-9	10-24	25-99	100-249
45F648	533-0601	⅝" Sq.	4.17	3.47	2.99	2.11
45F649	533-0701	⅝" Rd.				
45F650	533-0901	¾ × 1"				
45F651	533-1101	¾ Sq.				

SWITCHES FOR SERIES 300 LENS CAP WITH KAP KOVER

Stk. No.	Type	Contact	Rating Res.	Rating Ind.	1-9	10-24	25-99
45F722	513-0111-001	SPST N.O.	3A	—	10.38	8.07	7.17
45F724	513-0311-001	2-Circuit	3A	—	11.29	8.76	7.77

Lighted Pushbutton Switches DIALIGHT

554 SERIES BEZEL MOUNT

Contact Res. 50 milliohms. Insulation Res. 1000 megohms @ 500V DC. Max. voltage 30V DC or 125V AC. Solder Blade Quick Connect Termination. Snap action switching mechanism. UL listed & CSA approved. (*) Wiping Action.

MOMENTARY ACTION SWITCHES

Stk. No.	Type	Accepts Cap Size	Descript.	1-9	10-24	25-99	100-249
57F3035 20F917	554-1121-211 554-1121-511	⅝" square ¾" x 1"	SPDT 500ma to 7A	5.56	4.91	4.02	3.41
57F3039 25F1007 20F918	554-1221-211 554-1221-411 554-1221-511	⅝" square ¾" square ¾" x 1"	DPDT 500ma to 7A	6.45	5.69	4.65	3.96
25F1008 25F1010	554-2121-211 554-2121-411	⅝" square ¾" square	SPDT to 15 ma 1A	6.30	5.55	4.56	3.87
25F1011 25F1012 25F1013	554-2221-211 554-2221-311 554-2221-411	⅝" square ⅜" x ¾" ¾" square	DPDT 15 ma to 1A	7.32	6.46	5.29	4.49
20F929	554-3221-211	⅝" square	DPDT (*)	6.69	5.91	4.83	4.11

ALTERNATE ACTION SWITCHES

57F3037 25F1014 20F921	554-1131-211 554-1131-411 554-1131-511	⅝" square ¾" square ¾" x 1"	SPDT 500ma to 7A	6.30	5.55	4.56	3.87
57F3041 57F3042 25F1015 20F922	554-1231-211 554-1231-311 554-1231-411 554-1231-511	⅝" square ⅝" x ¾" ¾" square ¾" x 1"	DPDT 500 ma to 7A	7.32	6.46	5.29	4.49
20F924	554-2231-511	¾" x 1"	15 ma 1A	8.36	7.38	6.03	5.14
20F940	554-3131-311	⅝" x ¾"	1-100 ma	6.54	5.76	4.73	4.02

SOLID STATE SWITCHES

Open collector output switching. DTL, TTL, MOS, CMOS direct interface. SPST, N.O., mom. 4.5 to 16VDC. 2.5mA @ 5VDC.

Stk. No.	Type	Cap Sizes	1-9	10-24	25-99
29F1659	554-7321-211	⅝" Sq.	7.53	6.62	5.46
29F1660	554-7321-311	⅝"x¾"	7.53	6.62	5.46
29F1661	554-7321-411	¾" Sq.	7.53	6.62	5.46
29F1662	554-7321-511	¾"x1"	7.53	6.62	5.46
29F1663	554-7321	Panel Mtg.	6.85	6.02	4.95

MATCHING INDICATORS

Stk No.	Type	Cap Size	1-9	10-24	25-99	100-249
57F3043	554-0001-211	⅝" Sq.	3.38	3.04	2.50	2.12
25F1022	554-0001-411	¾" Sq.				
20F933	554-0001-511	¾" x 1"				

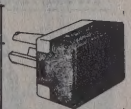
LENS CAPS FOR PANEL OR BEZEL MOUNT SWITCHES ⅝" SQUARE

Stk. No.	Type	Color	1-9	10-24	25-99
57F3008	325-0071	Red	.75	.62	.54
57F3009	325-0072	Green			
57F3010	325-0073	Amber			
57F3012	325-0075	White			
¾" SQUARE					
25F1023	327-0071	Red	.75	.62	.54
25F1024	327-0072	Green			
20F934	327-0073	Amber			
25F1025	327-0075	White			
¾" x 1" RECTANGULAR					
20F935	328-0071	Red	.75	.62	.54
20F936	328-0072	Green			
20F937	328-0073	Amber			
20F938	328-0075	White			

¾" x 1" Rectangular with Replaceable Legend Cap has black border and transparent lens. Supplied unassembled with blank legend plates. Cap snaps together without tools. For use with transfer lettering or film legend.

329 SERIES
¾" x 1" with Replaceable Legend Feature

Stk No.	Type	Color	1-9	10-24
81F854	329-0701-031	Red	1.94	1.64
81F855	329-0701-032	Green	1.94	1.64
81F856	329-0701-033	Amber	1.94	1.64
81F857	329-0701-037	Clear	1.94	1.64



Prevents against accidental actuation of pushbutton. Spring loaded. Use with all bezel mounting 554 switch bases accepting ⅝" x ¾" Caps (-311) and 333 Series caps below.

Clear Protective Kap-Guard

Stk. No.	Type	Desc.	1-24	25-99	100-249
81F558	565-0807	Kap-Guard	2.10	1.63	1.24

⅝" x ¾" Caps for use with Kap-Guard

Stk. No.	Type	Color	1-9	10-24
81F859	333-0071	Red	.75	.62
81F860	333-0072	Green		
81F861	333-0073	Amber		
81F862	333-0075	White		

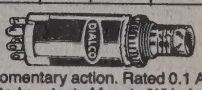
554 SERIES PANEL MOUNT

UL/CSA listed. Operating life: 250,000 operations momentary, 100,000 operations alternate. Contact resistance 50 milliohms maximum. Insulation resistance 1000 megohms @ 500 VDC minimum. Dielectric withstanding: 1250 VAC max. Uses T-1¾ bulb with midget flanged base, incandescent.

MOMENTARY ACTION SWITCHES

Stk. No.	Type	Amps	Circuit	1-9	10-24	25-99
57F3000	554-1121	500 ma to 7	SPDT	4.83	4.27	3.50
57F3002	554-1221	500 ma to 7	DPDT	5.71	5.03	4.12
20F914	554-3221	1 ma to 100 ma	DPDT	5.93	5.22	4.27
ALTERNATE ACTION SWITCHES						
57F3003	554-1231	500 ma to 7	DPDT	6.58	5.82	4.76

ILLUMINATED PUSHBUTTON



LED switch uses 5 VDC supply @ 20mA max. Momentary action. Rated 0.1 A at 125 VAC and 30 VDC. Non-inductive gold plated contacts Mounts ⅜" hole, ⅛" thick. UL listed.

Stk. No.	Type 913-	Lens Color	Action	1-9	10-24	25-99	100-249
29F1650	1551-1631-525	Red	N.C.	7.67	6.52	5.67	5.16
29F1651	1552-1631-525		N.C.	7.67	6.52	5.67	5.16
29F1652	1553-1631-525		Two Circuit	8.09	6.86	5.97	5.43
29F1653	1601-1632-525	Grn	N.O.	8.45	7.16	6.26	5.67
29F1655	1603-1632-525		Two Circuit	8.88	7.55	6.57	5.96
29F1656	1604-1633-525	Yel	N.O.	8.45	7.16	6.26	5.67
29F1657	1605-1633-525		N.C.	8.45	7.16	6.26	5.67
29F1658	1606-1633-525		Two Circuit	8.88	7.55	6.57	5.96

SERIES 922 SWITCHES

SPST momentary, N.O. 0.1 amps @ 125 VAC and @ 30 VDC non-inductive. Over 1,000,000 operations at rated values. Gold plated cont. parts. Mounts from back of panel in ⅜" clearance hole for ⅛" panel thickness. Lens replaceable. Less T-1¾ incand. lamp. Complete unit: one base and one cap. U.L. Listed.

BASES

Stock No.	Type	Contact	1-9	10-24	25-99	100-249
45F733	922-1524-525	N.O.	7.47	6.11	5.45	4.75
45F734	922-1525-525	N.C.	7.47	6.11	5.45	4.75
45F735	922-1526-525	2-Circuit	8.19	6.66	5.97	5.17

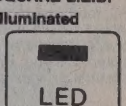
CAPS FOR ABOVE BASES

Stock No.	Type	Lens Color	1-9	10-24	25-99	100-249
45F736	908-1631	Red	1.25	1.14	1.02	.91
45F737	908-1632	Green				
45F738	908-1633	Amber				
45F739	908-1634	Blue				
45F740	908-1635	White				

Contains integral resistor for 5 volt 15 ma operation. Black cap with rectangular L.E.D. .300" x 100".

⅛" SQUARE L.E.D. Illuminated

Stock No.	Type	L.E.D. Color	1-9	10-24
81F870	332-0010	Red	3.52	3.15
81F871	332-0020	Green		
81F872	332-0030	Yellow		



MINIATURE PUSHBUTTON SWITCHES-SNAP IN MOUNTING

Rated .4VA @ 20 VAC/DC Contact Rating A or 1 amp @ 120 VAC/28 VDC Contact Rating B. Momentary Snap Action. UL approved. Epoxy sealed solder terminals. Black Bezel. Order with square caps below. Fits .500" x .600" Panel Cut-out.

Stk No.	Type	Desc.	Cont. Rating	1-24	25-99
81F863	582-1111-040	SPDT	A	2.82	2.32
81F864	582-1121-040	SPDT	B	4.26	3.48
81F865	582-2111-040	DPDT	A	3.66	2.99
81F866	582-2121-040	DPDT	B	5.82	4.72

Square Caps for 582 Series

Stk. No.	Type	Color	Each 5-up
81F867	586-4003	White	.06
81F868	586-4004	Black	.06
81F869	586-4005	Red	.06

SOLD ONLY IN MULTIPLES OF 5

7

Toggle and PC Mounted Switches

Contact rating: 5 amp with resistive load @ 120 VAC or 28 VDC, 2 amps with resistive load @ 250 VAC (panel mount); 0.4 volt-amps max. @ 20V max., AC or DC (PC mount). Oper. Temp: 20°C to 65°C. Brass, chrome plated toggle handle. Brass, nickel plated bushing. Brass, silver plated end terminal. Brass, silver plated center contact and terminal. Stainless steel housing. Hardware includes nut, locking ring and lockwasher. PC mount has epoxy terminal seal. ( ) indicates momentary.

PC MOUNT

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F674	7101SYCBE	SPDT	ON-NONE-ON	2.93	2.51	2.24	2.02
21F675	7103SYCBE	SPDT	ON-OFF-ON	3.33	2.84	2.52	2.25
21F676	7105SYCBE	SPDT	(ON)-OFF-(ON)				
21F677	7107SYCBE	SPDT	ON-OFF-(ON)				
21F678	7108SYCBE	SPDT	ON-NONE-(ON)				
21F679	7201SYCBE	DPDT	ON-NONE-ON	4.30	3.78	3.42	3.12
21F680	7203SYCBE	DPDT	ON-OFF-ON	4.84	4.21	3.80	3.45
21F681	7205SYCBE	DPDT	(ON)-OFF-(ON)				
21F682	7207SYCBE	DPDT	ON-OFF-(ON)	4.96	4.31	3.89	3.53
21F683	7208SYCBE	DPDT	ON-NONE-(ON)				

TOGGLE SWITCHES

Standard terminals. Contact rating: 5 amps with resistive load @ 120 VAC or 28 VDC; 2 amps with resistive load @ 250 VAC. T Series have .240" dia. by .460" long toggle. L Series have .130" dia. by .640" long toggle. Oper. Temp: −20°C to 65°C. Stainless steel housing. Brass, chrome plated toggle handle. Brass, nickel plated bushing. ( ) indicates momentary.

T SERIES

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F716	7101TZQ	SPDT	ON-NONE-ON	3.71	3.29	3.02	2.80
21F717	7103TZQ	SPDT	ON-OFF-ON	4.11	3.62	3.30	3.03
21F718	7105TZQ	SPDT	(ON)-OFF-(ON)				
21F720	7108TZQ	SPDT	ON-NONE-(ON)				
21F721	7201TZQ	DPDT	ON-NONE-ON	4.71	4.19	3.83	3.53
21F722	7203TZQ	DPDT	ON-OFF-ON	5.25	4.62	4.21	3.86
21F723	7301TZQ	3PDT	ON-NONE-ON	7.20	6.30	5.66	5.15
21F724	7303TZQ	3PDT	ON-OFF-ON	7.61	6.62	5.94	5.37
21F725	7401TZQ	4PDT	ON-NONE-ON	8.94	7.75	6.98	6.31
21F726	7403TZQ	4PDT	ON-OFF-ON	9.49	8.18	7.38	6.62

L Series

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F727	7101LTYZQ	SPDT	ON-NONE-ON	2.56	2.14	1.87	1.65
21F728	7103LTYZQ	SPDT	ON-OFF-ON	2.96	2.47	2.12	1.88
21F729	7105LTYZQ	SPDT	(ON)-OFF-(ON)				
21F732	7201LTYZQ	DPDT	ON-NONE-ON	3.56	3.04	2.68	2.38
21F733	7203LTYZQ	DPDT	ON-OFF-ON	4.10	3.47	3.06	2.71
21F734	7301LTYZQ	3PDT	ON-NONE-ON	6.05	5.15	4.51	4.00
21F737	7403LTYZQ	4PDT	ON-OFF-ON	8.34	7.03	6.23	5.47

PC MOUNTED TOGGLE SWITCHES

PC mounted toggle switches—right angle and vertical mounting. Contact rating: 0.4 VA max. @ 20V max. (AC or DC) Oper. Temp: −20°C to 65°C. Brass, chrome plated toggle handle. Stainless steel housing. Brass, nickel plated bushing. Brass, with gold plate over nickel plate center contacts and terminal. ( ) indicates momentary.

HORIZONTAL TOGGLE ACTUATION

Stock No.	Type	Desc.	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
21F798	7101MD9ABE	SPDT	ON-NONE-ON	2.88	2.46	2.19	1.97
21F799	7103MD9ABE	SPDT	ON-OFF-ON	3.28	2.79	2.47	2.20
21F800	7105MD9ABE	SPDT	(ON)-OFF-(ON)				
21F801	7107MD9ABE	SPDT	ON-OFF-ON()				
21F802	7108MD9ABE	SPDT	ON-NONE-(ON)				
21F803	7201MD9ABE	DPDT	ON-NONE-ON	4.20	3.68	3.32	3.02
21F804	7203MD9ABE	DPDT	ON-OFF-ON	4.74	4.11	3.70	3.35

VERTICAL TOGGLE ACTUATION

21F808	7101MD9AVB	SPDT	ON-NONE-ON	2.76	2.34	2.07	1.85
21F809	7103MD9AVB	SPDT	ON-OFF-ON	3.16	2.67	2.35	2.08
21F811	7107MD9AVB	SPDT	ON-OFF-(ON)				
21F813	7201MD9AVB	DPDT	ON-NONE-ON	3.96	3.44	3.08	2.78
21F815	7205MD9AVB	DPDT	(ON)-OFF-(ON)	4.50	3.87	3.46	3.11
21F816	7207MD9AVB	DPDT	ON-OFF-(ON)	4.62	3.97	3.55	3.19
21F817	7208MD9AVB	DPDT	ON-NONE-(ON)				

PANEL MOUNT

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F650	7101SYZQ	SPDT	ON-NONE-ON	2.56	2.14	1.87	1.65
21F651	7103SYZQ	SPDT	ON-OFF-ON	2.96	2.47	2.12	1.88
21F652	7105SYZQ	SPDT	(ON)-OFF-(ON)				
21F653	7107SYZQ	SPDT	ON-OFF-(ON)				
21F654	7108SYZQ	SPDT	ON-NONE-(ON)				
21F655	7201SYZQ	DPDT	ON-NONE-ON	3.56	3.04	2.68	2.38
21F656	7203SYZQ	DPDT	ON-OFF-ON	4.10	3.47	3.06	2.71
21F657	7205SYZQ	DPDT	(ON)-OFF-(ON)				
21F658	7207SYZQ	DPDT	ON-OFF-(ON)	4.22	3.57	3.15	2.79
21F659	7208SYZQ	DPDT	ON-NONE-(ON)				
21F660	7211SYZQ	DPDT	ON-ON-ON	4.51	3.80	3.33	2.93
21F661	7213SYZQ	DPDT	ON-ON-(ON)	4.91	4.11	3.64	3.16
21F662	7215SYZQ	DPDT	(ON)-ON-(ON)				
21F664	7303SYZQ	3PDT	ON-OFF-ON	6.46	5.47	4.79	4.22
21F665	7305SYZQ	3PDT	(ON)-OFF-(ON)	8.08	6.82	5.96	5.23
21F666	7401SYZQ	4PDT	ON-NONE-ON	7.79	6.60	5.83	5.16
21F667	7403SYZQ	4PDT	ON-OFF-ON	8.34	7.03	6.23	5.47
21F668	7405SYZQ	4PDT	(ON)-OFF-(ON)	9.68	8.14	7.20	6.30
21F670	7408SYZQ	4PDT	ON-NONE-(ON)				
21F671	7411SYZQ	4PDT	ON-ON-ON	9.35	7.86	6.91	6.41
21F672	7413SYZQ	4PDT	ON-ON-(ON)				
21F673	7415SYZQ	4PDT	(ON)-ON-(ON)				

CW SPLASH PROOF

Standard solder terminals. Seals around toggle and bushing provide a tight panel seal. Contact rating: 5 amps with resistive load @ 120 VAC or 28 VDC; 2 amps with resistive load @ 250 VAC. Oper. Temp: −20°C to 65°C. 1,000 megohms min. insulation resistance. Brass, chrome plated toggle handle. Brass, nickel plated bushing. Coin silver, silver plated end contact. ( ) indicates momentary.

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F705	7101CWZQ	SPDT	ON-NONE-ON	3.00	2.58	2.31	2.09
21F706	7103CWZQ	SPDT	ON-OFF-ON	3.40	2.91	2.59	2.32
21F707	7105CWZQ	SPDT	(ON)-OFF-(ON)				
21F709	7108CWZQ	SPDT	ON-NONE-(ON)				
21F710	7201CWZQ	DPDT	ON-NONE-ON	4.00	3.48	3.12	2.82
21F711	7203CWZQ	DPDT	ON-OFF-ON	4.54	3.91	3.50	3.15
21F712	7301CWZQ	3PDT	ON-NONE-ON	6.49	5.59	4.95	4.44
21F713	7303CWZQ	3PDT	ON-OFF-ON	6.90	5.91	5.23	4.66
21F714	7401CWZQ	4PDT	ON-NONE-ON	8.23	7.04	6.27	5.60
21F715	7403CWZQ	4PDT	ON-OFF-ON	8.78	7.47	6.67	5.91

FLATTED TOGGLE SWITCH

Solder terminal. V shaped flatted toggle actuato Contact rating: 5 amps with resistive load @ 120 VA or 28 VDC; 2 amps with resistive load @ 250 VA Stainless steel housing. ( ) indicates momentary.

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F684	7101P3YZQ	SPDT	ON-NONE-ON	3.20	2.78	2.51	2.29
21F685	7103P3YZQ	SPDT	ON-OFF-ON	3.60	3.11	2.79	2.52
21F686	7105P3YZQ	SPDT	(ON)-OFF-(ON)				
21F687	7107P3YZQ	SPDT	ON-OFF-(ON)				
21F688	7108P3YZQ	SPDT	ON-NONE-(ON)				
21F689	7201P3YZQ	DPDT	ON-NONE-ON	4.20	3.68	3.32	3.02
21F690	7203P3YZQ	DPDT	ON-OFF-ON	4.74	4.11	3.70	3.35
21F691	7205P3YZQ	DPDT	(ON)-OFF-(ON)				
21F692	7207P3YZQ	DPDT	ON-OFF-(ON)	4.86	4.21	3.79	3.43
21F693	7208P3YZQ	DPDT	ON-NONE-(ON)				

LOCKING LEVER TOGGLES

Solder terminals. Locking lever toggle must be lifte before the switch can be activated. Contact rating: amps with resistive load @ 120 VAC or 28 VDC; amps with resistive load @ 250 VAC. Oper. Tem −20°C to 65°C. ( ) indicates momentary.

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F694	7101KZQ	SPDT	ON-NONE-ON	4.14	3.72	3.45	3.23
21F695	7103KZQ	SPDT	ON-OFF-ON	4.54	4.05	3.73	3.46
21F696	7105KZQ	SPDT	(ON)-OFF-(ON)				
21F697	7107KZQ	SPDT	ON-OFF-(ON)				
21F698	7108KZQ	SPDT	ON-NONE-(ON)				
21F699	7201KZQ	DPDT	ON-NONE-ON	5.14	4.62	4.26	3.96
21F700	7203KZQ	DPDT	ON-OFF-ON	5.68	5.05	4.64	4.29
21F703	7401KZQ	4PDT	ON-NONE-ON	9.37	8.18	7.41	6.74
21F704	7403KZQ	4PDT	ON-OFF-ON	9.92	8.61	7.81	7.04

Tiny Micro Miniature Switches

C&K

TINY TOGGLE SWITCHES

Tiny toggle and pushbutton switches. Stainless steel housing. Include nut, locking ring and lockwasher. Oper. Temp: -20°C to 65°C. Type T. .Q have coin silver contacts; brass or brass silver plated terminals. Type T. .B have brass with gold plate over nickel plate contacts and terminal. All have brass, chrome plated toggle handle. Brass, nickel plated bushing.

Toggle Switches. Contact rating: Type T. .Q—3 amps @ 120 VAC for models T101 and T108, 2 amps @ 120 VAC for model T103; Type T. .B—0.4 VA max, @ 20 V max. (AC or DC). Pushbutton Switches. Contact rating: Type T. .Q—1 amp @ 120 VAC; Type T. .B—0.4 VA max. (AC or DC). ( ) indicates momentary.

SOLDER TERMINALS

Stock No.	Type	Desc.	Fig.	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
21F 598	T101SHZQ	SPDT	A	ON-NONE-ON	2.32	1.94	1.70	1.39
21F 599	T103SHZQ	SPDT	A	ON-OFF-ON	2.69	2.24	1.95	1.71
21F 600	T108SHZQ	SPDT	A	ON-NONE-(ON)	2.69	2.24	1.95	1.71
21F 601	T201SHZQ	DPDT	A	ON-NONE-ON	3.23	2.76	2.43	2.16
21F 602	T203SHZQ	DPDT	A	ON-OFF-ON	3.72	3.15	2.78	2.46
81F 961	T2115H2Q	DPDT	A	ON-ON-ON	4.09	3.45	3.02	2.66

PC TERMINALS

21F 604	T101SHCB	SPDT	A	ON-NONE-ON	2.38	2.00	1.76	1.56
21F 605	T103SHCB	SPDT	A	ON-OFF-ON	2.75	2.30	2.01	1.77
21F 607	T201SHCB	DPDT	A	ON-NONE-ON	3.35	2.88	2.55	2.28
21F 608	T203SHCB	DPDT	A	ON-OFF-ON	3.84	3.27	2.90	2.58
21F 609	T208SHCB	DPDT	A	ON-NONE-(ON)	3.95	3.36	2.98	2.65

PC TERMINALS/RIGHT ANGLE MNTG.

21F 610	T101MACB	SPDT	B	ON-NONE-ON	2.38	2.00	1.76	1.56
21F 611	T103MACB	SPDT	B	ON-OFF-ON	2.75	2.30	2.01	1.77
21F 612	T108MACB	SPDT	B	ON-NONE-(ON)	2.75	2.30	2.01	1.77

PC TERMINALS/RIGHT ANGLE MNTG.

21F 613	T201MACB	DPDT	C	ON-NONE-ON	3.35	2.88	2.55	2.28
21F 614	T203MACB	DPDT	C	ON-OFF-ON	3.84	3.27	2.90	2.58
21F 615	T208MACB	DPDT	C	ON-NONE-(ON)	3.95	3.36	2.98	2.65
81F 962	T211MACB	DPDT	C	ON-ON-ON	4.45	3.81	3.38	3.02

PC TERMINALS/VERTICAL MTG.

21F 616	T101MAVB	SPDT	C	ON-NONE-ON	2.50	2.12	1.88	1.68
21F 617	T103MAVB	SPDT	C	ON-OFF-ON	2.87	2.42	2.13	1.89
21F 618	T108MAVB	SPDT	C	ON-NONE-(ON)	2.87	2.42	2.13	1.89
21F 619	T201MAVB	DPDT	C	ON-NONE-ON	3.59	3.12	2.79	2.52
21F 620	T203MAVB	DPDT	C	ON-OFF-ON	4.08	3.51	3.14	2.82
21F 621	T208MAVB	DPDT	C	ON-NONE-(ON)	4.19	3.60	3.22	2.89
81F 963	T211MAVB	DPDT	C	ON-ON-ON	4.45	3.81	3.38	3.02

PC TERMINAL/VERTICAL MTG*

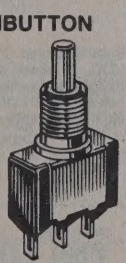
21F 622	T101V3MB	SPDT	D	ON-NONE-ON	2.50	2.12	1.88	1.68
21F 624	T108V3MB	SPDT	D	ON-NONE-(ON)	2.87	2.42	2.13	1.89
21F 626	T203V3MB	DPDT	D	ON-OFF-ON	4.08	3.51	3.14	2.82
21F 627	T208V3MB	DPDT	D	ON-NONE-(ON)	4.19	3.60	3.22	2.89
81F 964	T211V3MB	DPDT	D	ON-ON-ON	4.45	3.81	3.38	3.02

PUSHBUTTON

Stock No.	Type	Desc.	Fig.	1-24	25-99	100-499	500-999
21F 628	TP11HZQ †	SPST	FIG. E	2.10	1.85	1.63	1.44
21F 629	TP11H8AB	SPST	FIG. E	2.28	2.03	1.81	1.62
81F 965	TP12HZQ	SPDT	FIG. E	2.85	2.50	2.20	1.93
81F 966	TP12H9AB	SPDT	FIG. F	3.03	2.68	2.38	2.11
81F 967	TP12H9AVB	SPDT	FIG. G	3.03	2.68	2.38	2.11
81F 968	TP12H9V3B	SPDT	FIG. H	3.03	2.68	2.38	2.11

(*) Vertical Support Bracket (†) Right Angle

SNAP-ACTION MOMENTARY PUSHBUTTON SWITCHES



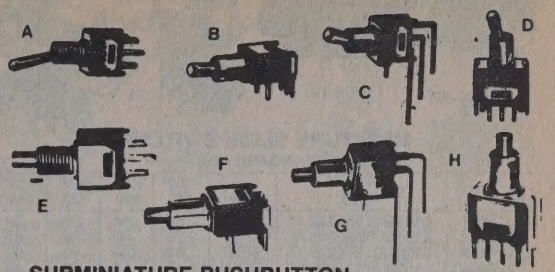
Contact rating: Type 8121 and 8221—1 amp @ 120 VAC or 28 VDC; Type 8125 and 8225—0.4 VA max. @ 20 V max. (AC or DC). Oper. Temp: -20°C to 65°C. Includes nut, locking ring and lockwasher. Brass, nickel plated bushing. Stainless steel housing. Glass filled nylon plunger. Brass with gold plate over nickel plate common contact. Type 8121 and 8221 have precious metal inlay on brass gold plated center and end contact. Others have brass with gold plate over nickel plate. PC terminate sealed with epoxy.

SPDT

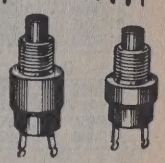
Stock No.	Type	Desc.	1-24	25-99	100-499	500-999
21F 632	8121ZE	SPDT	4.48	3.60	3.04	2.63
21F 633	8125ZE	SPDT*	2.85	2.28	2.01	1.66

DPDT

21F 634	8221ZE	DPDT	6.25	5.01	4.25	3.67
21F 635	8225ZE	DPDT*	3.80	3.04	2.68	2.19



SUBMINIATURE PUSHBUTTON SWITCHES



Contact rating: 1 amp @ 120 VAC or 28 VDC, 0.5 amps @ 250 VAC. 10,000 megohms min. Insulation resistance. Terminals sealed in epoxy. Oper. Temp: -20°C to 65°C. Includes nut and lockwasher. Brass, nickel plated bushing. DAP base. Black phenolic plunger.

SOLDER TERMINALS

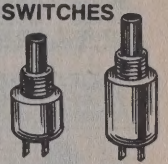
8531 8534

Stock No.	Type	Switch Action	1-24	24-99	100-499	500-999
21F 636	8531MZQE	N.O. w/overtravel	1.85	1.59	1.44	1.30
21F 637	8532	N.O.				
21F 638	8533	N.C. w/pretravel	2.06	1.77	1.59	1.43
21F 639	8534	N.C.				

PC TERMINALS

21F 640	8531MCQE	N.O. w/overtravel	1.89	1.63	1.48	1.34
21F 641	8532	N.O.				

MICROMINIATURE PUSHBUTTON SWITCHES



Contact rating: Type 8631 and 8632—½ amp @ 120 VAC or 28 VDC, ¼ amp @ 250 VAC; Type 8633—¼ amp @ 120 VAC or 28 VDC, ⅛ amp @ 250 VAC. Oper. Temp: -20°C to 65°C. Brass, nickel plated bushing. Red, melamine base. Black plunger. Coin silver contacts and terminals. Brass, bright nickel finish nut. 10,000 megohms min. insulation resistance.

8631 8632

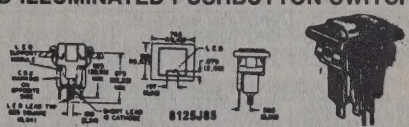
SOLDER TERMINALS

Stock No.	Type	Switch Action	1-24	24-99	100-499	500-999
21F 644	8631ZQ	N.O.	2.63	2.21	1.92	1.72
21F 645	8632ZQ	N.O. w/overtravel				
21F 646	8633ZQ	N.C.	2.73	2.29	1.99	1.76

PC TERMINALS

21F 647	8631CQ	N.O.	2.63	2.21	1.92	1.72
21F 648	8632CQ	N.O. w/overtravel				
21F 649	8633CQ	N.C.	2.73	2.29	1.99	1.76

LED ILLUMINATED PUSHBUTTON SWITCHES



SPDT LED illuminated pushbutton switches with snap-in bezel and standard terminals. Continuous Forward Current: 50 mA. Power Dissipation: 100 mW. Current Rating: 0.4 VA max. @ 20 V max. (AC or DC) for 8125 model; 1 amp resistive @ 120 VAC or 28 VDC for U811 model. Model 8168 and 8161 have pushbuttons which protrude further from the bezel than do pushbuttons on models 8125 and U811. Steel, nickel plated mounting spring. Stainless steel bracket. Nylon cap, bezel and LED support module.

MODELS 8125-U811

Stock No.	Type	Switch Action	1-24	25-99	100-499	500-999
21F 847	8125J85ZQ	Momentary	4.05	3.48	3.21	2.86
21F 848	U811J85ZQ	Momentary	5.68	4.80	4.24	3.83

MODELS 8161-8168

Stock No.	Type	Switch Action	1-24	25-99	100-499	500-999
21F 849	8161J86ZQ	Alternate	4.36	3.80	3.50	3.13
21F 850	8168J86ZQ	Momentary	4.36	3.80	3.50	3.13

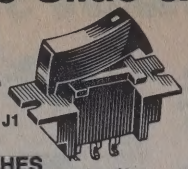
7

C&K Miniature Slide & Rocker Switches

PC SS-SR

SS-RR

J1


J2

MINIATURE SLIDE SWITCHES

STANDARD (SS)

Stock No.	Type	Desc.	1-99	100-499	500-999	1000-4999
21F451	L101Q01SSQ02L11	SPST	.86	.54	.36	.26
21F452	L101B00SSB02L11	SPST	1.20	.80	.49	.37
21F455	L102Q01SSQ02L11	SPDT	.89	.56	.42	.27
21F456	L102B00SSB02L11	SPDT	1.32	.89	.57	.44
21F461	L202Q01SSQ02L21	DPDT	1.10	.68	.44	.32
21F462	L202B00SSB02L21	DPDT	2.07	1.41	.81	.62

SPRING RETURN (SR)

Stock No.	Type	Desc.	1-99	100-499	500-999	1000-4999
21F453	L101Q01SRQ02L12	SPST	1.10	.69	.46	.33
21F454	L101B00SRB02L12	SPST	1.47	.97	.60	.45
21F456	L102Q01SRQ02L12	SPDT	1.20	.75	.50	.36
21F458	L102B00SRB02L12	SPDT	1.63	1.08	.69	.52

SIDE ACTUATED (SP)

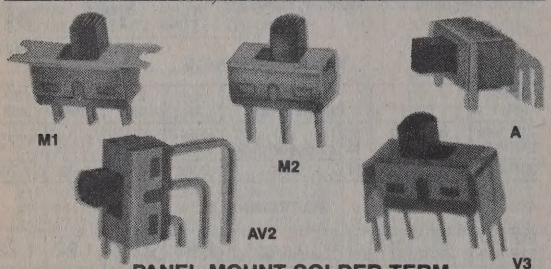
Stock No.	Type	Desc.	1-99	100-499	500-999	1000-4999
21F463	L101Q01SPQ4L31	SPST	1.01	.63	.42	.30
21F465	L102Q01SPQ4L31	SPDT	1.07	.66	.43	.31
21F466	L102B00SPB4L31	SPDT	1.49	.99	.60	.45

STANDARD (SS)

Stock No.	Type	Desc.	1-99	100-499	500-999	1000-4999
21F429	L101Q01SSQ01L11	SPST	.83	.52	.35	.25
21F430	L101B00SSB01L11	SPST	1.20	.80	.49	.37
21F433	L102Q01SSQ01L11	SPDT	.86	.54	.36	.26
21F434	L102B00SSB01L11	SPDT	1.32	.89	.57	.44
21F437	L201Q01SSQ01L21	DPST	1.01	.63	.42	.30
21F438	L201B00SSB01L21	DPST	1.73	1.17	.69	.53
21F439	L202Q01SSQ01L21	DPDT	1.07	.66	.43	.31
21F440	L202B00SSB01L21	DPDT	2.07	1.41	.81	.62

SPRING RETURN (SR)

Stock No.	Type	Desc.	1-99	100-499	500-999	1000-4999
21F431	L101Q01SRQ01L12	SPST	1.10	.69	.46	.33
21F432	L101B00SRB01L12	SPST	1.47	.97	.60	.45
21F435	L102Q01SRQ01L12	SPDT	1.20	.75	.50	.36



PANEL MOUNT SOLDER TERM

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-99	100-499	500-999	1000-4999
81F940	1101M1ZQ	SPDT	ON-NONE-ON				
81F941	1103M1ZQ	SPDT	ON-OFF-ON	1.96	1.62	1.41	1.25
81F942	1108M1ZQ	SPDT	(ON)-NONE-ON				

P.C. MOUNT HORIZONTAL SLIDE

81F943	1101M2AB	SPDT	ON-NONE-ON				
81F944	1103M2AB	SPDT	ON-OFF-ON	2.16	1.82	1.61	1.45
81F945	1108M2AB	SPDT	(ON)-NONE-ON				

P.C. MOUNT VERTICAL SLIDE

81F946	1101M2AV2B	SPDT	ON-NONE-ON				
81F947	1103M2AV2B	SPDT	ON-OFF-ON	2.16	1.82	1.61	1.45
81F948	1108M2AV2B	SPDT	(ON)-NONE-ON				

P.C. MOUNT

81F949	1101V3B	SPDT	ON-NONE-ON				
	1103V3B	SPDT	ON-OFF-ON	2.16	1.82	1.61	1.45
81F950	1108V3B	SPDT	(ON)-NONE-ON				

PANEL MOUNT

81F951	1201M1ZQ	DPDT	ON-NONE-ON	2.75	2.33	2.05	1.83

P.C. MOUNT

81F952	1201M2CQ	DPDT	ON-NONE-ON	2.87	2.45	2.17	1.95

SNAP-IN SWITCHES

Snap-in rocker and lever switches with bezel and red LED. Contact rating: 5 amps with resistive load @ 120 VAC or 28 VDC; 2 amps with resistive load @ 250 VAC. Oper temp: – 20°C to 65°C. Stainless steel housing. () indicates momentary.

SPDT PUSHBUTTON

Stock No.	Type	Desc.	Electrical	1-24	25-99	100-499	500-999
81F953	8121J82ZQ	Momentary	1 Amp Rating	3.73	3.17	2.87	2.50
21F835	8168J82ZQ	Momentary	6 Amp Rating				

DPDT PUSHBUTTON

81F954	8221J82ZI	Momentary	1 Amp Rating	6.82	5.58	5.38	4.63
21F836	8261J82-Q	Alternate	6 Amp	5.83	4.95	4.47	3.74

Contact resistance: less than 0.01 ohms @ 20 MA/DC. High voltage breakdown: 1,000 RMS, 60 Hz for 1 minute between live metal parts of opposite polarity. Oper. Temp: –40° to 105°C ambient max. Life cycling (no load): ECI switches will remain operative after a minimum of 100,000 cycles at a rate of 10 cycles per minute at full load. Silver plated oxygen free terminals with hi-conductivity copper. Silver plated oxygen free contacts with hi-conductivity copper. Music wire contact spring. Black nylon housing. Top plate and actuator. U.L. Approved. (94V2). 6/6 nylon.

SP DT ROCKER SWITCHES

J1—Rocker for PC mounting. J2—Rocker for panel mounting.

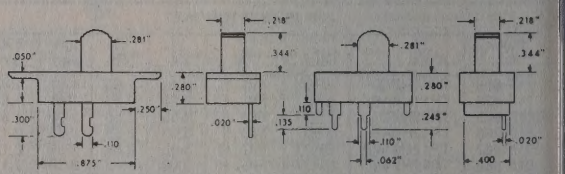
PC MOUNTING (J1)

Stock No.	Type	Desc.	1-24	25-99	100-499	500-999
21F471	J102Q06JJQ02J11	SPDT	2.15	1.34	.90	.64

PANEL MOUNTING (J2)

21F473	J102Q06JPQ01J22	SPDT	2.44	1.54	1.03	.73
21F474	J102Q10JPQ01J22	SPDT	2.67	1.67	1.11	.80

S SERIES SWITCHES



Specifications: Contact Rating—6 amps with resistive load @ 120 VAC or 28 VDC, 3 amps with resistive load @ 250 VAC. Contact Resistance—10 milliohms max. initially. Electrical Life—40,000 actuations at full load 100,000 actuations (B-option). Insulation Resistance—1000 megohms minimum. Dielectric Strength—1,000 volts RMS @ sea level. Operating Temperature: –20°C to 65°C.

SOLDER TERMINALS

Stock No.	Type	Desc.	1-99	100-499	500-999	1000-4999
21F441	S101Q04SSQ01S11	SPST	.67	.42	.28	.20
21F442	S101Q04SRQ01S12	SPST	.91	.57	.38	.27
21F444	S101Q04SRS01S12	SPDT	.99	.62	.41	.29
21F445	S202Q04SSQ01S21	DPDT	.91	.57	.38	.27

PC TERMINALS

21F446	S101Q04SSQ02S11	SPST	.67	.42	.28	.20
21F447	S101Q04SRQ02S11	SPST	.91	.57	.38	.27
21F449	S102Q04SRQ02S11	SPDT	.99	.62	.41	.29
21F450	S202Q04SSQ02S21	DPDT	.91	.57	.38	.27

Rocker, Lever, and Tiny Rocker Switches

C&K

J6

J5

SNAP-IN SWITCHES

Snap-In rocker and lever switches with bezel. Contact rating: 5 amps with resistive load @ 120 VAC or 28 VDC; 2 amps with resistive load @ 250 VAC. Oper Temp: −20°C to 65°C. Stainless steel housing. ( ) indicates momentary.

SPDT ROCKER

Stock No.	Type	Desc.	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
21F778	7101J52ZQ	SPDT	ON-NONE-ON	3.13	2.71	2.44	2.22
21F779	7103J52ZQ	SPDT	ON-OFF-ON	3.53	3.04	2.72	2.45
21F780	7105J52ZQ	SPDT	(ON)-OFF-(ON)				
21F781	7107J52ZQ	SPDT	ON-OFF-(ON)				
21F782	7108J52ZQ	SPDT	ON-NONE-(ON)				

DPDT ROCKER

21F783	7201J52ZQ	DPDT	ON-NONE-ON	4.13	3.61	3.25	2.95
21F784	7203J52ZQ	DPDT	ON-OFF-ON	4.67	4.04	3.63	3.28
21F785	7205J52ZQ	DPDT	(ON)-OFF-(ON)				
21F786	7207J52ZQ	DPDT	ON-OFF-(ON)	4.79	4.14	3.72	3.36
21F787	7208J52ZQ	DPDT	ON-NONE-(ON)				

SPDT LEVER

21F788	7101J62ZQ	SPDT	ON-NONE-ON	3.13	2.71	2.44	2.22
21F789	7103J62ZQ	SPDT	ON-OFF-ON	3.53	3.04	2.72	2.45
21F790	7105J62ZQ	SPDT	(ON)-OFF-(ON)				
21F791	7107J62ZQ	SPDT	ON-OFF-(ON)				
21F792	7108J62ZQ	SPDT	ON-NONE-(ON)				

DPDT LEVER

21F793	7201J62ZQ	DPDT	ON-NONE-ON	4.13	3.61	3.25	2.95
21F794	7203J62ZQ	DPDT	ON-OFF-ON	4.67	4.04	3.63	3.28
21F795	7205J62ZQ	DPDT	(ON)-OFF-(ON)				
21F796	7207J62ZQ	DPDT	ON-OFF-(ON)	4.79	4.14	3.72	3.36
21F797	7208J62ZQ	DPDT	ON-NONE-(ON)				

TINY ROCKER SWITCHES

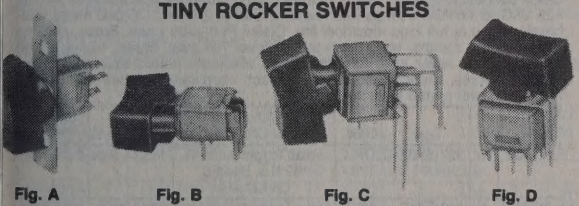


Fig. A Fig. B Fig. C Fig. D

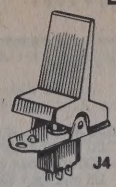
- UL LISTED
- SPDT AND DPDT MODELS
- PANEL OR P.C. MOUNTING
- RATINGS: Dry Circuit up to 3 AMPS @120VAC or 28VDC
- FOUR SWITCHING FUNCTIONS

SPECIFICATIONS
CONTACT RATING—3 AMPS with resistive load @ 120 VAC or 28 VDC on all models ending in -01 (On- None-On); All other models 2 AMPS with resistive load @ 120VAC
ELECTRICAL LIFE—60,000 make and-break cycles at full load on all models ending in 01 (ON-NONE-ON). All other models—30,000 cycles.
CONTACT RESISTANCE—10 milliohms max. initial @ 2-4 VDC, 100 milliamps for both coin silver and gold plated contacts.
INSULATION RESISTANCE—1,000 megohms min.
DIELECTRIC STRENGTH—1,000 volts RMS @ sea level.
OPERATING TEMPERATURE:—20°C to 65°C

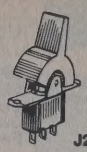
A. SOLDER TERMINALS PANEL MOUNT

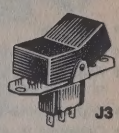
Stock No.	Type	Desc.	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
81F969	T101J1ZQ	SPDT	ON-NONE-ON	2.32	1.94	1.70	1.50
81F970	T103J1ZQ	SPDT	ON-OFF-ON	2.69	2.24	1.95	1.71
81F971	T108J1ZQ	SPDT	ON-NONE-(ON)				
81F972	T201J1ZQ	DPDT	ON-NONE-ON	3.23	2.76	2.43	2.16
81F973	T203J1ZQ	DPDT	ON-OFF-ON	3.72	3.15	2.78	2.46
81F974	T208J1ZQ	DPDT	ON-NONE-(ON)	3.83	3.24	2.86	2.53
81F975	T211J1ZQ	DPDT	ON-ON-ON				

LEVER AND ROCKER SWITCHES


J4

J1


J2


J3

Contact rating 5 amps with resistive load @ 120 VAC or 28 VDC; 2 amps with resistive load @ 250 VAC. Oper. Temp: −20°C to 65°C. Includes nut, screw, lockwasher and stand-off. Nylon rocker and lever handles. Stainless steel housing. Brass, nickel plated bushing. Coin silver, silver plated end contact. ( ) indicates momentary. 3 and 4 pole switches available on special order.

Stock No.	Type	Desc.	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
21F738	7101J1ZQ	SPDT	ON-NONE-ON	3.00	2.58	2.44	2.09
21F739	7103J1ZQ	SPDT	ON-OFF-ON	3.40	2.91	2.59	2.32
21F740	7105J1ZQ	SPDT	(ON)-OFF-(ON)				
21F741	7107J1ZQ	SPDT	ON-OFF-(ON)				
21F742	7108J1ZQ	SPDT	ON-NONE-(ON)				
21F743	7201J1ZQ	DPDT	ON-NONE-ON	4.00	3.48	3.12	2.82
21F744	7203J1ZQ	DPDT	ON-OFF-ON	4.54	3.91	3.50	3.15
21F745	7205J1ZQ	DPDT	(ON)-OFF-(ON)				
21F746	7207J1ZQ	DPDT	ON-OFF-(ON)	4.66	4.01	3.59	3.23
21F748	7101J2ZQ	SPDT	ON-NONE-ON	3.00	2.58	2.44	2.09
21F749	7103J2ZQ	SPDT	ON-OFF-ON	3.40	2.91	2.59	2.32
21F750	7105J2ZQ	SPDT	(ON)-OFF-(ON)				
21F752	7108J2ZQ	SPDT	ON-NONE-(ON)				
21F753	7201J2ZQ	DPDT	ON-NONE-ON	4.00	3.48	3.12	2.82
21F754	7203J2ZQ	DPDT	ON-OFF-ON	4.54	3.91	3.50	3.15
21F757	7208J2ZQ	DPDT	ON-NONE-(ON)	4.66	4.01	3.59	3.23
21F758	7101J2ZQ	SPDT	ON-NONE-ON	3.00	2.58	2.44	2.09
21F759	7103J3ZQ	SPDT	ON-OFF-ON	3.40	2.91	2.59	2.32
21F760	7105J3ZQ	SPDT	(ON)-OFF-(ON)				
21F761	7107J3ZQ	SPDT	ON-OFF-(ON)				
21F762	7108J3ZQ	SPDT	ON-NONE-(ON)				
21F763	7201J3ZQ	DPDT	ON-NONE-ON	4.00	3.48	3.12	2.82
21F764	7203J3ZQ	DPDT	ON-OFF-ON	4.54	3.91	3.50	3.15
21F765	7205J3ZQ	DPDT	(ON)-OFF-(ON)				
21F766	7207J3ZQ	DPDT	ON-OFF-(ON)	4.66	4.01	3.59	3.23
21F768	7101J4ZQ	SPDT	ON-NONE-ON	3.00	2.58	2.44	2.09
21F770	7105J4ZQ	SPDT	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32
21F771	7107J4ZQ	SPDT	ON-OFF-(ON)				
21F773	7201J4ZQ	DPDT	ON-NONE-ON	4.00	3.48	3.12	2.82
21F774	7203J4ZQ	DPDT	ON-OFF-ON	4.54	3.91	3.50	3.15
21F775	7205J4ZQ	DPDT	(ON)-OFF-(ON)				
21F776	7207J4ZQ	DPDT	ON-OFF-(ON)	4.66	4.01	3.59	3.23
21F777	7208J4ZQ	DPDT	ON-NONE-(ON)				

TINY ROCKER SWITCHES

B. P.C. TERMINAL RIGHT ANGLE MOUNTING HORIZONTAL ROCKER ACTUATION

Stock No.	Type	Desc.	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
81F976	T101J6AB	SPDT	ON-NONE-ON	2.50	2.12	1.88	1.68
81F977	T103J6AB	SPDT	ON-OFF-ON	2.87	2.42	2.13	1.89
81F978	T108J6AB	SPDT	ON-NONE-(ON)				
81F979	T201J1AB	DPDT	ON-NONE-ON	3.59	3.12	2.79	2.52
81F980	T203J1AB	DPDT	ON-OFF-ON	4.08	3.51	3.14	2.82
81F981	T208J1AB	DPDT	ON-NONE-(ON)	4.19	3.60	3.22	2.89
81F982	T211J1AB	DPDT	ON-ON-ON				

C. P.C. TERMINAL RIGHT ANGLE MOUNTING VERTICAL ROCKER ACTUATION

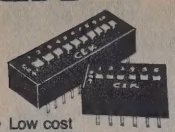
81F983	T101J1AVB	SPDT	ON-NONE-ON	2.50	2.12	1.88	1.68
81F984	T103J1AVB	SPDT	ON-OFF-ON	2.87	2.42	2.13	1.89
81F985	T108J1AVB	SPDT	ON-NONE-(ON)				
81F986	T201J1AVB	DPDT	ON-NONE-ON	3.59	3.12	2.79	2.52
81F987	T203J1AVB	DPDT	ON-OFF-ON	4.08	3.51	3.14	2.82
81F988	T208J1AVB	DPDT	ON-NONE-(ON)	4.19	3.60	3.22	2.89
81F989	T211J1AVB	DPDT	ON-ON-ON				

D. P.C. TERMINAL VERTICAL MOUNTING

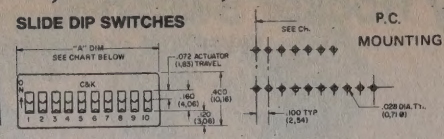
81F990	T101J1V3B	SPDT	ON-NONE-ON	2.50	2.12	1.88	1.68
81F991	T103J1V3B	SPDT	ON-OFF-ON	2.87	2.42	2.13	1.89
81F992	T108J1V3B	SPDT	ON-NONE-(ON)				
81F993	T201J1V3B	DPDT	ON-NONE-ON	3.59	3.12	2.79	2.52
81F994	T203J1V3B	DPDT	ON-OFF-ON	4.08	3.51	3.14	2.82
81F995	T208J1V3B	DPDT	ON-NONE-(ON)	4.19	3.60	3.22	2.89
81F996	T211J1V3B	DPDT	ON-ON-ON				

7

C&K DIP, ROTARY, AND POWER ROCKER SWITCHES



SLIDE DIP SWITCHES



- Low cost
- Positive detent
- Ready visual indication of switch position
- Wiping contacts
- Designed to withstand wave soldering processes

SPECIFICATIONS
ELECTRICAL

Circuit . . . . . 2 thru 10 pole, single throw
Carry . . . . . 100 mA max @V 50VDC
Switch . . . . . 100 mA max @V 5VDC
25 mA max @V 25VDC
Contact Resistance . . . . . 0.10 ohms max initial
Operation . . . . . 10,000 each circuit
Capacitance. . . . . 5 pF max. between adjacent stations

Stk. No.	Model	No. of Poles	"A" Dim.	"B" Dim.	1-24	25-99	100-499	500-999
81F997	BD02	2	.280 (7,11)	.100 (2,54)	1.10	1.02	.88	.83
81F998	BD03	3	.380 (9,65)	.200 (5,08)	1.12	1.04	.90	.84
81F999	BD04	4	.480 (12,19)	.300 (7,62)	1.20	1.11	.96	.90
81F1000	BD05	5	.580 (14,73)	.400 (10,16)	1.22	1.13	.98	.92
81F1001	BD06	6	.680 (17,27)	.500 (12,70)	1.28	1.18	1.02	.96
81F1002	BD07	7	.780 (19,81)	.600 (15,24)	1.34	1.24	1.07	1.01
81F1003	BD08	8	.880 (22,35)	.700 (17,78)	1.38	1.28	1.10	1.04
81F1004	BD09	9	.980 (24,89)	.800 (20,32)	1.42	1.31	1.14	1.07
81F1005	BD10	10	1.080 (27,43)	.900 (22,86)	1.50	1.39	1.20	1.13

POWER ROCKER SWITCHES

C-SERIES

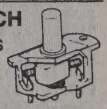
SPECIFICATIONS

CONTACT RATINGS: 15 AMPS @ 125VAC, 10 AMPS @ 250VAC. (C121, C221, C222 models) 10 AMPS @ 125VAC, 7.5 AMPS @ 250VAC. (C101, models-U.L./CSA/SEV LISTED)
MECHANICAL LIFE: 250,000 cycles min.
DIELECTRIC STRENGTH: 2,500V RMS @ sea level.
INSULATION RESISTANCE: 1,000 megohms min.

Stk. No.	Model	Switch Function	1-24	25-99	100-499	500-999
81F1007	C101-Q10-JS-Q05-J1 (10 AMP, 125V)	SPDT	1.66	1.39	1.21	1.05
81F1008	C121-Q15-JS-Q05-J1 (15 AMP, 125V)	SPDT	1.65	1.38	1.20	1.04
81F1009	C221-Q15-JS-Q05-J1 (15 AMP, 125V)	DPDT	3.64	3.05	2.63	2.30
81F1010	C222-Q15-JS-Q05-J1 (15 AMP, 125V)	DPST	3.31	2.77	2.39	2.09

MOMENTARY PUSHBUTTON SWITCH

K-SERIES



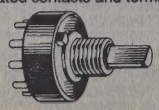
SPECIFICATIONS

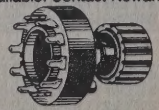
CONTACT RATING: 4VA max. (@ 20V AC or DC max.
ELECTRICAL/MECHANICAL LIFE: 25 million cycles.
CONTACT RESISTANCE: 20 milliohms max, initial. @ 2-4V DC, 100 mA.
INSULATION RESISTANCE: 1,000 megohms min.
CAPACITANCE: 1 pf. max.
VIBRATION: Meets MIL STD 202E, method 204C, test condition A.
SHOCK: Meets MIL STD 202E, method 213B, test condition A.
DIELECTRIC STRENGTH: 10,000 AC RMS @ sea level, from plunger to terminals.

Stk. No.	Model No.	1-24	25-99	100-499	500-999
81F1006	K101-B00-SR-B02-00	2.18	1.92	1.64	1.32

ROTA-SLIDE ROTARY SWITCHES

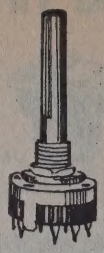
Oper. Temp: −40°C to 105°C ambient max. Contact resistance: less than 0.01 ohms @ 20 MA/DC. High voltage breakdown: 1000 RMS, 60 Hz for 1 min. between live metal parts of opposite polarity. Life cycling (no load): ECI switches will remain operative after a minimum of 100,000 cycles at rate of 10 cycles per min. Life cycling (load): ECI switches will remain operative after a minimum of 10,000 cycles at rate of 10 cycles per min. at full load. Indexing 36°—single pole max. 9 positions 36°—double pole max. 5 position. 36°—continuous. Silver plated oxygen free hi-conductivity copper contacts. Rolled music wire contact spring. Contact rating (pos. 5-7 of type no.): type Q06-6 amps @ 125VAC with copper silver plated movable contact material; type B00-0.4 VA MAX. @ 20V max with movable contact material of copper with gold plate over nickel plate. Mounting style: panel mounting with threaded bushing. Actuators: .750 long with flat for PC mounted rotary. Housing, top plate bushing and actuator/rotor U.L. approved (94V2). Available in 2, 3, 4 and 5 position non-shorting styles as detailed below. See diagrams for position configurations. Gold plated contacts and terminals available. Contact Newark for more information.





SINGLE POLE-2 POSITION-SOLDER TERMINALS

Stk. No.	Type	1-99	100-499	500-999	1000-4999
21F475	R102Q06RRQ01R11	1.89	1.18	.79	.56



ROTARY SWITCHES

SPECIFICATIONS

CONTACT RATING—350 MA @ 110V (AC or DC)
150 MA @ 250V (AC or DC)
CURRENT CARRYING CAPACITY—5 AMPS continuous
ELECTRICAL LIFE—15,000 cycles at full load up to 300,000 detent operations.
CONTACT RESISTANCE—20 milliohms max.
DIELECTRIC STRENGTH—1000 volts RMS @ sea level
OPERATING TEMPERATURE—20°C to 65°C
STOPS—Adjustable 2 through 12 position—30° indexing

The C&K Rotary Switch is offered in four models: 1 pole-12 position, 2 pole-6 position, 3 pole-4 position and 4 pole-3 position. The number of switch positions is adjustable by means of a stop-ring provided with each switch. To set stops, turn shaft fully counter clockwise and insert stop-ring tab in desired hole. Each model is available with printed circuit or solder terminals and silver plated contacts.

SOLDER TERMINALS

Stk. No.	Model	Sw. Function	1-24	25-99	100-499	500-999
81F1011	A112-15-N-Z-Q	1 Pole-12 Position	2.54	2.12	1.86	1.64
81F1012	A206-15-N-Z-Q	2 Pole-6 Position				
81F1013	A304-15-N-Z-Q	3 Pole-4 Position				
81F1014	A403-15-N-Z-Q	4 Pole-3 Position				

P.C. TERMINALS

Stk. No.	Model	Sw. Function	1-24	25-99	100-499	500-999
81F1015	A112-15-N-C-Q	1 Pole-12 Potition	2.60	2.18	1.92	1.70
81F1016	A206-15-N-C-Q	2 Pole-6 Position				
81F1017	A304-15-N-C-Q	3 Pole-4 Position				
81F1018	A403-15-N-C-Q	4 Pole-3 Position				

MINIATURE POWER SWITCHES
10 AMP LOAD

UL., CSA. SEV, SEMKO & VDE Listed

Quick connect terminals, DPDT. Contact rating: 10 amps with resistive load @ 125 VAC; or 28VDC 5 amps with resistive load @ 250VAC. 25,000 make-and-break cycles at full load electrical life. Diallyl Phthalate case. Brass, chrome plated toggle handle. Nylon rocker and lever handles. Brass, nickel plated bushing. Coin silver end contact. Brass, electrotin plated end and center terminal. Brass, silver plated center contact. Hardware includes nut, locking ring and nickel plated lockwasher.

Stk. No.	Fig.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499	500-999
21F630	A	9221SH3Z4Q	DPDT	Small Toggle Switch ¼-40 N.S. Bushing On-None-On	11.04	9.66	8.51	7.58
81F1019	E	9221TZ4Q	DPDT	Large Toggle 15/32 Bushing On-None-On	12.19	10.81	9.66	8.73
21F631	B	9221J1Z4Q	DPDT	Small Rocker Switch On-None-On	11.44	10.06	8.91	7.98
81F1020	D	9221J3Z4Q	DPDT	Large Rocker Switch On-None-On	11.44	10.06	8.91	7.98
81F1021	C	9221J4Z4Q	DPDT	Paddle Switch On-None-On	11.44	10.06	8.91	7.98

DOUBLE POLE-2 POSITION-SOLDER TERMINALS

Stk. No.	Type	1-24	25-99	100-499	500-999
21F487	R202Q06RRQ0cR1	2.78	1.74	1.16	.83
21F488	R202B00RRB01R1	4.07	2.70	1.72	1.31
	DOUBLE POLE-3 POSITION-PC TERMINALS				
21F489	R202Q06RRQ02RA	2.83	1.77	1.18	.84
21F490	R202B00RRB02R1	4.12	2.73	1.74	1.32
	DOUBLE POLE-3 POSITION-SOLDER TERMINALS				
21F492	R203B00RRB01R1	4.46	2.97	1.89	1.44
	DOUBLE POLE-4 POSITION-PC TERMINALS				
21F493	R203Q06RRQ0R1	2.94	1.83	1.22	.87
	DOUBLE POLE-4 POSITION-PC TERMINALS				
21F498	R204B00RRB02R1	4.98	3.33	2.12	1.62
	SINGLE POLE-2 POSITION-SOLDER TERMINALS CONT.				
	SINGLE POLE-2 POSITION-PC TERMINALS				
21F477	R102Q06RRQ02R11	1.94	1.21	.81	.58
	SINGLE POLE-3 POSITION-SOLDER TERMINALS				
21F480	R103B00RRB01R1	2.80	1.85	1.18	.90

7

Rota-Slide & Keylock Switches

Miniature ROTA-SLIDE® Rotary Switches

SPECIFICATIONS
CONTACT RATING: 4AMPS @ 125VAC or 28 VDC, 2AMPS @ 250VAC.
ELECTRICAL LIFE: 10,000 cycles min. @ full load.
MECHANICAL LIFE: 100,000 cycles min.
CONTACT RESISTANCE: 10 milliohms max. initial @ 2-4VDC, 100mA.
INSULATION RESISTANCE: 1,000 megohms min.
DIELECTRIC STRENGTH: 1,000V RMS @ sea level.
INDEXING: 45°—single contact, max. 8 positions—two contacts, max. 4 positions.
MATERIALS
HOUSING: 6/6 nylon (UL 94V-2), red.
TOP PLATE/BUSHING: 6/6 nylon (UL 94V-2), black.
ACTUATOR/SHAFT: 6/6 nylon (UL 94V-2), natural.
TERMINALS: copper, silver plated.
CONTACTS: copper, silver plated.
CONTACT SPRING: music wire.
MOUNTING NUT: included.

F-SERIES PANEL MOUNT

Stock No.	Model No.	Switch Function	1-24	25-99	100-499	500-up
81F1294	F102-08-RS-03-QU	DT	3.58	3.24	2.89	2.48
81F1295	F103-08-RS-03-QU	3 Pos.	3.63	3.29	2.93	2.51
81F1296	F104-08-RS-03-QU	4 Pos.	3.68	3.34	2.97	2.54
81F1297	F105-08-RS-03-QU	5 Pos.	3.79	3.43	3.05	2.61
		TWO CONTACT MODELS				
81F1298	F202-08-RS-03-QU	DT	4.21	3.81	3.37	2.86
81F1299	F203-08-R3-03-QU	3 Pos.	4.37	3.95	3.49	2.96

F-SERIES P.C. MOUNT

Stock No.	Model No.	Switch Function	1-24	25-99	100-499	500-up
81F1300	F102-15-RN-02-QA	DT	2.95	2.61	2.26	1.85
81F1301	F103-15-RN-02-QA	3 Pos.	3.00	2.66	2.30	1.88
18F1302	F104-15-RN-02-QA	4 Pos.	3.05	2.71	2.34	1.91
81F1303	F105-15-RN-02-QA	5 Pos.	3.16	2.80	2.42	1.98
		TWO CONTACT MODELS				
81F1304	F201-15-RN-02-QA	ST	3.48	3.08	2.66	2.17
81F1305	F202-15-RN-02-QA	DT	3.58	3.18	2.74	2.23
81F1306	F203-15-RN-02-QA	3 Pos.	3.74	3.32	2.86	2.33

H SERIES PANEL MOUNT

SPECIFICATIONS
CONTACT RATING: 12AMPS @ 125VAC.
ELECTRICAL LIFE: 10,000 cycles min. @ full load.
MECHANICAL LIFE: 100,000 cycles min.
CONTACT RESISTANCE: 10 milliohms max. initial @ 2-4VDC, 100mA.
INSULATION RESISTANCE: 1,000 megohms min.
DIELECTRIC STRENGTH: 1,000V RMS @ sea level.
INDEXING: 45°—single contact, max. 8 positions—two contacts, max. 4 positions.
MATERIALS
HOUSING: 6/6 nylon (UL 94V-2), black.
TOP PLATE/BUSHING: 6/6 nylon (UL 94V-2), black.
ACTUATOR/SHAFT: 6/6 nylon (UL 94V-2), natural.
TERMINALS: copper, silver plated.
CONTACTS: copper, silver plated.
CONTACT SPRING: music wire.
MOUNTING NUT: included.

Stock No.	Model No.	Switch Function	1-24	25-99	100-499	500-up
81F1307	H102-07-RR-01-Q1	DT	3.06	2.57	2.23	1.94
81F1308	H103-07-RR-01-Q1	3 Pos.	3.22	2.70	2.34	2.04
81F1309	H104-07-RR-01-Q1	4 Pos.	3.41	2.86	2.48	2.16
		TWO CONTACT MODELS				
81F1310	H202-07-RR-01-Q1	DT	3.89	3.26	2.82	2.46
81F1311	H203-07-RR-01-Q1	3 Pos.	4.52	3.79	3.28	2.86

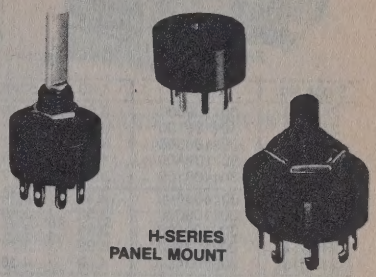
SHORT PANEL DEPTH KEYSWITCH

Keyswitch with extremely short, behind the panel depth for tight fit applications. Used in computers, security systems, medical equipment and consumer products. Requires .760 diameter panel opening. Includes 2 keys, has solder terminals rated at 4 amps @ 125VAC or 28VDC, 2 amps @ 250VAC which are copper, silver plated. Finish is bright stainless steel; includes mounting nut.

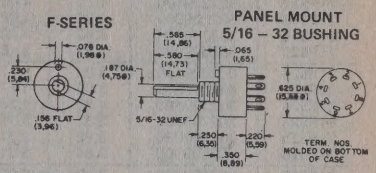
Stock No.	C&K Part Number	Number of Poles	Key Removable In. # of Pos.	Description	1-24	25-99	100-499	500 up
81F1312	Y101-13-0-A101-Q	SPST	1	2 Position 90° Index	4.32	3.62	3.12	2.73
81F1313	Y101-1U-0-A101-Q	SPST	2	2 Position 90° Index	4.47	3.77	3.27	2.88
81F1314	Y201-13-0-A101-Q	DPDT	1	2 Position 90° Index	4.84	4.06	3.50	3.06
81F1315	Y201-1U-0-A101-Q	DTDT	2	2 Position 90° Index	4.99	4.21	3.65	3.21
81F1316	Y100-82-0-A101-Q	SPTT	1	3 Pos., 2 45° indexes Keypull at 12:00 O'clock only	4.38	3.81	3.31	2.88
81F1317	Y200-82-0-A101-Q	DPTT	1	3 Pos., 2 45° indexes Keypull at 12:00 O'clock only	4.91	4.27	3.71	3.23
81F1318	Y141-73-0-A101-Q	SPTT	1	3 pos., 2 90° indexes keypull at 12:00 O'clock	4.28	3.72	3.23	2.81
81F1319	Y141-7U-0-A101-Q	SPTT	3	3 pos., 2 90° indexes keypull at 12:00, 9:00 & 3:00	4.59	3.99	3.47	3.02

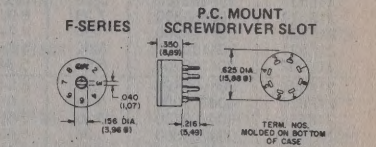
F-SERIES PANEL MOUNT 5/16—32 BUSHING UL LISTED

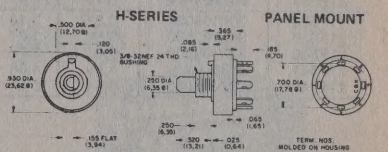
F-SERIES P.C. MOUNT SCREWDRIVER SLOT UL LISTED

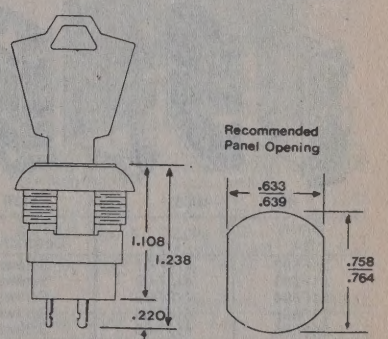


H-SERIES PANEL MOUNT

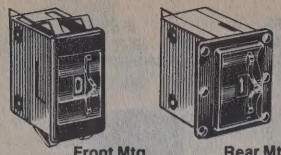








Thumbwheel Switches



Front Mtg. Rear Mtg.

Matte black thumbwheel with unsealed switch contacts. Oper. Volt: 50 mV to 28 VDC or 120 VAC. Oper. Temp.: –10°C to 65°C. ABS plastic body and wheel. Precious metal on copper alloy rotor. Hard gold over Ni flash over 1 oz. Cu on epoxy fiberglass stator. 100 milliohms typical initial contact resistance. 100 milliamps max. switched current. 1 amp max. continuous current. 1000 megohms min. insulation resistance. Dielectric breakdown: 500 VAC.

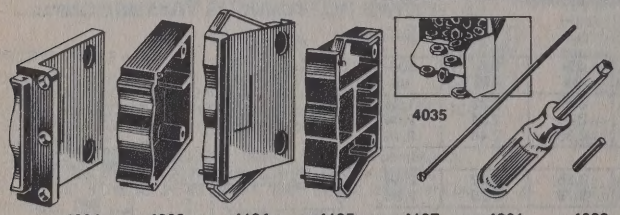
PC TERMINALS

Termination styles 3, A and B incorporate PC terminals. See chart below for terminal lengths.

Terminal Style	Inset Lgth.	Pin Lgth.
3	.230	5.84
A	.230	5.84
B	.250	6.35

Stock No.	Type	1-49	50-99	100-499	500-999
21F506	301109000	3.32	3.16	2.99	2.83
21F507	301109100	3.96	3.77	3.57	3.37
21F508	301109300	3.96	3.77	3.57	3.37
21F509	301109A00	4.59	4.36	4.13	3.90
21F510	301409100	3.96	3.77	3.57	3.37
21F511	301409A00	4.59	4.36	4.13	3.90
21F512	302109000	3.32	3.16	2.99	2.83
21F513	302109100	3.96	3.77	3.57	3.37
21F514	302109300	3.96	3.77	3.57	3.37
21F515	302109A00	4.59	4.36	4.13	3.90
21F516	302209000	3.65	3.47	3.29	3.11
21F517	302209100	4.29	4.08	3.87	3.65
21F518	302209300	4.29	4.08	3.87	3.65
21F519	302209A00	4.92	4.68	4.49	4.19
21F520	302309000	3.32	3.16	2.99	2.83
21F521	302309100	3.96	3.77	3.57	3.37
21F522	302309300	3.96	3.77	3.57	3.37
21F523	302309A00	4.59	4.36	4.13	3.90
21F524	302709600	3.32	3.16	2.99	2.83
21F525	302709B00	3.96	3.77	3.57	3.37
21F526	303509000	6.64	6.31	5.98	5.65
21F527	303509100	7.28	6.92	6.56	6.19
21F528	303509300	7.28	6.92	6.56	6.19
21F530	304109000	4.98	4.74	4.49	4.24
21F531	304109100	5.62	5.34	5.06	4.78
21F532	304109300	5.62	5.34	5.06	4.78
21F533	304109A00	6.25	5.94	5.63	5.32
21F534	304209000	5.31	5.05	4.78	4.52
21F535	304209100	5.95	5.66	5.36	5.06
21F536	304209300	5.95	5.66	5.36	5.06
21F537	304209A00	6.75	6.41	6.08	5.74
21F538	306109000	3.32	3.16	2.99	2.83
21F539	306109100	3.96	3.77	3.57	3.37
21F540	306109300	3.96	3.77	3.57	3.37
21F541	306109A00	4.59	4.36	4.13	3.90
21F542	307109000	6.64	6.31	5.98	5.65
21F543	307109100	7.28	6.92	6.56	6.19
21F544	307109300	7.28	6.92	6.56	6.19
21F545	307109A00	7.91	7.52	7.12	6.73
21F546	301119000	3.32	3.16	2.99	2.83
21F548	301119300	3.96	3.77	3.57	3.37
21F551	301419A00	4.59	4.36	4.13	3.90
21F552	302119000	3.32	3.16	2.99	2.83
21F553	302119100	3.96	3.77	3.57	3.37
21F555	302119A00	4.59	4.36	4.13	3.90
21F556	302219000	3.65	3.47	3.29	3.11
21F557	302219100	4.29	4.08	3.87	3.65
21F558	302219300	4.29	4.08	3.87	3.65
21F559	302219A00	4.92	4.68	4.49	4.19
21F560	302319000	3.32	3.16	2.99	2.83
21F561	302319100	3.96	3.77	3.57	3.37
21F563	302319A00	4.59	4.36	4.13	3.90
21F564	302719600	3.32	3.16	2.99	2.83
21F565	302719B00	3.96	3.77	3.57	3.37
21F566	303519000	6.64	6.31	5.98	5.65
21F567	303519100	7.28	6.92	6.56	6.19
21F568	303519300	7.28	6.92	6.56	6.19
21F569	303519A00	7.91	7.52	7.12	6.73
21F570	304119000	4.98	4.74	4.49	4.24
21F571	304119100	5.62	5.34	5.06	4.78
21F572	304119300	5.62	5.34	5.06	4.78
21F573	304119A00	6.25	5.94	5.63	5.32
21F574	304219000	5.31	5.05	4.78	4.52
21F575	304219100	5.95	5.66	5.36	5.06
21F576	304219300	5.95	5.66	5.36	5.06
21F578	306119000	3.32	3.16	2.99	2.83
21F579	306119100	3.96	3.77	3.57	3.37
21F580	306119300	3.96	3.77	3.57	3.37
21F581	306119A00	4.59	4.36	4.13	3.90
21F582	307119000	6.64	6.31	5.98	5.65
21F583	307119100	7.28	6.92	6.56	6.19
21F584	307119300	7.28	6.92	6.56	6.19
21F585	307119A00	7.91	7.52	7.12	6.73

HARDWARE FOR FIELD ASSEMBLY



4004 4008 4134 4135 4127 4035 4061 4029

SCREWS FOR FIELD ASSEMBLY

Type No.	Number of Sections in Assembly: Front Mounting .315" Mtg. Style 0	Rear Mounting .350" Mtg. Style 1
4127-01	1-3	1-3
4127-02	4-7	4-6
4127-03	8-10	7-9
4127-04	11-13	10-12
4127-05	14-16	13-15

(*) 2 screws needed per assembly w/end plate.

Stock No.	Type	Description	Pkg. of 25
21F592	4127-01	Screws	$3.25 Per Pkg.
21F593	4127-02	Screws	
21F594	4127-03	Screws	
21F595	4127-04	Screws	
21F596	4127-05	Screws	
21F597	4029	Stop pins	.50 Per Pkg.

Sold only in multiples of 25.

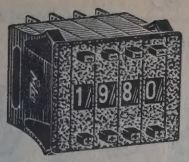
Stock No.	Type	Description	Net
21F586	4008	Rear Mtg. blank section (Plain)	.66
21F587	4004	Rear mtg. end plate	.66/pair
21F588	4135	Frt. mtg. blank section (Plain)	.66
21F589	4134	Frt. mtg. end plate	.66
21F590	4061	Nut driver	3.85
21F591	4035	Nut	2.53/100

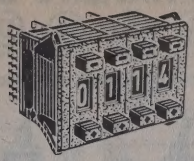
MINIATURE THUMBWHEEL SWITCHES

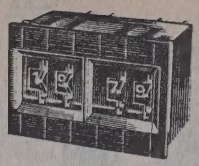
The new miniature 1 pole thumbwheel switch is mounted directly to the printed circuit board with either vertical or horizontal orientation and clockwise or counterwise rotation. Switches may be mounted as individual units or side by side in a multisectional row without hardware. Indexing is accomplished either by the knurled wheel at the side of the switch body or by inserting a screwdriver in the slot provided at the top of the switch. Several function codes are available including: Decimal, BCD and complement of BCD.

Stock No.	Part Number	Description	Positions	Read-Out	Rotation	1-49	50-99	100-499	500-999
81F955	3M1100000	Decimal	10	0–9	CCW	2.99	2.84	2.70	2.55
81F956	3M1200000	Decimal	10	0–9	CW	2.99	2.84	2.70	2.55
81F957	3M2100000	BCD	10	0–9	CCW	2.99	2.84	2.70	2.55
81F958	3M2200000	BCD	10	0–9	CW	2.99	2.84	2.70	2.55
81F959	3M2300000	Complement of BCD	10	0–9	CCW	3.49	3.32	3.15	2.97
81F960	3M2400000	Complement of BCD	10	0–9	CW	3.49	3.32	3.15	2.97

Thumbwheel Switches





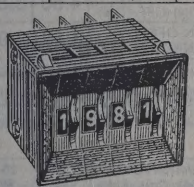


Switch finishes matte black, with white legend on black wheels. Contact rating: 2A @ 115 VAC or 28 VDC, non-switching; 50¢A @ 28 VAC, or 28 VDC. Min. recommended switching current 1.0 ¢A.

SUBMINIATURE-PUSHBUTTON

Front mount bi-directional push indexing switch. Pushbutton below dust-window advances digit, button above retracts digit. Snap-in panel mounting and snap together banking requires no hardware. Face height is 1.3", requires panel cut-out 1.22" high. Switch is .312 wide and extends 1.72 from front of panel.

Stock No.	Type	Description	1-24	25-99
54F171	II-12	10 pos. decimal	5.36	5.10
54F172	II-13	10 pos. decimal double pole	11.26	10.70
54F173	II-21	10 pos. BCD	5.01	4.76
54F174	II-21A	10 pos. BCD extended board	5.53	5.26
54F175	II-22	10 pos. BCD plus complements	8.10	7.70
54F176	II-22A	10 pos. BCD plus camp & ext. board	10.28	9.77
54F177	II-55	0/15, 16 pos. dec.	9.09	8.64
54F178	II-55	0/9, A/F 16 pos. decimal	9.09	8.64
54F179	II-57	0/15, 16 pos. dec. BCD & complements	13.43	12.76
54F180	II-57	0/9 A/F 16 pos. decimal BCK & complements	13.43	12.76
54F181	II-EP	End plates (pair)	1.17	1.12
54F182	II-BB	Blank body	.66	.63



SUBMINIATURE—FRONT MOUNT

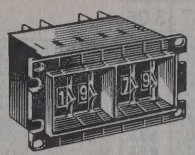
Front mount style requires no panel mounting screws and the molded-in front bezel improves appearance. Panel cut need not be accurate. Same dimensions as series II.

Stock No.	Type	Description	1-24	25-99
39F3304	MF-12	10 pos. decimal	4.47	4.25
28F1646	MF-13	10 pos. decimal double pole	9.59	9.12
39F3305	MF-21	10 pos. BCD	4.13	3.93
39F3306	MF-21A	10 pos. BCD extended board	4.61	4.38
39F3307	MF-22	10 pos. BCD plus comp.	6.92	6.58
39F3308	MF-22A	10 pos. BCD plus comp. extended board	8.56	8.14
28F1647	MF-55	Q/15, 16 pos. decimal	8.30	7.89
28F1648	MF-55	Q/9 A/F pos. decimal	8.30	7.89
28F1649	MF-57	Q/15, 16 pos. dec. BCD & complements	13.04	12.39
28F1650	MF-57	Q/9 A/F 16 pos. decimal BCD & complements	13.04	12.39
28F1651	MF-BB-H	Blank body with decimal point	1.61	1.53
39F3311	MF-EP	End plates (pair)	1.17	1.12
39F3310	MF-BB	Blank body	.61	.58
39F3309	MF-DP	Divider plate	2.02	1.92

MINI-INDEXER

Similar to II Type but with face height of .945", requires panel cut-out .874" high. Switch is .30" wide, extends 1.26" from front of panel.

Stock No.	Type	Description	1-24	25-99
54F185	MI-12	10 pos. decimal	5.88	5.59
54F186	MI-21	10 pos. BCD	5.53	5.26
54F187	MI-21A	10 pos. BCD extended board	6.24	5.93
54F188	MI-EP	End plates (pair)	.69	.66
54F189	MI-BB	Blank body	.58	.56



SUBMINIATURE REAR MOUNT

Rear mount version of MF type. White characters on black wheel, 1.25" high × .312" wide × 1.35" deep, panel cut only .79" high.

Stock No.	Type	Description	1-24	25-99
28F1634	TR-12	10 pos. decimal	4.47	4.25
28F1636	TR-21	10 pos. BCD	4.13	3.93
28F1637	TR-21A	10 pos. BCD, extended board	4.61	4.38
28F1638	TR-22	10 pos. BCD & complement	6.92	6.58
28F1639	TR-22A	10 pos. BCD, & complement, extended board	8.56	8.14
28F1640	TR-EP	End plates (pair)	.92	.88
28F1641	TR-BB	Blank body	.70	.67
28F1642	TR-DP	Divider plate	1.53	1.46

MINIATURE—REAR MOUNT

Miniature switches used where panel space restrictions are a problem. Edge operated and have white characters on a black background. Miniature switch face is .960" high; single switch occupies 0.500" width and extends 1.52" from rear of panel. Av. shpg. wt., 1/2 oz.

Stock No.	Type	Description	1-24	25-99
39F3295	MR-12	10 pos. decimal	5.08	4.83
39F3297	MR-21	10 pos. BCD	4.91	4.67
39F3298	MR-21A	10 pos. BCD extended board	6.90	6.56
39F3299	MR-22	10 pos. BCD plus complements	10.13	9.63
28F1627	MR-BB-H	Blank body with decimal point	1.85	1.76
39F3303	MR-EP	End plates (pair)	.99	.95
39F3301	MR-DP	Divider plate	.85	.81

ASSEMBLY HARDWARE

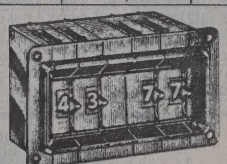
Stock No.	Type	*	Description	Price
39F3314	MFH-1	1	Fits MF and TR types * Indicates No. of modules to be assembled.	.35
39F3315	MFH-2	2		
39F3316	MFH-3	3		
39F3317	MFH-4	4		
39F3318	MFH-5	5		
39F3277	IH-1	1	Fits MR, IF and IR type	1.36
39F3278	IH-2	2		
39F3279	IH-3	3		
39F3280	IH-4	4		
39F3281	IH-5	5		

(Sold in Pairs)

INTERMEDIATE—FRONT MOUNT

Face height is 2.125", requires panel cutout 1.925" high. Switch is .500" wide and extends 1.824" from front of panel. Wt. 1 oz.

Stock No.	Type	Description	1-24	25-99
39F3259	IF-12	10 pos. decimal	7.05	6.70
28F1628	IF-13	10 pos. decimal double pole	15.37	14.61
39F3261	IF-21	10 pos. BCD	6.38	6.07
39F3262	IF-21A	10 pos. BCD extended board	7.27	6.91
39F3263	IF-22	10 pos. BCD plus comp.	13.75	13.07
39F3264	IF-22A	10 pos. BCD plus comp. & ext. board	17.07	16.22
28F1629	IF-55	0/15, 16 pos. dec.	8.89	8.45
28F1630	IF-55	0/9, A/F 16 pos. decimal	8.89	8.45
28F1631	IF-57	0/15, 16 pos. dec. BCD & complements	11.46	10.89
28F1632	IF-57	0/9,A/F 16 pos. decimal BCD & complements	11.46	10.89
28F1633	IF-BB-H	Blank body with decimal point	2.13	2.03
39F3267	IF-EP	End plates (pair)	2.07	1.97
39F3313	IF-BB	Blank body	1.13	1.08
39F3312	IF-DP	Divider plate	.85	.81



INTERMEDIATE—REAR MOUNT

Face height 1.350". Width is .500" and extends 2.080" from rear. Wt., 1 oz.

Stock No.	Type	Description	1-24	25-99
39F3268	IR-12	10 pos. decimal	7.05	6.70
28F1620	IR-13	10 pos. decimal double pole	15.37	14.61
39F3270	IR-21	10 pos. BCD	6.38	6.07
39F3271	IR-21A	10 pos. BCD extended board	7.27	6.91
39F3272	IR-22	10 pos. BCD plus complements	13.75	13.07
28F1621	IR-55	0/15, 16 pos. dec.	8.89	8.45
28F1622	IR-55	0/9, A/F, 16 pos. decimal	8.89	8.45
28F1623	IR-57	0/15, 16 pos. dec. BCD & complement	11.46	10.89
28F1624	IR-57	0/9, A/F 16 pos. decimal BCD & comp.	11.46	10.89
28F1625	IR-BB-H	Blank body with decimal point	2.13	2.03
39F3276	IR-EP	End Plates (pair)	1.17	1.12
39F3275	IR-BB	Blank body	1.13	1.08
39F3323	IR-DP	Divider plate	.85	.81
39F3257	IR-HB	Half body	.85	.81

10-POSITION CONNECTORS

Stock No.	Type	Description	Price
28F1644	MCN-10	Fits MF, II, TR and MR	2.00
28F1645	ICN-10	Fits IF & IR	1.36

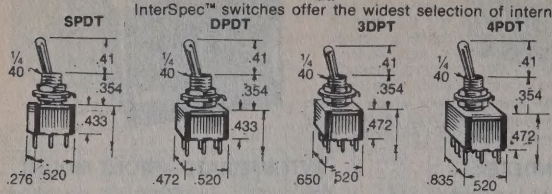
(Sold in Pairs)

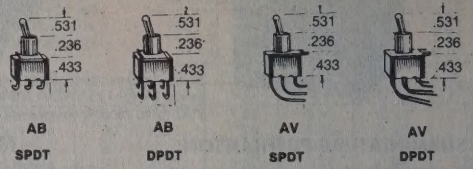
Subminiature Switches InterSpec™

UTE-NF-CCQ France · USE France · Germany · Switzerland · Sweden · Norway · Denmark · U.S.A. · Canada · Gfw Spacelab

International Approvals

InterSpec™ switches offer the widest selection of international agency approvals for power applications.





Contact rating: 6A @ 125 VAC, 3A @ 250 VAC, 5A @ 30VDC resistive load. Contact material: fine silver. Anti-rotation pin & high torque bushing standard.

Contact metal: gold over nickel/copper. Rating: 100ma @ 30 VDC anti-rotation pin standard.

PANEL MOUNT TOGGLE

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5220	A1010SH3ZQ	SPDT	ON-ON	2.56	2.14	1.87
81F5221	A1030SH3ZQ	SPDT	ON-OFF-ON	2.96	2.47	2.15
81F5222	A1050SH3ZQ	SPDT	(ON)-OFF-(ON)			
81F5223	A1070SH3ZQ	SPDT	ON-OFF-(ON)			
81F5224	A1080SH3ZQ	SPDT	ON-(ON)			
81F5225	A2010SH3ZQ	DPDT	ON-ON	3.56	3.04	2.68
81F5226	A2030SH3ZQ	DPDT	ON-OFF-ON	4.10	3.47	3.06
81F5227	A2050SH3ZQ	DPDT	(ON)-OFF-(ON)			
81F5228	A2070SH3ZQ	DPDT	ON-OFF-(ON)	4.22	3.57	3.15
81F5229	A2080SH3ZQ	DPDT	ON-(ON)			
81F5230	A2110SH3ZQ	DPDT	ON-ON-ON	4.51	3.80	3.33
81F5231	A3010SH3ZQ	3PDT	ON-ON	6.05	5.15	4.51
81F5232	A3030SH3ZQ	3PDT	ON-OFF-ON	6.46	5.47	4.79
81F5233	A4010SH3ZQ	4PDT	ON-ON	7.79	6.60	5.83
81F5234	A4030SH3ZQ	4PDT	ON-OFF-ON	8.34	7.03	6.23

Contact rating: 100 ma @ 30 VDC. Contact Metal: gold plated/nickel/copper.

PC MOUNT TOGGLE

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5235	A1010SH3CBE	SPDT	ON-ON	2.74	2.32	2.05
81F5236	A1030SH3CBE	SPDT	ON-OFF-ON	3.14	2.65	2.33
81F5237	A1050SH3CBE	SPDT	(ON)-OFF-(ON)			
81F5238	A1070SH3CBE	SPDT	ON-OFF-(ON)			
81F5239	A1080SH3CBE	SPDT	ON-(ON)			
81F5240	A2010SH3CBE	DPDT	ON-ON	3.92	3.40	3.04
81F5241	A2030SH3CBE	DPDT	ON-OFF-ON	4.46	3.83	3.42
81F5242	A2050SH3CBE	DPDT	(ON)-OFF-(ON)			
81F5801	A2070SH3CBE	DPDT	ON-OFF-(ON)	4.58	3.93	3.51
81F5243	A2080SH3CBE	DPDT	ON-(ON)			

SPDT RIGHT ANGLE

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5244	A1010SD9AB	SPDT	ON-ON	2.76	2.34	2.07
81F5245	A1030SD9AB	SPDT	ON-OFF-ON	3.16	2.67	2.35
81F5246	A1050SD9AB	SPDT	(ON)-OFF-(ON)			
81F5247	A1070SD9AB	SPDT	ON-OFF-(ON)			
81F5248	A1080SD9AB	SPDT	ON-(ON)			

DPDT RIGHT ANGLE

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5249	A2010SD9AB	DPDT	ON-ON	3.96	3.44	3.08
81F5250	A2030SD9AB	DPDT	ON-OFF-ON	4.50	3.87	3.46
81F5251	A2050SD9AB	DPDT	(ON)-OFF-(ON)			
81F5252	A2070SD9AB	DPDT	ON-OFF-(ON)	4.62	3.97	3.55
81F5253	A2080SD9AB	DPDT	ON-(ON)			

SPDT VERTICAL

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5254	A1010SD9AV2B	SPDT	ON-ON	2.76	2.34	2.07
81F5255	A1030SD9AV2B	SPDT	ON-OFF-ON	3.16	2.67	2.35
81F5256	A1050SD9AV2B	SPDT	(ON)-OFF-(ON)			
81F5257	A1070SD9AV2B	SPDT	ON-OFF-(ON)			
81F5258	A1080SD9AV2B	SPDT	ON-(ON)			

DPDT VERTICAL

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5259	A2010SD9AV2B	DPDT	ON-ON	3.96	3.44	3.08
81F5260	A2030SD9AV2B	DPDT	ON-OFF-ON	4.50	3.87	3.46
81F5261	A2050SD9AV2B	DPDT	(ON)-OFF-(ON)			
81F5262	A2070SD9AV2B	DPDT	ON-OFF-(ON)	4.62	3.97	3.55
81F5263	A2080SD9AV2B	DPDT	ON-(ON)			

TYPE SV

TYPE SA

TYPE SAV

COMPLETELY WATERTIGHT TOGGLES

Designed for wave soldering and cleaning of P.C. Board. Contact rating: .4 VA @ 204 AC/DC.

Stock No.	Type	Desc.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5264	L1010SV30BE	SPDT	ON-ON	3.40	2.99	2.72
81F5265	L2010SV30BE	DPDT	ON-ON	4.52	3.98	3.62
81F5266	L1010SABE	SPDT	ON-ON	3.45	3.04	2.77
81F5267	L2010SABE	DPDT	ON-ON	4.59	4.04	3.67
81F5268	L1010SAV2BE	SPDT	ON-ON	3.45	3.04	2.77

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Hole Size: .492 x .591
Snap-in ROCKER AND PADDLE SWITCHES

Rating: 6A @ 125 VAC, 3A @ 250 VAC, 5A 30VDC resistive. Contacts: fine silver.

Stock No.	Type	Desc.	Fig.	Switch Action Side-Cntr.-Side	1-24	25-99	100-499
81F5288	B2010J51ZQ22	DPDT	3	ON-ON	4.07	3.55	3.19
81F5269	B2080J61ZQ22	DPDT	1	ON-(ON)	4.73	4.08	3.66
81F5270	B2110J61ZQ22	DPDT	1	ON-ON-ON	5.02	4.31	3.84
81F5271	B2010J61ZQ22	DPDT	1	ON-ON	4.07	3.55	3.19
81F5272	B2050J61ZQ22	DPDT	1	(ON)-OFF-(ON)	4.61	3.98	3.57
81F5273	B2070J61ZQ22	DPDT	1	ON-OFF-(ON)	4.73	4.08	3.66
81F5274	B2030J61ZQ22	DPDT	1	ON-OFF-ON	4.61	3.98	3.57

SENSITIVE PUSH BUTTON

Rating: 100ma @ 30 VDC.

81F5275	D1080J81ZB22	SPDT	2		4.92	4.04	3.48
81F5276	D2080J81ZB22	DPDT	2		6.69	5.45	4.69

MICRO-MINIATURE PUSHBUTTON

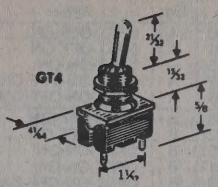
Rating: 100ma @ 30VDC. Contact rep. for optional colored cap. V482-BLACK V483-GREEN; V486-RED.
81F5285 V482, **81F5286** V483, **81F5287** V486 .All quantities ..... .07

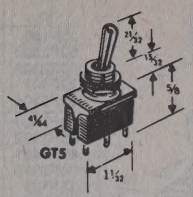
Stock No.	Type	Desc.	Switch Action	1-24	25-99	100-499
81F5277	E1060MBCBE	P.C.M. TG	OFF-(ON)	2.63	2.21	1.92
81F5278	E2060MBAVBE	Fig. 5	OFF-(ON)	2.82	2.40	2.11
81F5279	E2040MBZBE	Fig. 4	ON-(OFF)	2.86	2.42	2.12
81F5280	E2060MBZBE	Fig. 4	OFF-(ON)	2.63	2.21	1.92

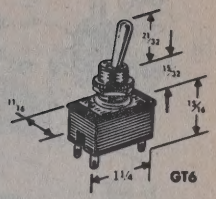
SUBMINIATURE PUSH BUTTON

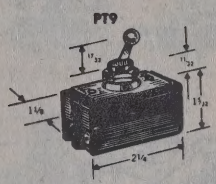
Stock No.	Rating Type	Rating	Desc. Fig.	Switch Action	1-24	25-99	100-499
81F5281	*F1080PBC2BE	1A@30V	6	ON-(ON)	2.71	2.45	2.30
81F5282	*F1060PBZQ	1A@30V	6	OFF-(ON)	1.85	1.59	1.44
81F5283	*C1010PBH3ZQ	6A@125V	7	On-ON	3.16	2.60	2.30
81F5284	*H1080PBYZQE2	4A@125V	7	ON-(ON)	4.95	4.19	3.72

*W/O Cap.

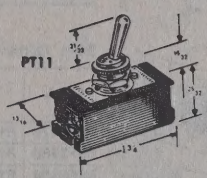




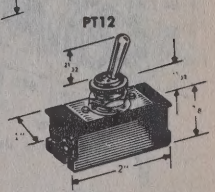


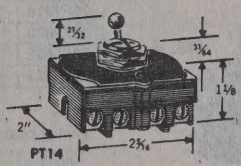


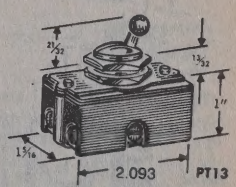
½-32 TPI (THREAD)



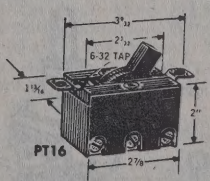
15/32-32 TPI (THREAD)

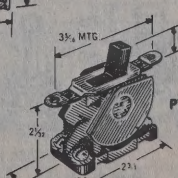






¾-32 TPT (THREAD)





7

SNAP ACTION TOGGLE SWITCHES AC/DC

Providing long life at low cost. Ideal for light duty applications U.L. listed.

Stock No.	Type	Fig.	Positive Action (*momentary)	Rating 125V	Rating 250V	Lever Type	Term Type	1-24	25-49	50-99	100-249
23F011	21350-EH	GT2	SPDT-ON-ON	3	1	Bat	Lug	5.06	3.95	3.19	2.43
23F075	21827-GA	GT2	SPDT-ON-ON	3	1	Bat	Lug	6.78	5.29	4.27	3.25
23F025	20902-N	GT2	DPST-OFF-ON	3	1	Bat	Lug	6.61	5.16	4.16	3.17
23F012	20902-CX	GT2	DPST-OFF-ON	3	1	Bat	Lug	6.61	5.16	4.16	3.17
23F015	20905-FR	GT3	DPDT-ON-ON	3	1	Bat	Lug	7.59	5.92	4.78	3.64
23F028	20905-BX	GT3	DPDT-ON-ON	3	1	Bat	Lug	7.59	5.92	4.78	3.64

MIDGET WIPING ACTION TOGGLE SNAP SWITCH

For electronic applications demanding small size highly dependable performance. U.L. listed

60F2322	83050	GT4	SPST-OFF-ON	3	1	Bat	Lug	3.04	2.37	1.92	1.46
60F2323	83052	GT4	SPDT-ON-ON	3	1	Bat	Lug	3.62	2.82	2.28	1.74
60F2328	83053	GT4	DPST-ON-ON	3	1	Bat	Lug	4.96	3.87	3.12	2.38
60F2325	83054	GT4	DPDT-ON-ON	3	1	Bat	Lug	5.67	4.42	3.57	2.72

THREE-POSITION TOGGLES—SOLDER LUGS/QUICK-CONNECT TERMINALS

23F064	84105	GT5	SPDT-ON-OFF-ON	3	1	Bat	CSQC	7.38	5.76	4.65	3.54
23F065	84104	GT5	DPST-ON-OFF-ON	3	1	Bat	CSQC	8.81	6.87	5.55	4.23

INTERMEDIATE SIZE TOGGLE TWO POSITION SNAP ACTION SWITCH

Silver plated wiping action contacts for low contact resistance applications. U.L. listed.

23F006	81015-AW	GT6	SPST-ON-OFF	6	3	Bat	Lug	2.81	2.19	1.77	1.35
23F007	81021-AV	GT6	SPDT-ON-ON	6	1	Bat	Lug	3.45	2.69	2.17	1.66
23F008	81024-GB	GT6	DPST-OFF-ON	6	3	Bat	Lug	4.95	3.86	3.12	2.38
23F009	81027-CF	GT6	DPDT-ON-ON	6	3	Bat	Lug	5.69	4.44	3.58	2.73
23F074	81054-H	GT6	DPST-OFF-ON	6	3	Bat	Lug	7.36	5.74	4.64	3.53

THREE POSITION STANDARD DUTY TOGGLE QUICK MAKE & BREAK AC/DC

Switch presents a foolproof answer to control problems requiring a positive stop at center position (OFF) U.L. listed.

23F060	80638-D	PT13	DPDT-ON-OFF-ON	14	7	Ball	Scrw.	16.92	13.20	10.66	8.12
23F019	80983	PT14	3PDT-ON-OFF-ON	10	5	Ball	Scrw.	21.79	17.00	13.73	10.46
23F000	80985	PT14	4PDT-ON-OFF-ON	10	5	Ball	Scrw.	29.07	22.67	18.31	13.95
23F067	80988	PT16	DPDT-ON-OFF-ON	30	20	Squ.	Scrw.	18.62	16.76	16.76	15.08

TWO-POSITION HEAVY DUTY TOGGLES AC/DC

Non-teasable action providing control available for motor loads up to 2 H.P. U.L. listed.

Stock No.	Type	Fig.	Action	Rating 120V	Rating 250V	HP	Cap	Term Type	1-24	25-99	100-499	500 999
23F039	80600-B	PT11	DPST-OFF-ON	16	8	1	Ball	Scrw.	4.44	3.46	2.80	2.13
23F048	80600-BJ	PT11	DPST-OFF-ON	16	8	1	Bat	Scrw.	4.44	3.46	2.80	2.13
23F016	80602-C	PT12	DPST-OFF-ON	15	10	1½	Ball	Scrw.	7.46	5.82	4.70	3.58
23F047	80602-CA	PT12	DPST-OFF-ON	15	10	1½	Ball	Scrw.	7.46	5.82	4.70	3.58
23F020	80421	PT9	DPST-OFF-ON	—	20	2	Ball	Scrw.	10.96	8.55	6.90	5.26
23F017	80093	PT22	DPST-OFF-ON	30	20	2	Squ.	Scrw.	7.14	6.43	6.43	5.78

Switches

AIRCRAFT TYPE TOGGLE SWITCH

DESCRIPTION: 15 amp, AC only ¾ H.P. @ 125 + 250 Volts, butt type contacts, all have Bat. handles. U.S. listed. Sleeve 15⁄32" dia. + 13⁄32" length.

Stock No.	Type	Fig.	Action	Rating 125V	Rating 250V	Term Type	1-24	25-49	50-99	100-249
23F106	82600	A	SPST-OFF-ON	15	10	scrw	2.81	2.19	1.77	1.35
60F2300	82601	A	SPST-OFF-ON	15	10	lug	2.46	1.92	1.55	1.18
60F2308	82605	A	SPDT-ON-ON	15	10	lug	3.09	2.41	1.95	1.48
23F107	82602	A	SPDT-ON-OFF-ON	15	10	scrw	3.62	2.82	2.28	1.74
60F2304	82603	A	SPDT-ON-OFF-ON	15	10	lug	3.09	2.41	1.95	1.48
60F3450	82606	B	DPST-OFF-ON	15	10	scrw	4.76	3.71	3.00	2.28
60F2302	82607	B	DPST-OFF-ON	15	10	lug	4.00	3.12	2.52	1.92
60F3451	82610	B	DPDT-ON-ON	15	10	scrw	5.84	4.56	3.68	2.80
60F2310	82611	B	DPDT-ON-ON	15	10	lug	4.76	3.71	3.00	2.28
23F108	82608	B	DPDT-ON-OFF-ON	15	10	scrw	5.85	4.56	3.69	2.81
60F2306	82609	B	DPDT-ON-OFF-ON	15	10	lug	4.76	3.71	3.00	2.28
60F3452	82612	C	3PST-ON-OFF	15	10	scrw	9.84	7.68	6.20	4.72
60F3453	82614	C	3PDT-ON-OFF-ON	15	10	scrw	12.46	9.72	7.85	5.98
60F3454	82615	C	3PDT-ON-OFF-ON	15	10	lug	10.38	8.10	6.54	4.98
60F3455	82616	C	3PDT-ON-ON	15	10	scrw	14.24	11.11	8.97	6.84
60F3456	82617	C	3PDT-ON-ON	15	10	lug	11.87	9.26	7.48	5.70
60F3457	82634	C	4PDT-ON-OFF-ON	15	10	lug	13.72	10.70	8.64	6.59
60F3458	82636	C	4PDT-ON-ON	15	10	lug	13.72	10.70	8.64	6.59

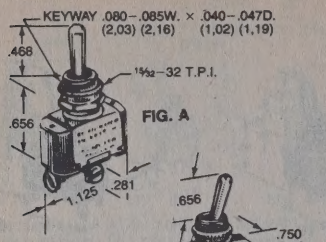


FIG. A

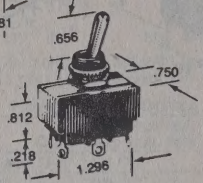


FIG. B

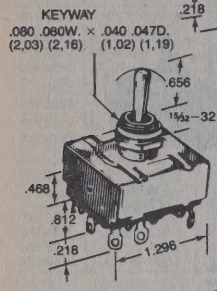


FIG. C

SWITCH HARDWARE

Stk. No.	Type	Description	Prices Each 1-24	25-49	50-99	100-499
23F045	20590-1AS	On-Off Dial Plate for 15⁄32" dia. sleeve	.17	.03	.11	.08
60F2376	8891-1378AS	Bronze Lock washer for 15⁄32" dia. sleeve	.10	.08	.06	.05
60F2377	20590-174AS	Locating Ring for 15⁄32" dia. sleeve	.11	.09	.07	.05

FIG. G. SECURITY LOCK SWITCHES—ROTARY ACTION—U.L. Listed

3 pin "Corbin" security lock switch, designed for easy dead front mounting.

Stock No.	Type	Action	DC 125V	Rating 250V	Key Removal Position	Sleeve Lgth.	Term Type	1-24	25-49	50-99	100-249
60F3479	81721-LQ-41	SPDT-ON-ON	6	3	Both	⅞	lug	33.06	25.79	20.83	15.87
60F3480	81715-41 Both Positions							1.65	1.29	1.04	.79
60F3484	81721-LQ-61	SPDT-ON-ON	6	3	CC	⅞	lug	33.06	25.79	20.83	15.87
60F3483	81715-61 One CC Position							1.65	1.29	1.04	.79

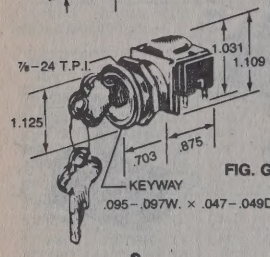


FIG. G

FIG. H. INTERMEDIATE SIZE LOCKING SWITCH—U.L. Listed

Stock No.	Type	Action	DC 125V	Rating 250V	Key Removal Position	Sleeve Lgth.	Term Type	1-24	25-49	50-99	100-249
60F2316	81715-L	SPST-OFF-ON	6	3	Off	15⁄32"	lug	8.15	6.36	5.13	3.91
60F2320	Key for above switch #1561-488							.52	.41	.33	.25
60F3482	81721-L	SPDT-ON-ON	6	3	Both	15⁄32"	lug	8.29	6.47	5.22	3.98
60F2321	Key for above switches #1561-487							.52	.41	.33	.25

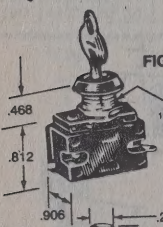


FIG. H

ROTARY POWER SWITCHES

Wiping blade contact, ideal for control panel. Small appliance and instrument use. U.L. List.

Stock No.	Type	Fig.	Action	Rating 125V	Rating 250V	Slv. Dia.	Spld. Lgth.	Sleeve Lgth.	Term Type	1-24	25-49	50-99	100-249
60F3487	1561-B	K	SPST-ON-OFF	3	1	⅜	⅜	⅜	lug	5.23	4.08	3.29	2.51
60F3489	81715	J	SPST-ON-OFF	6	3	⅜	⅜	⅜	lug	6.32	4.93	3.98	3.03
60F3490	81727	J	DPDT-ON-ON	6	3	⅜	⅜	⅜	lug	9.21	7.18	5.80	4.42

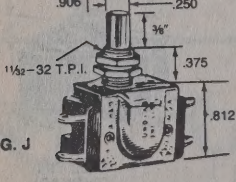


FIG. J

INSTRUMENT GRADE AND PUSHBUTTON SWITCHES

Gold plated contacts. Toggle switch ratings, 5 amps at 125 VAC and 29 VDC. Push button switch ratings, 1 amp at 115 VAC and 5 amps at 29 VDC rated, 7 amps at 125 VAC and 5 amps at 29 VDC. Base size, SPST switches, ¼×½", DPDT ½×½". Sleeve diameters both ¼".

FIG. K

Stock Number	Type	Fig.	Action	1-24	25-49	50-99
59F521	TC-3	P	SPDT	12.54	9.78	7.90
59F522	TE-3	P	SPDT	12.38	9.66	7.80
59F523	TG-3	P	SPDT	12.38	9.66	7.80
59F524	TS-3	P	SPDT	12.54	9.78	7.90
60F2390	TS-2	P	DPST	13.71	10.69	8.64
60F2391	TC-6	P	DPDT	16.31	12.72	10.28
60F2393	TG-6	P	DPDT	19.98	15.58	12.59
59F525	TS-6	P	DPDT	16.31	12.72	10.28

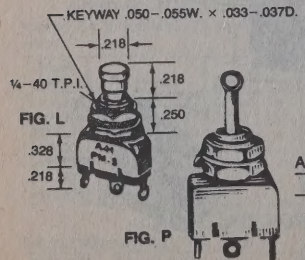


FIG. L

FIG. P

SUBMINIATURE PUSH BUTTON SERIES

All switches Momentary Action, except (#) Snap Action, for Tactile Feedback.

Stock No.	Type	Fig.	Action	1-24	25-49	50-99	100-249
23F128	PM-3	L	SPDT	11.96	9.33	7.53	5.74
23F129	PM-6	L	DPDT	14.67	11.44	9.24	7.04
60F2386	PM-8	L	3PST-NC	19.45	15.17	12.25	9.34
60F2387	PMQ-3	L	SPST#	13.59	10.60	8.56	6.52

Switches

MOMENTARY PUSHBUTTON SWITCHES—SLOW MAKE & BREAK

Long life expectancy, reliable butt type contacts, low operating pressure, single pole, for use with AC only.

Stock No.	Type	Fig.	Action	Rating 125V	Rating 250V	Cap	Term Type	1-24	25-49	50-99	100-499
23F029	3392	A	2-CIRCUIT NO-NC	1		Nkl.	Lug	4.85	3.78	3.06	2.33
23F044	3392-AE	A	2-CIRCUIT NO-NC	1		Blk.	Lug	6.00	4.68	3.78	2.88
23F118	80511-E	B	OFF-MOM. ON	3	1	Nkl.	Lug	2.94	2.29	1.85	1.41
23F115	80511	B	ON-MOM. OFF	3	1	Nkl.	Lug	2.94	2.29	1.85	1.41
23F119	80541-E	D	OFF-MOM. ON	3	1	Blk.	Lug	3.26	2.54	2.05	1.56
23F120	80541-ER	D	OFF-MOM. ON	3	1	Red	Lug				
23F116	80541	D	ON-MOM. OFF	3	1	Blk.	Lug				
23F117	80541-R	D	ON-MOM. OFF	3	1	Red	Lug				

MIDGET WIPING ACTION MOMENTARY PUSHBUTTON SWITCHES—AC/DC

23F050	83090	E	SPST-OFF-MOM. ON	3	1	Nkl.	Lug	5.19	4.05	3.27	2.49
23F049	83093-C	E	DPST-OFF-MOM. ON	3	1	*	Lug	7.10	5.54	4.47	3.41
23F053	83094-C	E	DPDT-ON-MOM. ON	3	1	*	Lug	7.73	6.03	4.87	3.71
23F123	81084-G	F	DPST-OFF-MOM. ON	6	3	Nkl.	Lug	7.59	5.92	4.78	3.64

*Order caps below.

HEAVY DUTY MOMENTARY PUSHBUTTON SWITCHES—ONE H.P. AC/DC

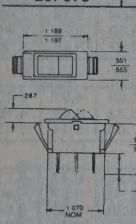
23F055	80631	G	SPST-OFF-MOM. ON	16	8	Nkl.	Screw	9.64	7.52	6.07	4.63
23F036	80630	G	DPST-OFF-MOM. ON	16	8	Nkl.	Screw				

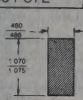
ALTERNATE ACTION PUSHBUTTON SWITCHES

23F056	82403-CL	H	SPST-OFF-ON	6	3	*	Lug	4.18	3.26	2.63	2.01
23F058	82405-CL	I	SPST-OFF-ON	6	3	*	Screw	4.76	3.71	3.00	2.28
23F059	81117	J	DPDT-ON-ON	6	3	Nkl.	Lug	7.88	6.15	4.96	3.78
23F054	80863	K	DPST-OFF-ON	16	8	Nkl.	Screw	10.91	8.51	6.87	5.24

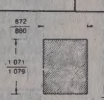
CAPS FOR MIDGET and DOUBLE ACTION PUSHBUTTON SWITCHES *Order caps below

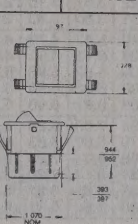
Stk. No.	Type	Color	1-24	25-49	50-99	100-499
23F072	3391-194	Black	.66	.51	.42	.32
23F073	3391-372	Red				

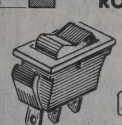




MINIATURE SNAP-IN ROCKER SWITCHES





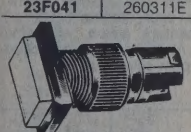


AA

BB

Carry UL, CSA, BS, VDE, SEMKO, SF, and UTE listing. 16 amp 250 VAC. Combination quick connect; solder lug terminal (.250 spade).

Stock No.	Type	Fig.	Action	1-24	25-49	50-99	100-499
23F001	160011E	AA	SPST-OFF-ON	1.47	1.15	.93	.71
23F003	160211E	AA	SPDT-ON-ON	1.86	1.45	1.17	.89
23F004	160411E	AA	SPDT-ON-OFF-ON	2.14	1.67	1.35	1.03
23F010	160111E	AA	SPST-OFF-MOM. ON	1.64	1.28	1.03	.79
23F014	160311E	AA	SPDT-ON-MOM. ON	2.14	1.67	1.35	1.03
23F032	260011E	BB	DPST-OFF-ON	2.27	1.77	1.43	1.09
23F033	260211E	BB	DPDT-ON-ON	3.07	2.39	1.93	1.47
23F034	260411E	BB	DPDT-ON-OFF-ON	3.22	2.51	2.03	1.55
23F035	260111E	BB	DPST-OFF-MOM. ON	2.72	2.12	1.71	1.31
23F041	260311E	BB	DPDT-ON-MOM. ON	3.65	2.85	2.30	1.75



Lighted Indicator

ADAPT-A-SWITCHES

Mounting Nut

Contact Block

Lens

Lamp

Actuator-Indicator

ACTUATOR INDICATORS

Stock No.	Mfr's Type	Description	EACH 1-24	25-99	100-499	500-999
23F1100	83501	Rec. Momentary action	2.12	1.91	1.72	1.57
23F1101	83504	Rec. Alternate action	3.35	3.02	2.71	2.48
23F1102	83502	Square Momentary action	2.12	1.91	1.72	1.57
23F1103	83505	Square Alternate action	3.35	3.02	2.71	2.48
23F1104	83503	Round Momentary action	2.12	1.91	1.72	1.57
23F1105	83506	Round Alternate action	3.35	3.02	2.71	2.48

LENSES FOR ABOVE INDICATORS

Stock No.	Mfr's Type	Description	Stock No.	Mfr's Type	Description
23F1110	83500-70	Rect. White	**23F1121**	83500-84	Sq. yellow
23F1111	83500-71	Rect. red	**23F1122**	83500-85	Sq. amber
23F1112	83500-72	Rect. green	**23F1123**	83500-86	Sq. black
23F1113	83500-73	Rect. blue	**23F1124**	83500-90	Round white
23F1114	83500-74	Rect. yellow	**23F1125**	83500-91	Round red
23F1115	83500-75	Rect. amber	**23F1126**	83500-92	Round green
23F1116	83500-76	Rect. black	**23F1127**	83500-93	Round blue
23F1117	83500-80	Sq. white	**23F1128**	83500-94	Round yellow
23F1118	83500-81	Sq. red	**23F1129**	83500-95	Round amber
23F1119	83500-82	Sq. green	**23F1130**	83500-96	Round black
23F1120	83500-83	Sq. blue			

1-24 . . . . . Each .30 100-499 . . . . . Each .24
25-99 . . . . . Each .27 500-999 . . . . . Each .22

Ideal for business machines and the computer industries. Lighted pushbutton switches designed to offer 25, 344 combinations with 31 components listed below. Highly reliable—100,000 cycles mechanical and electrical at full rating. Rated: 5A @ 125VAC, 2A @ 250VAC, and 5A @ 28VDC. Minimum rating for dry circuit application 10 microamp, 50 mV. Uses standard T-1¾ (CM 334, 336, 337), incandescent lamp with groove base. (Lamps not supplied.) Installed through front of panel.

CONTACT BLOCKS (*Silver plated contacts, †gold plated)

Stock No.	Mfr's Type	Description	EACH 1-24	25-99	100-499	500-999
23F1106	83500-30	Standard Duty*	2.75	2.48	2.23	2.04
23F1107	83600-30	Low Energy†	4.58	4.12	3.71	3.39

SNAP-ON CLIP TO CONVERT ANY ACTUATOR TO INDICATOR

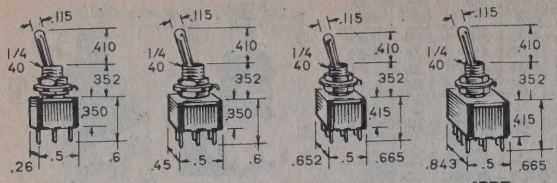
23F1131	83500-51	Snap-on-clip	.30	.27	.24	.22

INCANDESCENT LAMPS

Stock No.							10-99	100-499
26F544	334	28.0	.04	7000	2	T-1¾	1.02	.90
26F547	336	14.0	.08	750	2	T-1¾	1.09	.96
26F548	337	6.0	.20	1000	2	T-1¾	1.14	1.01

Toggle Switches

SUB-MINIATURE TOGGLE SWITCHES PANEL MOUNT

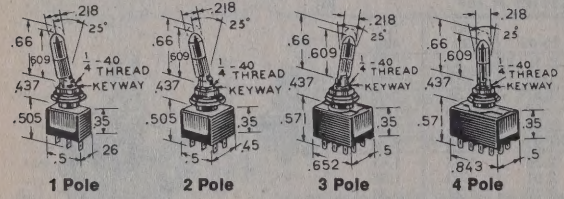


SPDT DPDT 3DPT 4PDT

JMT type: Contact Rating: 6 amp resistive load @ 125 VAC and 24 VDC. Switching contacts are Coin silver. Center contact is silver plated brass. All have solder terminals and are direct panel mount. ()Denote momentary action. All items U.L. approved. All items C.S.A. approved except 2, 3, 4 pole solder lug.

Stk. No.	Type	Switch Action Side Center Side	Switch Type	1-24	25-99	100-499	500-999
65F1650	JMT-121	ON-OFF-ON	SPDT	2.96	2.47	2.15	1.88
65F1651	JMT-123	ON-NONE-ON	SPDT	2.56	2.14	1.87	1.65
65F1652	JMT-126	ON-NONE-(ON)	SPDT	2.96	2.47	2.15	1.88
65F1653	JMT-127	(ON)-OFF-(ON)	SPDT	2.96	2.47	2.15	1.88
65F1654	JMT-131	ON-OFF-(ON)	SPDT	2.96	2.47	2.15	1.88
65F1655	JMT-134	NONE-ON-(ON)	SPDT	2.96	2.47	2.15	1.88
65F1656	JMT-221	ON-OFF-ON	DPDT	4.10	3.47	3.06	2.71
65F1657	JMT-223	ON-NONE-ON	DPDT	3.56	3.04	2.68	2.38
65F1658	JMT-226	ON-NONE-(ON)	DPDT	4.22	3.57	3.15	2.79
65F1659	JMT-227	(ON)-OFF-(ON)	DPDT	4.10	3.47	3.06	2.71
65F1660	JMT-231	ON-OFF-(ON)	DPDT	4.22	3.57	3.15	2.79
65F1661	JMT-232	ON-OFF-ON	DPDT	4.51	3.80	3.33	2.93
65F1662	JMT-321	ON-OFF-ON	3PDT	6.46	5.47	4.79	4.22
65F1663	JMT-323	ON-NONE-ON	3PDT	6.05	5.15	4.51	4.00
65F1664	JMT-327	(ON)-OFF-(ON)	3PDT	8.08	6.82	5.96	5.23
65F1665	JMT-331	ON-OFF-(ON)	3PDT	8.08	6.82	5.96	5.23
65F1666	JMT-334	NONE-ON-(ON)	3PDT	8.08	6.82	5.96	5.23
65F1667	JMT-421	ON-OFF-ON	4PDT	8.34	7.03	6.23	5.47
65F1668	JMT-423	ON-NONE-ON	4PDT	7.79	6.60	5.83	5.16
65F1669	JMT-427	(ON)-OFF-(ON)	4PDT	9.68	8.14	7.20	6.30
65F1670	JMT-431	ON-OFF-(ON)	4PDT	9.68	8.14	7.20	6.30
65F1671	JMT-432	ON-ON-ON	4PDT	9.35	7.86	6.91	6.41
65F1672	JMT-433	ON-ON-(ON)	4PDT	9.35	7.86	6.91	6.41

SUB-MINIATURE LEVER-LOCK SWITCHES



1 Pole 2 Pole 3 Pole 4 Pole

LL Type: Contacts Rated: 6 amp resistive load @ 125 VAC and 28 VDC. Lever lock type available in SP, DP, 3P, 4P. 1 and 2 pole types made of diallyl phthalate. 3 and 4 pole type made of high strength phenolic. Locking lever made of natural anodized aluminum. Switching contacts and rockers: coin silver. Center terminal: Silver plated brass. All items U.L. approved. All items C.S.A. approved except 2, 3, 4 pole solder lug.

Stk. No.	Type	Switch Action Side-Center-Side	No. Poles	1-24	25-99	100-499	500-999
65F1729	LL-121	ON-OFF-ON	1	4.54	4.05	3.73	3.46
65F1730	LL-123	ON-NONE-ON	1	4.14	3.72	3.45	3.23
65F1731	LL-221	ON-OFF-ON	2	5.68	5.05	4.64	4.29
65F1732	LL-223	ON-NONE-ON	2	5.14	4.62	4.26	3.96
65F1733	LL-321	ON-OFF-ON	3	8.04	7.05	6.37	5.80
65F1734	LL-323	ON-NONE-ON	3	7.63	6.73	6.09	5.58
65F1735	LL-421	ON-OFF-ON	4	9.92	8.61	7.81	7.05
65F1736	LL-423	ON-NONE-ON	4	9.37	8.18	7.41	6.74

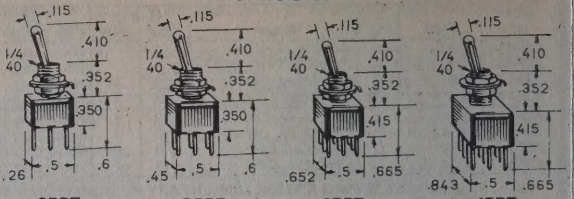
ROUND

COLOR CAPS

Tight-grip insulator caps for color coding, flat or round. Can be installed before or after installation of switch. W types are round top.

Stk. No.	Type	Color	Each
65F1712	W-CAP-10A	White	.03
65F1714	W-CAP-10C	Red	.03
65F1715	W-CAP-10D	Black	.03
65F1713	W-CAP-10B	Blue	.03
65F1718	W-CAP-10G	Yellow	.03
65F1719	W-CAP-10H	Green	.03
65F1716	W-CAP-10E	Brown	.03
65F1717	W-CAP-10F	Orange	.03
65F1720	W-CAP-10I	Violet	.03
65F1721	W-CAP-10J	Gray	.03

PC MOUNT



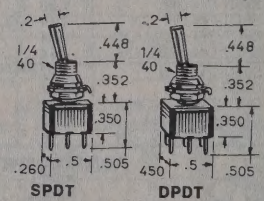
SPDT DPDT 3DPT 4PDT

MPC type: Contacts rated 6 amp resistive load @ 125VAC and 28VDC. Switching Contacts and Rockers are coin silver. Terminals are flash gold plated for solderability. All are direct mount type for printed circuit boards. () Denotes momentary action. All items U.L. approved. All items C.S.A. approved except 2, 3, 4 pole solder lug.

SPDT

Stk. No.	Type	Switch Action Side-Center Side	1-24	25-99	100-499	500-999
65F1681	MPC-121	ON-OFF-ON	3.02	2.53	2.21	1.94
65F1682	MPC-123	ON-NONE-ON	2.62	2.20	1.93	1.71
65F1683	MPC-126	ON-NONE-(ON)	3.02	2.53	2.21	1.94
65F1684	MPC-127	(ON)-OFF-(ON)	3.02	2.53	2.21	1.94
65F1685	MPC-131	ON-OFF-(ON)	3.02	2.53	2.21	1.94
		DPDT				
65F1687	MPC-221	ON-OFF-ON	4.22	3.59	3.18	2.83
65F1688	MPC-223	ON-NONE-ON	3.68	3.16	2.80	2.50
65F1689	MPC-226	ON-NONE-(ON)	4.34	3.69	3.27	2.91
65F1690	MPC-227	(ON)-NONE-(ON)	4.22	3.59	3.18	2.83
65F1691	MPC-231	ON-OFF-(ON)	4.34	3.69	3.27	2.91
65F1692	MPC-232	ON-ON-ON	4.63	3.92	3.45	3.05
		3PDT				
65F1693	MPC-321	ON-OFF-ON	6.64	5.65	4.97	4.40
65F1694	MPC-323	ON-NONE-ON	6.23	5.33	4.69	4.18
65F1695	MPC-327	(ON)-OFF-(ON)	8.26	7.00	6.14	5.41
		4PDT				
65F1698	MPC-421	ON-OFF-ON	8.58	7.27	6.47	5.71
65F1699	MPC-423	ON-NONE-ON	8.03	6.84	6.07	5.40
	MPC-427	(ON)-OFF-(ON)	9.92	8.38	7.44	6.54
	MPC-431	ON-OFF-(ON)	9.92	8.38	7.44	6.54
65F1702	MPC-432	ON-ON-ON	9.59	8.10	7.15	6.65

SUB-MINIATURE FLAT HANDLE



SPDT DPDT

FH Type: Contact Rating: 6 amp resistive load @ 125 VAC and 24 VDC. Switching contacts are coin silver. Center terminal is silver plated brass. All have solder type terminals and are direct panel mount. Lever is brass, satin chrome finish. ( ) Denotes momentary action. All items U.L. approved. All items C.S.A. approved except 2, 3, 4 pole solder lug.

SPDT

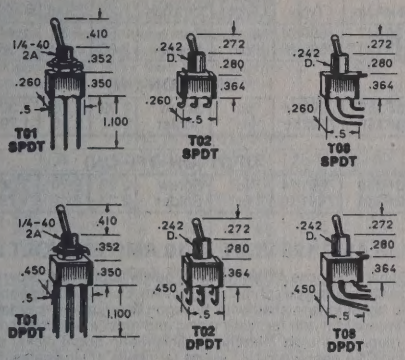
Stk. No.	Type	Switch Action Side-Center-Side	1-24	25-99	100-499	500-999
65F1703	FH-121	ON-OFF-ON	3.60	3.11	2.79	2.52
65F1704	FH-123	ON-NONE-ON	3.20	2.78	2.51	2.29
65F1705	FH-126	ON-NONE-(ON)	3.60	3.11	2.79	2.52
65F1706	FH-127	(ON)-OFF-(ON)	3.60	3.11	2.79	2.52
65F1707	FH-131	ON-OFF-(ON)	3.60	3.11	2.79	2.52
		DPDT				
65F1708	FH-221	ON-OFF-ON	4.74	4.11	3.70	3.35
65F1709	FH-223	ON-NONE-ON	4.20	3.68	3.32	3.02
65F1710	FH-226	ON-NONE-(ON)	4.86	4.21	3.79	3.43
65F1711	FH-227	(ON)-OFF-(ON)	4.74	4.11	3.70	3.35

MOUNTING PARTS AND ACCESSORIES

All parts for one hole mount switches, threaded for ¼-40 bushing. Circular shape unless noted otherwise. Locking rings have tab to fit into keyway. Comes in packages of 100 only.

Stk. No.	Type	Description	Per Pkg.
65F1722	W-NU-11	Stnd. Hex Nut, Bright Nickel	4.00
65F1723	W-NU-12	Knurled Nut, Bright Nickel	4.00
29F2553	SW15AA4	Knurled Facenut	
65F1725	W-NU-19B	Brass Fixed Dress nut w/flats, Brt. Nickel	5.00
41F631	SW1LN5030	Waterproof Boot	4.00

SUB-MINIATURE TOGGLE SWITCHES



Contacts Rated: .5 VA Max. @ 28 V max for T01 types. 5 amp resistive @ 125 VAC and 28 VDC for T02 & T08 types. Toggle is chrome plated brass. Hardware included. **Type T01** are wire-wrap or direct PC mount. **Type T02** are Right Angle PC mount horizontal. **Type T08** are Right Angle PC mount vertical. Avail. in SPDT or DPDT. ( ) Denotes momentary action.

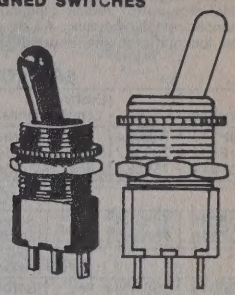
SPDT

Stk. No.	Type	Switch Action Side	Center Side	1-24	25-99	100-499	500-999
65F898	TO1-121	ON-OFF-ON		3.09	2.60	2.28	2.01
65F899	TO1-123	ON-NONE-ON		2.69	2.27	2.00	1.78
65F900	TO1-126	ON-NONE-(ON)		3.09	2.60	2.28	2.01
65F901	TO1-127	(ON)-OFF-(ON)		3.09	2.60	2.28	2.01
65F902	TO2-12	ON-OFF-ON		3.16	2.67	2.35	2.08
65F903	TO2-123	ON-NONE-ON		2.76	2.34	2.07	1.85
65F904	TO2-126	ON-NONE-(ON)		3.16	2.67	2.35	2.08
65F905	TO2-127	(ON)-OFF-(ON)		3.16	2.67	2.35	2.08
65F906	TO8-121	ON-OFF-ON		3.16	2.67	2.35	2.08
65F907	TO8-123	ON-NONE-ON		2.76	2.34	2.07	1.85
65F908	TO8-126	ON-NONE-(ON)		3.16	2.67	2.35	2.08
65F909	TO8-127	(ON)-OFF-(ON)		3.16	2.67	2.35	2.08

DPDT

65F910	TO1-221	ON-OFF-ON		4.36	3.73	3.32	2.97
65F911	TO1-223	ON-NONE-ON		3.82	3.30	2.94	2.64
65F912	TO1-226	ON-NONE-(ON)		4.48	3.83	3.41	3.05
65F913	TO1-227	(ON)-OFF-(ON)		4.36	3.73	3.32	2.97
65F914	TO2-221	ON-OFF-ON		4.50	3.87	3.46	3.11
65F915	TO2-223	ON-NONE-ON		3.96	3.44	3.08	2.78
65F916	TO2-226	ON-NONE-(ON)		4.62	3.97	3.55	3.19
65F917	TO2-227	(ON)-OFF-(ON)		4.50	3.87	3.46	3.11
65F914	TO8-221	ON-OFF-ON		4.50	3.87	3.46	3.11
65F915	TO8-223	ON-NONE-ON		3.96	3.44	3.08	2.78
65F916	TO8-226	ON-NONE-(ON)		4.62	3.97	3.55	3.19
65F917	TO8-227	(ON)-OFF-(ON)		4.50	3.87	3.46	3.11

SERIES A—CUSTOM DESIGNED SWITCHES

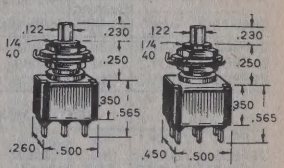


- **UL Listed**
- **Satin Chrome Finish**
- **Solder Lugs**
- **Miniature**

Series A. SPDT, DPDT, throws either ON-OFF-ON or ON-NONE-ON circuits. .460 large T bushing. Satin chrome finish. Solder lug terminals. Coin silver contact material. 15/32 diameter T1 levers. All switches are UL Listed. All switches 6 amp rated @125VAC and 28VDC resistive.

Stk. No.	Type	Switching	Action	1-24	25-99	100-499	500-999
10F8045	T23-121	SPDT	ON-OFF-ON	4.11	3.62	3.30	3.03
10F8046	T23-123	SPDT	ON-NONE-ON	3.71	3.29	3.02	2.80
10F8048	T23-221	DPDT	ON-NONE-ON	4.71	4.19	3.83	3.53

Sensitive pushbutton switch. Requires feather touch to operate. SPDT or DPDT momentary action. S.P. Rated 5 amps, D.P. Rated 1 amp.



PS TYPE

Stk. No.	Type	Description	1-24	25-99	100-499	500-999
65F1737	PS1-100	One-Pole, Solder Lug	4.48	3.60	3.04	2.63
65F1738	PS2-100	One-Pole, P.C. term	4.61	3.73	3.17	2.76
65F1739	PS1-200	Two-Pole, Solder Lug	6.25	5.01	4.25	3.67
65F1740	PS2-200	Two-Pole, P.C. term	6.51	5.27	4.51	3.93
65F8041	PS7-100	One-Pole, PC Mount	3.10	2.53	2.26	1.91
10F8042	PS7-200	Two-Pole, PC Mount	4.19	3.43	3.07	2.58
65F8043	PS8-100	One Pole, PC Mount	3.10	2.53	2.26	1.91
10F8044	PS8-200	Two-Pole, PC Mount	4.19	3.43	3.07	2.58

*Switches rated 0.4 V.A.

CAPS FOR PS TYPE SWITCHES

Stk. No.	Type	Size Dia. × H	Color	Each
65F1741	W-KN-16	.200"	Black	.05
65F1742	W-KN-16A	×	White	.05
65F1743	W-KN-16B	.155"	Red	.05
65F1744	W-KN-17	.375"	Black	.07
65F1745	W-KN-17A	×	White	.07
65F1746	W-KN-17B	.250"	Red	.07

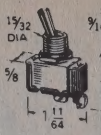
MAKE NEWARK YOUR DEPENDABLE SOURCE

FOR ALL ELECTRONIC PARTS AND EQUIPMENT

EATON Cutler Hammer AC Switches

6 AMP 120 VOLT — 3 AMP 250 VOLT

General purpose AC switches for power appliances. Employs slow make slow break rocker type contact mechanism. Combination phenolic-metallic housing. All are one hole mount type. One hexagon locknut and one knurled facenut furnished unassembled.



Single Pole

Double Pole

Visible metal parts are bright nickel plated. UL and CSA approved. 1/4" spade terminals. Movable contact actuated by compression of spring which provides positive contact pressure in closed position and firmly positions contactor in open position.

SPST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F341	7580K4	15/32"	Screw	1.56	1.44	1.20	1.08
41F532	7580K7	15/32"	Solder	1.34	1.23	1.03	.93
23F342	7580K6	15/32"	Solder	1.34	1.23	1.03	.93

SPDT (ON-ON)

23F345	7582K4	15/32"	Screw	1.95	1.80	1.50	1.35
23F346	7582K6	15/32"	Solder	1.59	1.47	1.22	1.10

SPDT (ON-OFF-ON)

23F343	7581K4	15/32"	Screw	1.95	1.80	1.50	1.35
23F344	7581K6	15/32"	Solder	1.59	1.47	1.22	1.10

DPST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F347	7590K4	15/32"	Screw	2.52	2.33	1.94	1.75
23F348	7590K6	15/32"	Solder	2.06	1.90	1.58	1.43

DPDT (ON-ON)

23F357	7592K4	15/32"	Screw	2.99	2.76	2.30	2.07
23F358	7592K6	15/32"	Solder	2.33	2.15	1.79	1.61

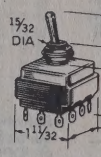
DPDT (ON-OFF-ON)

23F349	7591K4	15/32"	Screw	2.99	2.76	2.30	2.07
23F356	7591K6	15/32"	Solder	2.33	2.15	1.79	1.61

THREE AND FOUR POLE AC SWITCHES

These slow make — slow break AC rated switches feature a rocker type contact mechanism that is actuated by a compression spring to provide positive contact pressure. Exposed metal parts are plated with bright nickel. All switches are provided with a hexagon locknut; the 3 pole with a hexagon facenut, the 4 pole with a knurled facenut. All 3 + pole switches are rated 15 AMPS @ 125VAC and 10 AMPS @ 250VAC. 3/4 HP @ 250VAC.

Three Pole



Four Pole

Single Pole

Double Pole

3PDT (ON-OFF-ON)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
21F907	7701K1	15/32"	Solder	6.06	5.60	4.66	4.20
21F908	7701K2	15/32"	Screw	7.28	6.72	5.60	5.04
21F909	7701K3	15/32"	Spade	6.06	5.60	4.66	4.20

3PDT (ON-OFF)

21F904	7700K1	15/32"	Solder	4.94	4.56	3.80	3.42
21F905	7700K2	15/32"	Screw	5.74	5.30	4.41	3.97
21F906	7700K3	15/32"	Spade	4.94	4.56	3.80	3.42

3PDT (ON-ON)

21F910	7702K1	15/32"	Solder	6.06	5.60	4.66	4.20
21F911	7702K2	15/32"	Screw	7.28	6.72	5.60	5.04
21F912	7702K3	15/32"	Spade	6.06	5.60	4.66	4.20

4PDT (ON-ON)

41F564	7694K4	15/32"	Screw	9.33	8.61	7.18	6.46
41F565	7695K5	15/32"	Solder	8.23	7.60	6.33	5.70

4PDT (ON-OFF-ON)

41F563	7692K13	15/32"	Screw	9.33	8.61	7.18	6.46
41F494	7693K2	15/32"	Solder	8.23	7.60	6.33	5.70

4PDT (ON-OFF)

41F562	7690K8	15/32"	Screw	7.49	6.91	5.76	5.18
23F242	7691K14	15/32"	Solder	6.75	6.23	5.19	4.68

15 AMP 125 VOLT — 10 AMP 250 VOLT 3/4 HP

General purpose AC switches for power appliances. Slow make slow break rocker type contact mechanism. Combination phenolic-metallic housing furnished with hexagon locknut and knurled facenut. Terminals in rear facilitate wiring and reduce possibility of electrical creepage. Visible metal parts finished in bright nickel plating. UL and CSA approved. 1/4" spade terminals. (*) indicates momentary operation in one position. (**) indicates momentary operation in two positions. Both are 1/2 HP.

SINGLE POLE SPST (ON-OFF)

Stock No.	Type	Bushing Length	Terminals	1-24	25-49	50-99	100-499
23F247	7500K14	15/32"	Screw	1.77	1.64	1.36	1.23
23F230	7501K13	15/32"	Solder	1.56	1.44	1.20	1.08
41F535	7501K15	15/32"	Spade	1.56	1.44	1.20	1.08

SPDT (ON-ON)

23F380	7504K4	15/32"	Screw	2.30	2.12	1.77	1.59
23F232	7505K4	15/32"	Solder	1.95	1.80	1.50	1.35

SPDT (ON-OFF-ON)

23F265	7503K13	15/32"	Screw	2.30	2.12	1.77	1.59
23F231	7503K13	15/32"	Solder	1.95	1.80	1.50	1.35
41F537	7509K5**	15/32"	Screw	3.12	2.88	2.40	2.16

DOUBLE POLE DPST (ON-OFF)

23F267	7560K5	15/32"	Screw	2.99	2.76	2.30	2.07
23F235	7561K4	15/32"	Solder	2.52	2.33	1.94	1.75
23F381	7561K6	15/32"	Spade	2.52	2.33	1.94	1.75

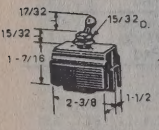
DPDT (ON-ON)

23F266	7564K6	15/32"	Screw	3.68	3.40	2.83	2.55
23F236	7565K5	15/32"	Solder	2.99	2.76	2.30	2.07
23F382	7565K7	15/32"	Spade	2.99	2.76	2.30	2.07

DPDT (ON-OFF-ON)

23F246	7562K4	15/32"	Screw	3.68	3.40	2.83	2.55
23F237	7563K4	15/32"	Solder	2.99	2.76	2.30	2.07
41F553	7563K6	15/32"	Spade	2.99	2.76	2.30	2.07

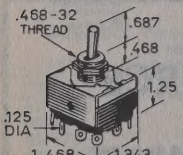
HIGH CAPACITY AC SWITCHES



Three Pole

These heavy duty AC rated switches feature a rocker type contact mechanism for a slow make — slow break operation. The terminals are firmly riveted to the rear of the base with adequate spacing provided to facilitate wiring and to reduce the possibility of electrical creepage. Screw terminals are .250" wide, screw terminals are provided with screws. Type 8320K1 is zinc with an aluminum ball. The 8320K1 is provided with two hexagon facenuts.

Stock No.	Type	Circuit	250VAC Amp	250VAC HP	Bushing Length	Terminal	1-4	25-49	50-99	100-499
41F559	8320K1	3PST	20	2	15/32"	Screw	12.54	11.58	9.65	8.69



HESITATION SWITCH

Three position center off, hesitation, positive stop, or positive off switches; restrict operation from one "on" position to the other "on" position without a stop in the center position. Use with reversing motors; prevent damage by high currents from reversing. A mechanical interlock in switch prohibits toggle action through center position until pressure is momentarily relieved from lever. Bushing Diameter: 15/32".

Stock No.	Type	Action	1-24	25-49	50-99	100-499
23F1152	7992K10	DPDT	10.71	9.89	8.24	7.42
23F1154	7991K10	3PDT	12.89	11.90	9.92	8.93
23F1156	7990K10	4PDT	16.53	15.26	12.72	11.45

HARDWARE FOR MOUNTING SWITCHES

For use with 15/32" diameter bushings:

30-5632-4. ON-OFF vertical plate, keyway by OFF. Burnished nickel finish.

30-5632-13. ON-OFF horizontal plate, keyway by OFF (left side). Burnished nickel finish.

30-5632-16. HI-LOW. Same as 30-5632-4.

29-761. Locking ring.

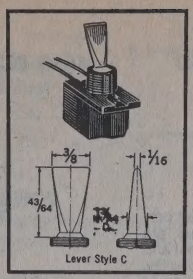
16-886. Internal tooth lockwasher.

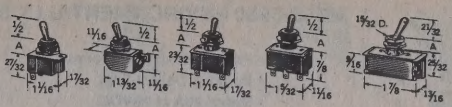
Stk. No.	Type	1-24	25-49	50-99	100-499
23F248	30-5632-4	.10	.09	.08	.07
23F516	30-5632-13	.10	.09	.08	.07
23F517	30-5632-16	.10	.09	.08	.07
23F518	29-761	.10	.09	.08	.07
23F519	16-886	.06	.06	.05	.05

AC-DC QUICK-MAKE, QUICK BREAK

AC-DC DESIGNER LINE

Designer line switches employ standard utility mechanism with addition of nylon toggles. All are double insulated and feature quick-make, quick-break contact mechanism. Nylon bushing in 15/32"-32, 11/32" long. Furnished with all necessary mounting hardware. Designer line facenuts optional. UL and other CSA approved. Note: switches with other than standard bushing length (11/32), for dry circuit applications, with other than listed ampere ratings, terminations, descriptions and colors-available on request.





ONE POLE (ON-OFF)

Stk. No.	Type	125VAC	Color	1-24	25-49	50-99	100-499
41F461	8280K122C	...	Red	1.69	1.56	1.30	1.17
41F463	8280K127C	...	Black	1.69	1.56	1.30	1.17
23F450	8381K121C	6A	White	1.65	1.54	1.28	1.16
23F451	8381K122C	6A	Red	1.65	1.54	1.28	1.16
23F454	8381K127C	6A	Black	1.65	1.54	1.28	1.16

ONE POLE (ON-ON)

23F465	8282K121C	3A	White	2.04	1.88	1.57	1.41
23F469	8282K127C	3A	Black	2.04	1.88	1.57	1.41

TWO POLE (ON-OFF)

23F480	8370K121C	6A	White	2.79	2.57	2.14	1.93
23F481	8370K122C	6A	Red	2.79	2.57	2.14	1.93
23F484	8370K127C	6A	Black	2.79	2.57	2.14	1.93

TWO POLE (ON-ON)

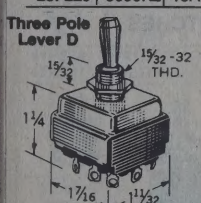
23F501	8373K121C	6A	White	3.15	2.91	2.42	2.18
23F502	8373K122C	6A	Red	3.15	2.91	2.42	2.18
23F505	8373K127C	6A	Black	3.15	2.91	2.42	2.18

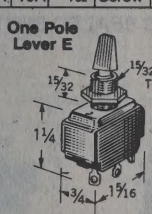
ONE POLE (ON-OFF) HEAVY DUTY

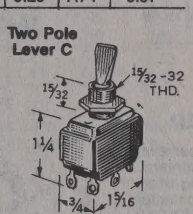
Stk. No.	Type	125	250	Bush Lt.	Term.	1-24	25-49	50-99	100-499
23F252	7321K3	16A	8A	15/32	Screw	3.15	2.91	2.42	2.18
41F524	7361K5	20A	10A	15/32	Screw	5.04	4.65	3.87	3.49

TWO POLE (ON-ON) HEAVY DUTY

23F229	8690K2	15A	10A	15/32	Screw	10.07	9.29	7.74	6.97







STANDARD DUTY, ONE POLE (ON-OFF)

Stock No.	Type	125V AC-DC	Bush Lt.	Term.	1-24	25-49	50-99	100-499
23F385	8280K115	NO RATING	11/32	Solder	1.64	1.51	1.26	1.13
23F220	8280K116		15/32	Solder	1.64	1.51	1.26	1.13
23F391	8290K115		11/32	Wire	1.97	1.82	1.52	1.37
23F335	8290K116		15/32	Wire	1.97	1.82	1.52	1.37
23F336	8295K107		11/32	Screw	2.17	2.00	1.67	1.50
23F337	8295K108		15/32	Screw	2.17	2.00	1.67	1.50
41F520	8381K107	6A	11/32	Solder	1.69	1.56	1.30	1.17
23F221	8381K108	6A	15/32	Solder	1.69	1.56	1.30	1.17
41F521	8391K107	6A	11/32	Wire	2.00	1.85	1.54	1.39
23F338	8391K108	6A	15/32	Wire	2.00	1.85	1.54	1.39
41F522	8396K107	6A	11/32	Screw	2.00	1.85	1.54	1.39
23F228	8396K108	6A	15/32	Screw	2.00	1.85	1.54	1.39

ONE POLE (ON-ON)

23F395	8282K113	3A	11/32	Solder	2.08	1.92	1.60	1.44
23F222	8282K114	3A	15/32	Solder	2.08	1.92	1.60	1.44

TWO POLE (ON-OFF)

23F227	8370K107	6A	15/32	Solder	2.98	2.75	2.29	2.06
23F339	8372K107	6A	15/32	Screw	3.63	3.35	2.79	2.51

TWO POLE (ON-ON)

23F226	8373K107	6A	15/32	Solder	3.42	3.16	2.63	2.37
23F340	8375K107	6A	15/32	Screw	4.41	4.07	3.39	3.05
41F458	8374K107	6A	15/32	Wire	4.67	4.31	3.59	3.24

TWO POLE (ON-OFF)

23F250	7320K2	16A	8A	11/32	Screw	2.94	2.72	2.26	2.04
23F251	7320K3	16A	8A	15/32	Screw	2.94	2.72	2.26	2.04
21F876	7320K55	16A	8A*	15/32	Screw	3.32	3.06	2.55	2.30
23F270	7360K7	20A	10A	11/32	Screw	4.72	4.36	3.63	3.27
23F253	7360K8	20A	10A	15/32	Screw	4.72	4.36	3.63	3.27
41F527	7402K3	20A	20A	11/32	Screw	6.61	6.10	5.08	4.58
23F255	7402K4	20A	20A	15/32	Screw	6.61	6.10	5.08	4.58

*VDE Approved

AC DESIGNER LINE

Switches employ standard slow make, slow break rocker type mechanism with nylon toggle epoxied to the metal actuator. One mounting hole, one hexagon locknut and one knurled facenut furnished unassembled. Take care in ordering correct part numbers to suffice your needs. Do-it-yourself switch assembly. (*) indicates momentary operation in that position (spring return).

ONE POLE

SCREW TERMINALS

Stk. No.	Type	125 VAC	250 VAC	1-24	25-49	50-99	100-499	Circuit
21F877	7560K83	15A	10A	2.55	2.36	1.96	1.77	On-Off
21F878	7562K83	15A	10A	3.32	3.06	2.55	2.30	On-Off-On
21F879	7564K83	15A	10A	3.32	3.06	2.55	2.30	On-On
21F880	7566K83	15A	10A	3.77	3.48	2.90	2.61	Off-On*

SOLDER LUG TERMINALS

Stk. No.	Type	125 VAC	250 VAC	1-24	25-49	50-99	100-499
21F881	7561K84	15A	10A	2.21	2.04	1.70	1.53
21F882	7563K84	15A	10A	2.79	2.58	1.15	1.94
21F883	7565K84	15A	10A	2.79	2.58	1.15	1.94

TWO POLE

SCREW TERMINALS

21F885	7569K63	15A	10A	5.12	4.73	3.94	3.55	*On-Off-On*
21F886	7560K63	15A	10A	2.98	2.75	2.29	2.06	On-Off
21F887	7562K63	15A	10A	3.76	3.47	2.89	2.61	On-Off-On
21F888	7564K63	15A	10A	3.74	3.45	3.88	2.59	On-On
21F889	7566K63	15A	10A	4.60	4.25	3.54	3.19	Off-On*

SOLDER LUG TERMINALS

21F890	7569K64	15A	10A	4.50	4.15	3.46	3.11	
21F891	7561K64	15A	10A	2.68	2.47	2.06	1.85	
21F892	7563K64	15A	10A	3.25	3.00	2.50	2.25	
21F893	7565K64	15A	10A	3.25	3.00	2.50	2.25	

FOUR POLE

SCREW TERMINALS

Stk. No.	Type	125 VAC	250 VAC	1-24	25-49	50-99	100-499	Circuit
21F1013	7692K63	15A	10A	10.59	9.78	8.15	7.34	On-Off-On

LEVERS FOR ABOVE

Stk. No.	Type	Color	Type	Sold only in multiples of 5 Price Each 5-20	25-45	50-95	100-495
21F895	49-4128	White	C	.26	.24	.20	.18
21F896	49-4128-2	Red	C	.26	.24	.20	.18
21F897	49-4128-7	Black	C	.26	.24	.20	.18
21F898	49-4126	White	D	.26	.24	.20	.18
21F899	49-4126-2	Red	D	.26	.24	.20	.18
21F900	49-4126-7	Black	D	.26	.24	.20	.18
21F901	49-4129	White	E	.26	.24	.20	.18
21F902	49-4129-2	Red	E	.26	.24	.20	.18
21F903	49-4129-7	Black	E	.26	.24	.20	.18

Knurled

Bevel

OPTIONAL "DESIGNER LINE" FACE NUTS

Stk. No.	Type	Color	Style	Sold only in multiples of 5 Price Each 5-20	25-45	50-95	100-495
41F500	15-1048-3	Black	Knrl.	.30	.27	.23	.21
41F501	15-1048-7	CL. Alum.	Knrl.				
41F504	15-1049-3	Black	Bev.				
41F505	15-1049-7	Cl. Alum.	Bev.				

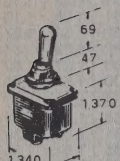
CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

MIL-S-3950 ENVIRONMENTALLY SEALED

One Pole

- Patented Sealing Process
- Positive Detent Feel
- Rated 20A at 28VDC
- Rated 15A at 115VAC

Brown base has patented sealing process. Molding material provides greater safety, higher ignition time and increased arc resistance under contaminated conditions. Positive detent feel and reliable momentary return action. Improved dielectric capability. Simplified wiring and bussing together with excellent sealing in medium-range pricing. Current rating is 20 amperes at 28VDC and 15 amperes at 115VAC resistive.



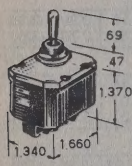
Two Pole

ONE POLE

Stk. No.	Type	Gov't MS. No.	Key	1-9	10-49	50-249	250-999
23F1077	8500K1	24523-21	A	11.39	9.11	7.97	7.40
23F1078	8500K9	24523-22	B	11.39	9.11	7.97	7.40
23F1079	8500K4	24523-23	C	11.39	9.11	7.97	7.40
23F1081	8500K2	24523-27	F	11.39	9.11	7.97	7.40
23F1082	8500K11	24523-30	I	11.39	9.11	7.97	7.40

TWO POLE

23F1083	8501K1	24524-21	A	15.86	12.69	11.10	10.31
23F1084	8501K9	24524-22	B	15.86	12.69	11.10	10.31
23F1085	8501K4	24524-23	C	15.86	12.69	11.10	10.31
23F1087	8501K5	24524-26	E	15.86	12.69	11.10	10.31
23F1088	8501K2	24524-27	F	15.86	12.69	11.10	10.31
23F1089	8501K3	24524-31	J	15.86	12.69	11.10	10.31



Four Pole

FOUR POLE

23F1091	8502K1	24525-21	A				
23F1093	8502K4	24525-23	C	25.36	20.29	17.75	16.48
23F1096	8502K3	24525-31	J				

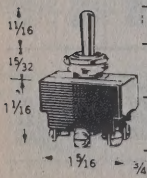
MIL-S-83731 STANDARD LEVER SEALED

One Pole

Employs a rocker-type contact mechanism, has silicone rubber lever seal assembled between the lever and the bushing to stop contaminants. Hot tin-dipped screw terminals (to facilitate soldering when used as lug). Positive snap-acting rocker type movable contactor assembly. Phenolic and metal housing. Rated 20 amps at 28VDC, 10 amps at 115VAC.

ONE POLE

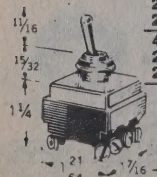
Stock No.	Type	Gov't MS No.	Key	1-24	25-49	50-99	100-249
23F307	8800K16	35058-21	A	8.26	6.61	4.96	3.96
23F300	8801K22	35058-22	B	7.40	5.92	4.44	3.55
23F306	8810K15	35058-23	C	8.32	6.66	4.99	3.99
23F301	8801K23	35058-24	D	7.40	5.92	4.44	3.55
23F309	8812K14	35058-27	F	9.13	7.30	5.48	4.38
23F305	8811K17	35058-30	I	7.99	6.39	4.79	3.84



Two Pole

TWO POLE

23F316	8820K16	35059-21	A	11.50	9.20	6.90	5.52
23F311	8822K20	35059-22	B	10.33	8.26	6.20	4.96
23F315	8824K14	35059-23	C	11.50	9.20	6.90	5.52
23F312	8822K21	35059-24	D	10.33	8.26	6.20	4.96
41F646	8830K13	35059-26	E	14.39	11.51	8.63	6.91
23F317	8834K5	35059-27	F	14.87	11.90	8.92	7.14
23F318	8832K6	35059-31	J	14.12	11.30	8.47	6.78

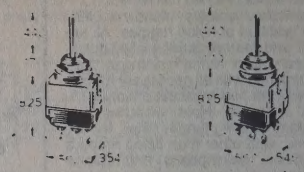


Four Pole

FOUR POLE

41F650	7662K7	25068-21	A	24.56	19.65	14.74	11.79
23F319	7664K5	25068-23	C	24.56	19.65	14.74	11.79

MIL-S-8834 MINIATURE LEVER SWITCHES



One Pole Two Pole

Miniature size switches are completely "tease-proof". Enclosed in nylon-filled molding and stainless steel housing. Bushing size: ¼-40 thread, .170" long. Toggle size: 440 mounting; one facenut, internal tooth lock washer and silicone "O" ring panel seal. Lever seal withstands 15 feet of water pressure. Rating and description same as 8834B switches .75 × .56 × .35".

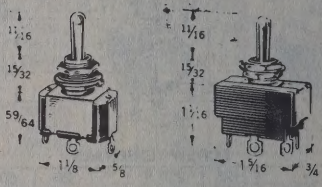
ONE POLE

Stock No.	Type	Gov't MS No.	Key	1-24	25-49	50-99	100-249
23F327	8866K1	24655-211	A	18.52	14.82	11.11	8.89
23F330	8866K7	24655-221	B	18.52	14.82	11.11	8.89
23F329	8866K4	24655-231	C	18.52	14.82	11.11	8.89
23F328	8866K2	24655-271	F	19.98	15.98	11.99	9.59
23F449	8866K6	24655-281	L	19.98	15.98	11.99	9.59

TWO POLE

23F331	8867K1	24656-211	A	22.68	18.14	13.61	10.89
23F334	8867K7	24656-221	B	22.39	17.91	13.43	10.75
23F333	8867K4	24656-231	C	22.68	18.14	13.61	10.89
23F495	8867K3	24656-311	J	25.02	20.02	15.01	12.01

JAN-S-23 SEALED SWITCHES



One Pole Two Pole

JAN-S-23 is an original switch specification; latest specification is MIL-S-3950C which should be used whenever possible. New numbers are shown in "Cross Reference." All have solder lug terminals and are sealed.
* Unsealed.

ONE POLE

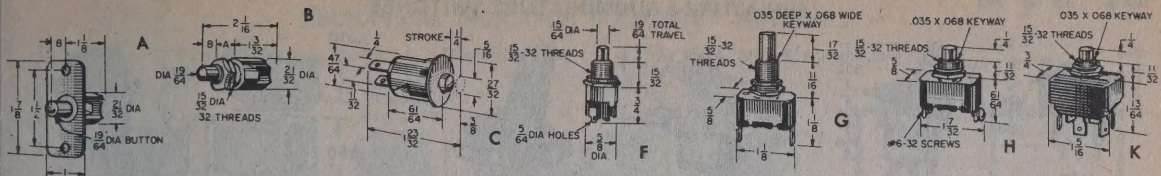
Stock No.	Type	Jan #	Cross to MS 3950	Key	1-24	25-49	50-99	100-249
23F200	8803K10	ST42A	35058-22	B	7.45	5.96	4.47	3.58
23F201	8816K9	ST42D	35058-23	C	8.21	6.57	4.93	3.94
23F203	8805K9	ST42F	35058-26	E	8.96	7.17	5.38	4.30
23F204	8818K9	ST42G	35058-27	F	8.42	6.74	5.05	4.04

TWO POLE

23F210	8823K6	ST52K	35059-22	B	10.33	8.26	6.14	4.96
23F211	8825K6	ST52N	35059-23	C	10.33	8.26	6.14	4.96
23F212	8821K6	ST52P	35059-21	A	10.91	8.73	6.55	5.24
23F217	8835K3*	ST52S	35059-27	F	13.91	11.13	8.35	6.68
41F656	8835K4	ST52S	35059-27	F	14.23	11.38	8.54	6.83

Cutler-Hammer Switches

EATON



PUSHBUTTON SWITCHES

Quick-make, quick-break, "tease-proof" mechanism. Hexagon locknut, knurled facenut furnished unassembled. Visible metal parts bright nickel plated.

One Pole—Momentary—Normally Open

Stock No.	TYpe	Fig.	Rating 125V	Rating 250V	Button Color	Terms.	1-24	25-49	50-99	100-499
41F608	8410K3	A	¾A	¼A	Black	Screw	1.62	1.50	1.25	1.13
23F260	8411K11	B	¾A	¼A	Black	Spade	1.14	1.05	.88	.79
23F439	8411K12	B	¾A	¼A	Black	Screw	1.34	1.24	1.03	.93
23F359	8411K13	B	¾A	¼A	Red	Spade	1.14	1.05	.88	.79
67F1618	8424K1	C	¾A	¼A	White	Spade	1.27	1.17	.97	.88

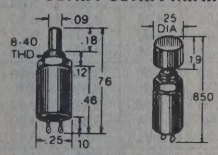
One Pole—Momentary—Normally Closed

67F1620	8410K1	A	¾A	¼A	Black	Screw	1.62	1.50	1.25	1.13
23F440	8411K7	B	¾A	¼A	Black	Screw	1.52	1.40	1.17	1.05
23F261	8411K8	B	¾A	¼A	Black	S. Lug	1.28	1.18	.98	.89
67F1621	8423K1	C	¾A	¼A	White	Spade	1.80	1.66	1.38	1.25

One Pole—Push On/Push Off

67F1622	7206K104	6A	3A	Nickel	S. Lug	2.64	2.44	2.03	1.83
67F1623	7207K104	6A	3A	Nickel	Wires	3.02	2.79	2.32	2.09
23F364	7208K104	6A	3A	Nickel	Screw	3.02	2.79	2.32	2.09

ULTRA-ULTRA-MINIATURE PUSHBUTTON SWITCHES



Round base. Rated .750 Amps, 125 VAC with normally open contacts; .50 Amps, 125 VAC with normally closed contacts. Gold plated contacts. Nickel plated brass case. Thermosetting plastic base. Molded nylon operator button and button cap. Terminal to terminal and terminal to case voltage breakdown rating of 1000 VAC.

Stock No.	Type	Button Color	Normal Circuit	1-24	25-49	50-99	200-249
41F574	SA1RV20	Red	NO	1.98	1.47	1.33	1.23
41F577	SA1BW20	Black	NC	1.98	1.47	1.33	1.23

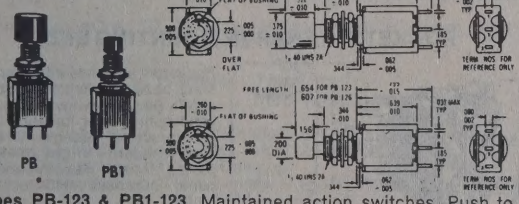
OPTIONAL SLIP-ON CAPS

These optional caps slip onto the ultra-ultra-miniature switches listed above. Round cap instead of the button type shaft on the switch.

Stock No.	Type	Button Color		5-20	25-45	50-95	100-245
41F578	SW53AA1	Red	.....	.20	.15	.14	.13
41F579	SW53AA2	Black	.....	.20	.15	.14	.13

ONLY SOLD IN MULTIPLES OF 5

PUSHBUTTON PANEL SWITCHES



Types PB-123 & PB1-123. Maintained action switches. Push to make contact, and push again to reverse action. **Types PB-126 & PB1-126.** Momentary switch action. Normally open or normally closed. For N.C. circuit use term. 2&1; for N.O. circuits use terms. 2&3; for N.C. & N.O. use term. 1,2,&3. **Contact Rated:** 5 amp resistive load @ 125 VAC and 28 VDC. Contacts and Rockers are coin silver. Center term. is nickel plated brass.

Stk. No.	Type	Description	1-24	25-99	100-499	500-999
65F894	PB-123	Main. Act. .375" Knob	3.28	2.72	2.42	2.05
65F896	PB-126	Momen. Act. .200" Knob				
65F895	PB1-123	Main. Act. .375" Knob				
65F897	PB1-126	Momen. Act. .200" Knob				

AC PUSHBUTTON SWITCHES

Slow-make, slow-break momentary contact mechanism. Bright nickel plated button. Mounting hardware furnished unassembled. 19/32" diameter bushing.

One Pole—Normally Open

Stock No.	Type	Fig.	Rating 125V	Rating 250V	125V 250V	Terms.	1-24	25-49	50-99	100-499
23F262	8440K2	F	3A	...	...	S. Lug	2.99	2.76	2.30	2.07
23F441	8440K3	F	3A	...	...	Screw	3.19	2.94	2.45	2.21
67F1624	8442K2	G	6A	3A	....	Spade	2.06	1.90	1.58	1.43
23F360	8442K4	H	6A	3A	....	Screw	2.34	2.16	1.80	1.62
67F1625	8444K2	G	15A	10A	⅓ HP	Spade	2.26	2.09	1.74	1.57
23F443	8444K3	G	15A	10A	⅓ HP	Screw	2.53	2.33	1.94	1.75
23F361	8444K4	H	15A	10A	⅓ HP	Screw	2.53	2.33	1.94	1.75

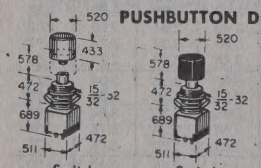
One Pole—Double Throw

41F609	8446K2	G	15A	10A	½ HP	Screw	3.01	2.78	2.32	2.09

Two Pole—Normally Open

23F362	8448K2	K	15A	10A	....	Screw	3.46	3.20	2.66	2.40

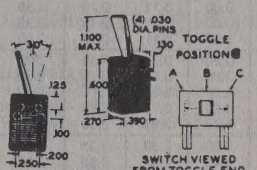
PUSHBUTTON DECORATIVE BEZELS



Decorative mounting bezel for ¼ inch bushing switches. Bright nickel plated. Bezels slip over pushbuttons providing an attractive front-of-panel appearance. Also serve as button shroud. SW2AA10 .335" high, .512" outside diameter. SW2AA37. .393" high, .551" outside diameter.

Stock No.	Type	Button Diameter	1-24	25-49	50-99	100-249
67F1699	SW2AA10	.315"	.72	.54	.49	.45
67F1700	SW2AA37	.394"	1.24	.92	.84	.77

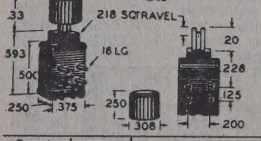
P.C. PADDLE SWITCHES



Compact, ideal for sub-chassis/interlock circuits and front panel applications where space is a premium. Two circuits, single pole design, gold plated contacts are rated for 1 Amp at 12 VDC; .5 Amp at 28 VDC and 125 VAC. Contact resistance is .025 ohms max. Temp. range —20°C to +70°C. 1000V rms dielectric. Red paddles with black molded plastic switch bases. (*) Momentary contact.

Stock No.	Type	Circuit A-B-C	1-24	25-99	100-499	500-999
29F2500	T8206	ON-OFF-ON	1.84	1.66	1.51	1.37
29F2501	T8201	ON-NONE-ON				
29F2502	T8204	ON-OFF-ON*				
29F2503	T8205	* ON-OFF-ON				
29F2504	T8206	* ON-OFF-ON*				
29F2505	T8202	ON-NONE-ON*				
29F2506	T8203	* ON-NONE-ON				

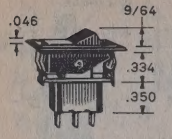
P.C. PUSHBUTTON SWITCHES



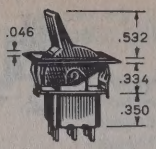
These sub-miniature pushbutton switches mount to printed circuit boards without hardware. (*)Momentary or latch-down.

Stock No.	Type	Description	1-24	25-99	100-499	500-999
29F2507	B8600	w/P281R Momentary-Red	2.15	1.94	1.77	1.60
29F2508	B8600	w/P281B Momentary-Black				
29F2509	B8500	w/P281R *Push & Turn-Red				
29F2510	B8250	w/P281B *Push & Turn-Black				

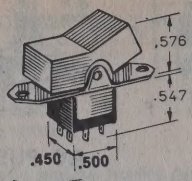
MINIATURE & SUBMINIATURE SWITCHES



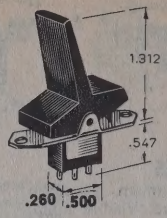
MR2



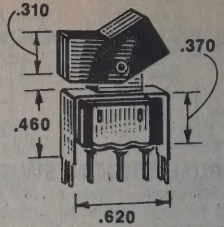
MP2



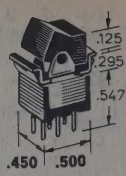
MR3



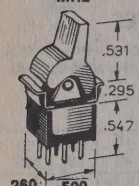
MP4



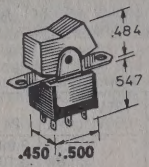
MP5



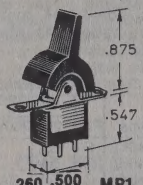
MR7



MP7



MR1



MP1

SUB-MINIATURE ROCKER & PADDLE

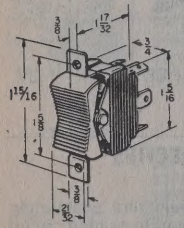
These compact sub-miniature rocker switches are offered with flat frames for sub panel mounting or as a snap-in mounting type. Both the paddle and the low profile rocker operated switches employ a slow make-slow break contact mechanism. Two sizes of low profile rockers, and two sizes of paddle rockers are available in the flat frame series. The snap-in series has a low profile and a paddle rocker. The rockers come in standard color black, other colors available on special order. All switches utilize solder lug terminals. The contacts are rated for six amps at 125 VAC and 28 VDC. (*) Denotes Momentary Action. "All items U.L. approved. All items C.S.A. except 2, 3, 4 pole solder lug."

SPDT

Stk. No.	Type	Switch Action Sider Center Side	1-24	25-99	100-499	500-999
65F830	MR1-121	ON-OFF-ON	3.40	2.91	2.59	2.32
65F831	MR1-123	ON-NONE-ON	3.00	2.58	2.31	2.09
65F832	MR1-126	ON-NONE-(ON)	3.40	2.91	2.59	2.32
65F833	MR1-127	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32
65F834	MP1-121	ON-OFF-ON	3.40	2.91	2.59	2.32
65F835	MP1-123	ON-NONE-ON	3.00	2.58	2.31	2.09
65F836	MP1-126	ON-NONE-(ON)	3.40	2.91	2.59	2.32
65F837	MP1-127	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32
65F838	MR2-121	ON-OFF-ON	3.85	3.36	3.04	2.77
65F839	MR2-123	ON-NONE-ON	3.45	3.03	2.76	2.54
65F840	MR2-126	ON-NONE-(ON)	3.85	3.36	3.04	2.77
65F841	MR2-127	(ON)-OFF-(ON)	3.85	3.36	3.04	2.77
65F842	MP2-121	ON-OFF-ON	3.85	3.36	3.04	2.77
65F843	MP2-123	ON-NONE-ON	3.45	3.03	2.76	2.54
65F844	MP2-126	ON-NONE-(ON)	3.85	3.36	3.04	2.77
65F845	MP2-127	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32
65F847	MR3-123	ON-NONE-ON	3.00	2.58	2.31	2.09
65F848	MR3-126	ON-NONE-(ON)	3.40	2.91	2.59	2.32
65F849	MR3-127	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32
65F850	MP4-121	ON-OFF-ON	3.40	2.91	2.59	2.32
65F851	MP4-123	ON-NONE-ON	3.00	2.58	2.31	2.09
65F852	MP4-126	ON-NONE-(ON)	3.40	2.91	2.59	2.32
65F853	MP4-127	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32
64F380	MR5-121	ON-OFF-ON	3.60	3.11	2.79	2.38
64F381	MR5-123	ON-NONE-ON	3.20	2.78	2.51	2.29
64F382	MR5-126	ON-NONE-ON*	3.60	3.11	2.79	2.38
64F383	MR5-127	(ON)-OFF-(ON)	3.60	3.11	2.79	2.38
64F384	MR5-131	ON-OFF-(ON)	3.60	3.11	2.79	2.38
64F385	MP5-121	ON-OFF-ON	3.60	3.11	2.79	2.52
64F386	MP5-123	ON-NONE-ON	3.20	2.78	2.51	2.29
64F387	MP5-126	ON-NONE-(ON)	3.60	3.11	2.79	2.52
64F388	MP5-127	(ON)-OFF-(ON)	3.60	3.11	2.79	2.52
64F389	MP5-131	ON-OFF-(ON)	3.60	3.11	2.79	2.59
65F854	MR7-121	ON-OFF-ON	3.40	2.91	2.59	2.32
65F855	MR7-123	ON-NONE-ON	3.00	2.58	2.31	2.09
65F856	MR7-126	ON-NONE-(ON)	3.40	2.91	2.59	2.32
65F857	MR7-127	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32
65F860	MP7-126	ON-NONE-(ON)	3.40	2.91	2.59	2.32
65F861	MP7-127	(ON)-OFF-(ON)	3.40	2.91	2.59	2.32

DPDT

Stk. No.	Type	Switch Action Sider Center Side	1-24	25-99	100-499	500-999
65F863	MR1-223	ON-NONE-ON	4.00	3.48	3.12	2.82
65F864	MR1-226	ON-NONE-(ON)	4.66	4.01	3.59	3.23
65F865	MR1-227	(ON)-OFF-(ON)	4.54	3.91	3.50	3.15
65F866	MP1-221	On-OFF-ON	4.54	3.91	3.50	3.15
65F869	MP1-227	(ON)-OFF-(ON)	4.54	3.91	3.50	3.15
65F870	MR2-221	ON-OFF-ON	4.99	4.36	3.95	3.60
65F871	MR2-223	ON-NONE-ON	4.45	3.93	3.57	3.27
65F872	MR2-226	ON-NONE-(ON)	5.11	4.46	4.04	3.68
65F873	MR2-227	(ON)-OFF-(ON)	4.99	4.36	3.95	3.60
65F875	MP2-223	ON-NONE-ON	4.45	3.93	3.57	3.27
65F876	MP2-226	ON-NONE-(ON)	5.11	4.46	4.04	3.68
65F877	MP2-227	(ON)-OFF-(ON)	4.99	4.36	3.95	3.60
65F878	MR3-221	ON-OFF-ON	4.54	3.91	3.50	3.15
65F879	MR3-223	ON-NONE-ON	4.00	3.48	3.12	2.82
65F880	MR3-226	ON-NONE-(ON)	4.66	4.01	3.59	3.23
65F881	MR3-227	(ON)-OFF-(ON)	4.54	3.91	3.50	3.15
65F882	MP4-221	ON-OFF-ON	4.54	3.91	3.50	3.15
65F883	MP4-223	ON-NONE-ON	4.00	3.48	3.12	2.82
65F884	MP4-226	ON-NONE-(ON)	4.66	4.01	3.59	3.23
65F885	MP4-227	(ON)-OFF-(ON)	4.54	3.91	3.50	3.15
64F390	MR5-221	ON-OFF-ON	4.73	4.10	3.69	3.34
64F391	MR5-223	ON-NONE-ON	4.19	3.67	3.31	3.01
64F392	MR5-226	ON-NONE-(ON)	4.85	4.20	3.78	3.42
64F393	MR5-227	(ON)-OFF-(ON)	4.73	4.10	3.69	3.34
64F394	MR5-231	ON-OFF-(ON)	4.85	4.20	3.78	3.42
64F395	MP5-221	ON-OFF-ON	4.73	4.10	3.69	3.34
64F396	MP5-223	ON-NONE-ON	4.19	3.67	3.31	3.01
64F397	MP5-226	ON-NONE-(ON)	4.85	4.20	3.78	3.42
64F398	MP5-227	(ON)-OFF-(ON)	4.73	4.10	3.69	3.34
64F399	MP5-231	ON-OFF-(ON)	4.85	4.20	3.78	3.42
65F886	MR7-221	ON-OFF-ON	4.54	3.91	3.50	3.15
65F887	MR7-223	ON-NONE-ON	4.00	3.48	3.12	2.82
65F888	MR7-226	ON-NONE-(ON)	4.66	4.01	3.59	3.23
65F889	MR7-227	(ON)-OFF-(ON)	4.54	3.91	3.50	3.15
65F890	MP7-221	ON-OFF-ON	4.54	3.91	3.50	3.15
65F891	MP7-223	ON-NONE-ON	4.00	3.48	3.12	2.82
65F892	MP7-226	ON-NONE-(ON)	4.66	4.01	3.59	3.23
65F893	MP7-227	(ON)-OFF-(ON)	4.54	3.91	3.50	3.15



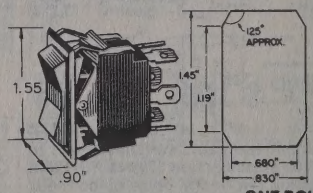
ROCKETTE® SWITCHES

Contact mechanism is of Slow-Make Slow-Break design engineered specifically for use on AC circuits and low voltage DC circuits. Contacts rated for 15 Amps at 125 VAC and 28 VDC; 10 Amps at 250 VAC; maximum ¾ horsepower at 250 VAC. While nylon rocker on a mounting frame of heavy gauge steel, plated for resistance to corrosion. Terminals are .250" wide spade lugs.

ONE POLE

Stock No.	Type	Circuit	1-24	25-49	50-99	100-499
23F434	8144K20A1M52	ON-OFF-ON	2.29	2.11	1.76	1.58
23F399	8144K21A1M52	ON-OFF	2.03	1.87	1.56	1.40
41F566	8144K22A1M52	ON-OFF	2.29	2.11	1.76	1.58
TWO POLE						
23F438	8142K20E6M52	ON-OFF-ON	3.14	2.90	2.41	2.17
23F436	8142K21E6M52	ON-OFF	2.75	.....	2.12	1.91
41F568	8142K22E6M52	ON-ON	3.14	2.90	2.41	2.17

ROCKETTE® SNAP-IN MOUNTING BEZEL



Rockette® switches with snap-in metal bezels. Switch description at left. Bezels are made of hardened spring-steel for durability and structural strength. Corrosion-resistant bright nickel-plated finish. Recommended panel thickness .040" to .140 inches.

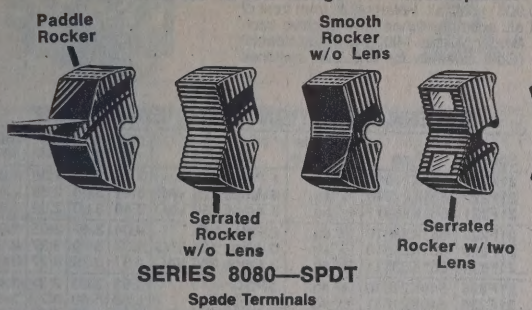
ONE POLE

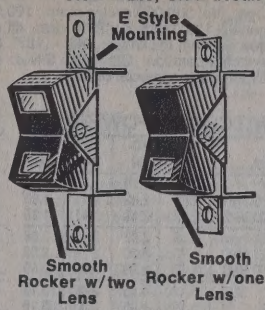
Stock No.	Type	Circuit	1-24	25-49	50-99	100-499
57F662	8144K20X1M52	ON-OFF-ON	2.68	2.47	2.06	1.85
57F3663	8144K21X1M52	ON-OFF	2.42	2.23	1.86	1.67
57F3664	8144K22X1M52	ON-ON	2.68	2.47	2.06	1.85
TWO POLE						
57F3665	8142K20X6M52	ON-OFF-ON	3.53	3.26	2.71	2.44
57F3666	8142K21X6M52	ON-OFF	3.14	2.90	2.42	2.18
57F3667	8142K22X6M52	ON-ON	3.53	3.26	2.71	2.44

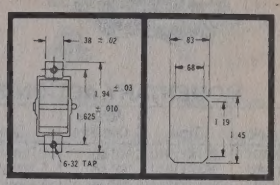
AC Switches CUTLER-HAMMER

MECHANICAL INDICATOR ROCKETTE® SWITCHES

• For Use On Low Voltage • Thermoplastic • Slow Make, Slow Break Contact Action







SERIES 8080—SPDT

Spade Terminals

Stk. No.	Type	Action	1-24	25-49	50-99	100-499
65F2390	8080K40E	on-off-on	2.51	2.31	1.93	1.74
65F2391	8080K46E	on-none-on	2.51	2.31	1.93	1.74
65F2392	8080K49E	*on-off-on	2.75	2.54	2.11	1.90
65F2393	8080K52E	*on-off-on*	2.75	2.54	2.11	1.90
65F2394	8080K40X	on-off-on	2.90	2.67	2.23	2.01
65F2395	8080K46X	on-none-on	2.90	2.67	2.23	2.01
65F2396	8080K49X	*on-off-on	3.14	2.90	2.41	2.17
65F2397	8080K52X	*on-off-on*	3.14	2.90	2.41	2.17

SERIES 8083—DPDT

Spade Terminals

Stk. No.	Type	Action	1-24	25-49	50-99	100-499
65F2406	8083K40E	on-off-on	3.25	3.00	2.50	2.25
65F2407	8083K46E	on-none-on	3.25	3.00	2.50	2.25
65F2408	8083K49E	*on-off-on	3.86	3.56	2.97	2.67
65F2409	8083K52E	*on-off-on*	3.86	3.56	2.97	2.67
65F2410	8083K40X	on-off-on	3.64	3.36	2.80	2.52
65F2411	8083K46X	*on-none-on	3.64	3.36	2.80	2.52
65F2412	8083K49X	*on-off-on	4.25	3.92	3.27	2.94
65F2413	8083K52X	*on-off-on*	4.25	3.92	3.27	2.94

ROCKER CAPS FOR SERIES 8080 AND 8083

Stk. No.	Type	Color	Stk. No.	Type	Color
65F2422	53-2054-3	Wht	65F2427	53-2071	Blk
65F2423	53-2054	Blk	65F2428	53-2053-4	Wht
65F2424	53-2055-4	Wht	65F2429	53-2053	Blk
65F2425	53-2055	Blk	65F2430	53-2070-5	Wht
65F2426	53-2071-2	Wht	65F2431	53-2070-4	Blk

Butt action contact mechanism designed specifically for use on AC and low voltage DC operations. Available in one or two pole, multicircuit combinations with solder or screw terminals. Features serrated or smooth white or black. 1 or 2 window thermoplastic rocker actuators which mechanically indicate the function and position the switch is in. SERIES 8080 switches are SPDT and rated 15A at 125VAC, 10A at 250VAC, with ¾ horsepower at 250VAC. SERIES 8083 switches are the same as series 8080 but are DPDT. All switches are UL and CSA listed. NOTES: the action column in the tables below refers to the rocker positions up center and down respectively. (*) indicates momentary action. TYPE NUMBER SUFFIX E DENOTES E STYLE MOUNTING X X STYLE MOUNTING.

ROCKER CAPS FOR SERIES 8080 AND 8083

PADDLE

Stk. No.	Clr.	1-24	25-49	50-99	100-499	Stk. No.	Clr.	1-24	25-49	50-99	100-499
65F2422	Wht.	.36	.33	.28	.25	65F2423	Blk.	.36	.33	.28	.25
SERRATED ROCKER W/O LENS											
65F2424	Wht.	.36	.33	.28	.25	65F2425	Blk.	.36	.33	.28	.25
SERRATED ROCKER W/ONE LENS											
65F2426	Wht.	.59	.54	.45	.41	65F2427	Blk.	.59	.54	.45	.41
SMOOTH ROCKER W/O LENS											
65F2428	Wht.	.36	.33	.28	.25	65F2429	Blk.	.36	.33	.28.	25
SMOOTH ROCKER W/TWO LENS											
65F2430	Wht.	.72	.66	.55	.50	65F2431	Blk.	.72	.66	.55	.50

KEYLITE PUSHBUTTON SWITCHES—ILLUMINATED OR NON-ILLLUMINATED

P.C. MOUNTED

Narrow Cap w/No LED — Mounting—Minimum distance between centers
Horizontal—12.7mm
.500 in
Vertical—17.8mm
.700 in NARROW CAP DIMENSIONS

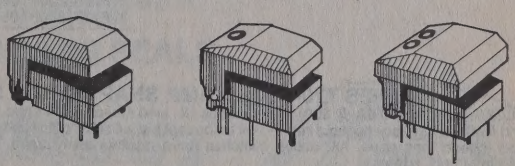
Narrow Cap w/One LED — Mounting—Minimum distance between centers
Horizontal—17.8mm
.700 in
Vertical—17.8mm
.700 in WIDE CAP DIMENSIONS

Wide Cap w/Two LEDs SWITCH AND TERMINAL DIMENSIONS
Clean Lines Positive Tactile Action, Bright LED Indicators
Stand-Off Lugs Minimize Solder-Creepage
Keys are Detachable and Interchangeable with Improved Push-On Design

SPECIFICATIONS:

Ratings—Switch—10mA at 24 VDC.
Mechanical Life and Electric Life—5 million operations
Initial Contact Resistance—50 milliohms max.
Insulation Resistance—10^9 Ohms minimum
Contact Bounce—1.5 ms maximum
Operating Force—150 grams approx.
Total Key Travel—.079 (2mm)
Pre-Travel—.039 (1mm)
Ambient Temperature— -25°C to +85°C (-13°F to +185°F)
Mounting Method—Direct soldering onto standard Matrix printed circuit board.
Interchangeable Keys—In a choice of key colors—white, red, or black.

MATERIALS:
Housing—Glass filled Nylon
Key Cap—ABS
Switching Contacts—Gold plate over silver plated brass.

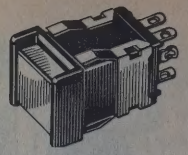


Stk. No.	Type	Description	Price 1-24	25-49	50-99	100-499
81F751	SB6SDV14	Base w/one red led	3.16	2.83	2.26	1.70
81F752	SB6SDV44	Base w/two red leds	4.12	3.68	2.94	2.21
81F753	SB6SDV64	Base w/o led	2.21	1.98	1.58	1.19
81F754	W-KN-21	Narrow black cap w/o led hole	.22	.20	.16	.12
81F755	W-KN-21A	Narrow white cap w/o led hole	.22	.20	.16	.12
81F756	W-KN-21B	Narrow red cap w/o led hole	.22	.20	.16	.12
81F757	W-KN-24	Wide black cap w/o led hole	.22	.20	.16	.12
81F758	W-KN-24A	Wide white cap w/o led hole	.22	.20	.16	.12
81F759	W-KN-24B	Wide red cap w/o led hole	.22	.20	.16	.12
81F760	W-KN-22	Narrow black cap w/one led hole	.34	.30	.24	.18
81F761	W-KN-22A	Narrow white cap w/one led hole	.34	.30	.24	.18
81F762	W-KN-22B	Narrow red cap w/one led hole	.34	.30	.24	.18
81F763	W-KN-26	Wide black cap w/two led holes	.34	.30	.24	.18
81F764	W-KN-26A	Wide white cap w/two led holes	.34	.30	.24	.18
81F765	W-KN-26B	Wide red cap w/two led holes	.34	.30	.14	.18

EATON COMPU-LITE Lighted Pushbutton Switches

SHORTY SERIES

Snap in panel mtg. Accept T-1-¾ bi-pin base bulbs (not inc.) UL/CSA Listed. Oper. life: 300,000 cycles mom., 100,000 cycles alt. Relampable from front of panel. .110" quick connect term. All alt. action switches have positive latch down. Panel thickness: .062 - .187". Barrier Mounts (-99) prevent accidental switch operation. Contacts: Silver. (Gold contacts for low level switches availabale on special order.)



MOMENTARY ACTION SWITCHES—POWER

Stk. No.	Type	Accepts Cap Size	Descript.	1-49	50-99	100-249	250-499
21F201	881K11810	½" sq.	1 Pole NO	2.50	2.15	1.88	1.74
21F202	861K11810	⅝" sq.	6 Amps 125 VAC	2.82	2.42	2.11	1.95
21F203	861K11811	⅝" sq.	3 Amps 250 VAC	2.82	2.42	2.11	1.95
21F204	881K13810	½" sq.	2 Poles NO	3.38	2.92	2.55	2.36
21F205	861K13810	⅝" sq.	6 Amps 125 VAC	3.70	3.20	2.79	2.59
21F206	861K13811	⅝" sq.	3 Amps 250 VAC	3.70	3.20	2.79	2.59
21F207	849K11810	⅝" sq.	SPDT	5.12	4.55	3.41	3.16
21F208	849K11811	⅝" sq.	3 Amps @	5.12	4.55	3.41	3.16
21F209	820K11810	¾" sq.	125 VAC or	5.34	4.74	3.53	3.30
21F210	820K11811	¾" sq.	250 VAC	5.34	4.74	3.53	3.30
21F211	810K11810	¾" × 1"		6.02	5.34	3.96	3.70
21F212	810K11811	¾" × 1"		6.02	5.34	3.96	3.70
21F213	849K12810	⅝" sq.	DPDT	6.24	5.57	4.20	3.92
21F214	849K12811	⅝" sq.	3 Amps @	6.24	5.57	4.20	3.92
21F215	820K12810	¾" sq.	125 VAC or	6.53	5.80	4.36	4.09
21F217	810K12810	¾" × 1"	250 VAC	7.15	6.36	4.78	4.46
21F218	810K12811	¾" × 1"		7.15	6.36	4.78	4.46

ALTERNATE ACTION SWITCHES—POWER

Stk. No.	Type	Accepts Cap Size	Descript.	1-49	50-99	100-249	250-499
21F219	881K21810	½" sq.	1 Pole NO	3.15	2.71	2.38	2.20
21F220	861K21810	⅝" sq.	6 Amps 125 VAC	3.48	3.00	2.62	2.41
21F221	861K21811	⅝" sq.	3 Amps 250 VAC	3.48	3.00	2.62	2.41
21F222	881K23810	½" sq.	2 Poles NO	4.04	3.49	3.05	2.81
21F223	861K23810	⅝" sq.	6 Amps 125 VAC	4.37	3.79	3.27	3.04
21F224	861K23811	⅝" sq.	3 Amps 250 VAC	4.37	3.79	3.27	3.04
21F225	849K21810	⅝" sq.	SPDT	5.63	5.00	3.72	3.48
21F226	849K21811	⅝" sq.	3 Amps @	5.63	5.00	3.72	3.48
21F227	820K21810	¾" sq.	125 VAC or	5.89	5.22	3.89	3.63
21F228	820K21811	¾" sq.	250 VAC	5.89	5.22	3.89	3.63
21F229	810K21810	¾" × 1"		6.60	5.84	4.35	4.05
21F230	810K21811	¾" × 1"		6.60	5.84	4.35	4.05
21F231	849K22810	⅝" sq.	DPDT	6.78	6.02	4.53	4.24
21F232	849K22811	⅝" sq.	3 Amps @	6.78	6.02	4.53	4.24
21F233	820K22810	¾" sq.	125 VAC or	7.06	6.29	4.72	4.40
21F234	820K22811	¾" sq.	250 VAC	7.06	6.29	4.72	4.40
21F235	810K22810	¾" × 1"		7.74	6.87	5.14	4.80
21F236	810K22811	¾" × 1"		7.74	6.87	5.14	4.80

MOMENTARY ACTION SWITCHES—LOW LEVEL

Stk. No.	Type	Accepts Cap Size	Descript.	1-49	50-99	100-249	250-499
21F243	881K11910	½" sq.	1 Pole NO	2.01	2.26	1.99	1.85
21F244	861K11910	⅝" sq.	.25 Amp @ 30VDC	2.93	2.53	2.22	2.06
21F245	861K11911	⅝" sq.	or 125 VAC	2.93	2.53	2.22	2.06
21F246	881K13910	½" sq.	2 Poles NO	3.61	3.15	2.78	2.59
21F247	861K13910	⅝" sq.	.25 Amp @ 30VDC	3.92	3.43	3.01	2.81
21F248	861K13911	⅝" sq.	or 125 VAC	3.92	3.43	3.01	2.81

ALTERNATE ACTION SWITCHES—LOW LEVEL

Stk. No.	Type	Accepts Cap Size	Descript.	1-49	50-99	100-249	250-499
21F237	881-2191	½" sq.	1 Pole NO	3.26	2.82	2.50	2.31
21F238	861-2191	⅝" sq.	.25 Amp @ 30VDC	3.60	3.11	2.73	2.52
21F239	861-2191-99	⅝" sq.	or 125 VAC	3.60	3.11	2.73	2.52
21F240	881-2391	½" sq.	2 Poles NO	4.27	3.72	3.27	3.04
21F241	861-2391	⅝" sq.	.25 Amp @30VDC	4.59	4.01	3.49	3.26
21F242	861-2391-99	⅝" sq.	or 125 VAC	4.59	4.01	3.49	3.26

MATCHING INDICATORS

Stk. No.	Type	Accepts Cap Size	1-49	50-99	100-249	250-499
21F249	886L10	½" sq.	1.70	1.46	1.25	1.15
21F250	845L10	⅝" sq.	2.24	1.98	1.44	1.35
21F251	845L11	⅝" sq.	2.24	1.98	1.44	1.35
21F252	825L10	¾" sq.	2.38	2.09	1.53	1.42
21F253	825L11	¾" sq.	2.38	2.09	1.53	1.42
21F254	815L10	¾" × 1"	2.61	2.30	1.69	1.57
21F255	815L11	¾" × 1"	2.61	2.30	1.69	1.57

LENS CAPS

½" SQUARE

Stk. No.	Type	Color	1-49	50-99	100-249	250-499
21F256	881P500A	Orange	.24	.21	.19	.17
21F257	881PT01A	White				
21F258	881PT02A	Red				
21F259	881PT03A	Green				
21F260	881PT04A	Yellow				
21F261	881PT05A	Blue				

¾" SQUARE

Stk. No.	Type	Color	1-49	50-99	100-249	250-499
21F262	820PT00A	Orange	.79	.69	.50	.47
21F263	820PT01A	White				
21F264	820PT02A	Red				
21F265	820PT03A	Green				
21F266	820PT04A	Yellow				
21F267	820PT05A	Blue				

⅝" SQUARE

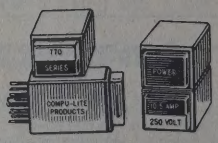
Stk. No.	Type	Color	1-49	50-99	100-249	250-499
21F268	849PT00A	Orange	.64	.56	.41	.39
21F269	849PT01A	White				
21F270	849PT02A	Red				
21F271	849PT03A	Green				
21F272	849PT04A	Yellow				
21F273	849PT05A	Blue				

¾" SQUARE

Stk. No.	Type	Color	1-49	50-99	100-249	250-499
21F274	810PT00A	Orange	.92	.83	.61	.56
21F275	810PT01A	White				
21F276	810PT02A	Red				
21F277	810PT03A	Green				
21F278	810PT04A	Yellow				
21F279	810PT05A	Blue				

SERIES 770-DUAL LAMP SNAP ACTION SWITCHES

UL/SCA listed for 10.5A @ 250VAC. Exceeds UL med stand. #544 spec. for di-electric breakdown volt. and flammability req. Accepts two T-1-¾ bulbs (not inc.). 0.125" quick connect term. Accepts full of horiz. split legend lens caps. Alt. action switches have positive latch down. Panel thk.: .030-, 250". (-99) indicates vert. barrier.



SWITCHES ACTION AND MATCHING INDICATORS

Stk. No.	Type	Action	Descript.	1-49	50-99	100-249	250-499
21F280	770K11810	Moment.	SPDT	11.33	10.01	7.39	6.34
21F281	770K11811	Moment.	Double Break 2 Circuit				
21F282	770K12810	Moment.	DPDT	12.15	10.83	8.22	7.18
21F283	770K12811	Moment.	Double Break Circuit				
21F284	770K21810	Alt.	SPDT	12.33	11.02	8.41	7.37
21F285	770K21811	Alt.	Double Break 2 Circuit				
21F286	770K22810	Alt.	DPDT	13.17	11.86	9.24	8.20
21F287	770K22811	Alt.	Double Break Circuit				
21F288	775L10	Mat.	Matching	4.69	4.17	3.13	2.71
21F289	775L11	Ind.	Indicators				

LENS CAPS

Stk. No.	Type	Color	1-49	50-99	100-249	250-499
21F290	770M00F	Full Screen Orange	2.17	1.93	1.45	1.25
21F291	770M01F	Full Screen White				
21F292	770M02F	Full Screen Red				
21F293	770M03F	Full Screen Green				
21F294	770M04F	Full Screen Yellow				
21F295	770M05F	Full Screen Blue				
21F296	770M0102S	Split Screen White/Red	2.31	2.06	1.55	1.34
21F297	770M0201S	Split Screen Red/White				
21F298	770M0104S	Split Screen White/Yellow				
21F299	770M0103S	Split Screen White/Green				
21F300	770M0301S					
21F301	770M0101S	Split Screen White/White				
21F302	770M0202S	Split Screen Red/Red				
21F303	770M0303S	Split Screen Green/Green				

Gold contacts available for low level switching.

Component Seals/Pilot Light Filters

HIGH PRESSURE SEALS FOR STANDARD TOGGLE SWITCHES

Type	Throat or I.D.	Height	Flats
N-1030	1/8"	7/8"	5/8"
N-1030A	7/32"	7/8"	5/8"
N-1030B	1/8"	27/64"	5/8"
N-5030	3/64"	7/16"	3/8"

N-1030B

N-1030A

Silicone rubber chemically and mechanically bonded to nut, make these b oots impervious to salt water, acids, and ozone. Flexible from —160° F to +400° F. Meets MIL-B-5423. Pressure Range: 15 PSI Bush mtg. Wt. approx. 1 oz. per 5.

Stk. No.	Type	Thread Size	Description	1-249	250-999	1000-3999	4000-9999
30F000	N1030	15/32-32	Enclosed	1.22	.98	.86	.73
30F001	N1030A	15/32-32	Metal Cap	1 2	.98	.86	.73
30F002	N1030B	15/32-32	Open Top	1.22	.98	.86	.73
30F011	N5030	1/4-40	Enclosed	1.36	1.09	.96	.82
30F005	N-5030L	1/4-40	Enclosed	1.38	1.11	.97	.83
30F003	N-5032B	1/4-40	Open Top	1.38	1.11	.97	.83

HEXSEAL

Seats for locking type potentiometers and variable capacitors. Temp. Range: —160° F to +500° F. Shaft size:1/4". Thread size: 3/8-32". Ht. 17/32". Width 5/8".

Stock No.	Type No.	1-249	250-999	1000-3999	4000-9999
30F060	NLK-9030-1/4	3.63	2.90	2.54	2.18

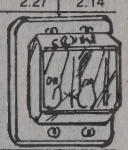
HIGH PRESSURE SEALS

Designed for shafts which pass through panels or housings. Meets MIL-B-5423/9. For standard rotary switches. Wt. approx. 1 oz. per 5.

Stock No.	Type	Thread Size	Hex Size	1-249	250-999	1000-3999	4000-9999
30F013	N-9030-1/4	3/8-32	1/2"	1.01	.81	.71	.61
30F014	N-9040-1/8	1/4-32	7/16"	1.08	.86	.76	.65
30F015	N-9060-1/4	15/32-32	3/4"	2.68	2.54	2.27	2.14

CIRCUIT BREAKER BOOTS

Environmentally protects exposed circuit breaker. Made in clear silicone rubber, shipped complete with mounting flange and screws. Most are military QPL approved.



SINGLE SWITCH HANDLE

Stk. No.	Type	Mates w/Heinemann Electric 100	1-249	250-999	1000-3999	4000-9999
81F068	HE-1015	AM-12	6.41	5.12	4.47	3.84
81F072	HE-1035	1163 SER. 2263 SER. 3363 SER.	6.76	5.41	4.75	4.13
81F073	HE-1040	AM-1516	5.90	4.71	4.13	3.54
81F071	1113/40	JA-1	4.63	3.70	3.23	2.77

DOUBLE SWITCH HANDLE

81F067	HE-1020	AM-33	6.41	5.12	4.47	3.84
81F070	1113/42	JA-2	5.32	4.26	3.73	3.20

TRIPLE SWITCH HANDLE

81F066	HE-1070	AM-3 33	7.88	6.27	5.48	4.69
81F074	1113/43	JA-3	5.81	4.65	4.06	3.49

HIGH PRESSURE SEALS FOR STANDARD PUSH BUTTON SWITCHES

N-3030 NH-303G

NC-3030

N-5040

4080 Series

Meet MIL-B-5423. High pressure sealing maintained by gasket rib, which seats against panel surface to keep out moisture, dust, or combustible vapors. Temp.: —160° to +400° F.
*Dial light seal (trans.). Indicator light and press to test switches.

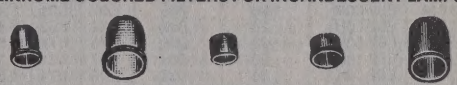
Stock No.	Type	Thread Size	Description	1-249	250-999	1000-3999	4000-9999
30F006	N-3030	15/32-32	Bush, Mtg.	1.11	.89	.78	.67
30F007	NC-3030	15/32-32	Bush, Mtg.	1.11	.89	.78	.67
30F008	NH-3030	1/2-32	Bush, Mtg.	1.22	.98	.86	.73
30F010	4082	15/32-32	Bush, Mtg.	2.35	2.24	2.00	1.88
30F012	N-5040	1/4-40	Bush, Mtg.	2.22	2.11	1.89	1.77
30F065	N-5040G	1/4-32	Bush, Mtg.	2.22	2.11	1.89	1.77
30F066	N-5040R	1/4-40	Bush, Mtg.	1.38	1.11	.97	.83

SNAPSEELS

Black neoprene water & dust-proof material. Operating Temperatures: —40° F to +225 F. Bushing dia. for type 1312/7; 3/8-27 (2200/13/2)or 3/8-32 (2200/13/3); type 1111/4 & 1211/10: 15/32-32 (2200/13/1).

Stock No.	Type	To Switch	1-999	1000-2999	3000-9999	10000-24999
30F097	1211/5	Push-button	.38	.34	.30	.26
30F098	1111/4	Toggle				
30F099	1312/7	Rotary				

SILIKROME COLORED FILTERS FOR INCANDESCENT LAMPS

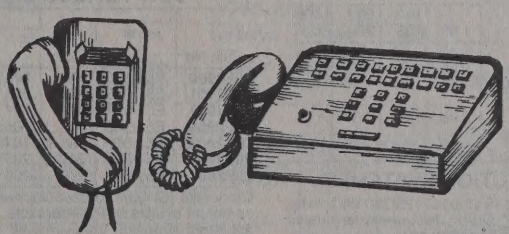

1813/2 1813/8 1813/14 1813/15 1813/27

Change colors of clear incandescent miniature lamps. Operate at 400 for 1000 hours without appreciable change in color. Temperature range: —160° F to 400° F. Resistant to environmental conditions. Mil. Spec. models available on special order.

Stock No.	Type	Color	Size	Ht.	O.D.	10-190	200-990	1000-3990
30F781	1813/2-R-5	Red	T-1¾	5/16"	1/4"	.23	.18	.15
30F793	1813/2-B-1	Blue	T-1¾	5/16"	1/4"			
30F782	1813/2-G-1	Green	T-1¾	5/16"	1/4"			
30F794	1813/2-A-2	Amber	T-1¾	5/16"	1/4"			
30F795	1813/8-R-5	Red	T-3¼	11/16"	7/16"	.23	.18	.15
30F788	1813/8-G-1	Green	T-3¼	11/16"	7/16"			
30F796	1813/8-A-2	Amber	T-3¼	11/16"	7/16"			
30F797	1813/27-R-5	Red	T-3¼	11/16"	7/16"	.23	.18	.15
30F799	1813/27-B-1	Blue	T-3¼	11/16"	7/16"			
30F798	1813/27-G-1	Green	T-3¼	11/16"	7/16"			
30F800	1813/27-A-1	Amber	T-3¼	11/16"	7/16"			

Only sold in multiples of 10.

TELEPHONE KEYBOARD SEALS



FOR SINGLE LINE P.B. PHONES

Stk. No.	Type 1218-	1-99	100-999	1k-3999	4k-9999
81F061	8/1	4.99	3.49	2.74	2.25
81F062	8/3	4.99	3.49	2.74	2.25

FOR P.B. WALL PHONES

Stk. No.	Type 1218-	1-99	100-999	1k-3999	4k-9999
81F062	8/3	4.99	3.49	2.74	2.25

FOR MULTI-LINE P.B. PHONES

Stk. No.	Type 1213-	1-99	100-999	1k-3999	4k-9999
81F063	46/10	4.68	3.28	2.57	2.10
81F064	46/20	8.64	6.05	4.75	3.89

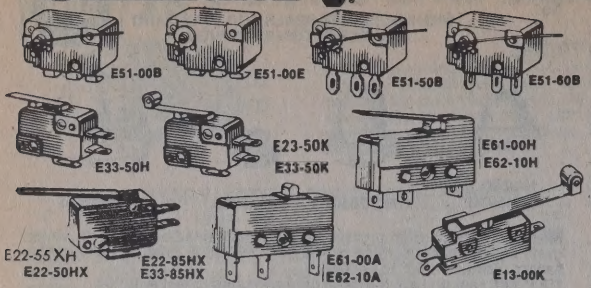
FOR 6-BUTTON KEY SETS

Stk. No.	Type 1213-	1-99	100-999	1k-3999	4k-9999
81F065	48/6	6.98	4.88	3.84	3.14

Material: Silicone Rubber

INSTALLATION INSTRUCTIONS: Make sure telephone surface is free of grease and oil. Then—To install cover, peel back protective paper from pressure sensitive tape at split. Lay over telephone keys and faceplate. Tamp down on all sides.

CHERRY Snap-Action Switches



SERIES E61 & E62 SUBMINIATURE

- **Long Life Coil Spring Mechanism**
- **Large Overtravel**
- **Rock Wipe Contact Action**
- **Small Compact Size**

Subminiature SPDT snap-action switches with phenolic case. Coil-spring mechanism. Rock-wipe contact action. Large overtravel: Wear-resistant acetal button. Light-force versions rated 5 amps at 125/250VAC; standard-force versions, 10.1 amps at 125/250VAC; ¼ hp at 125VAC. .093" QC terminals standard; (*) short solder terminals. Size: $^{25}/_{32}$" × $^{23}/_{64}$" × ¼" **Series E72** is sealed, watertight, weatherproof version of **E62;** same specs and rating.

Stk. No.	Type	Max. Op Force (Gms.)	Minimum Overtravel (Inches)	EACH 1-49	50-99	100-499	500-999
SERIES E61—LIGHT FORCE—5 AMPS							
29F2908	E61-00A	90	.035	2.07	1.31	1.18	1.08
29F2909	E61-00H	24	.040	2.42	1.53	1.38	1.26
29F2910	E61-00K	26	.030	2.76	1.74	1.58	1.44
29F2911	E61-10A*	90	.035	2.07	1.31	1.18	1.08
29F2912	E61-10H*	24	.040	2.42	1.53	1.38	1.26
29F2913	E61-10K	26	.030	2.76	1.74	1.58	1.44
SERIES E62—STANDARD FORCE—10.1 AMPS							
29F2914	E62-00A	90	.035	2.07	1.31	1.18	1.08
29F2915	E62-00H	24	.040	2.42	1.53	1.38	1.26
29F2916	E62-00K	26	.030	2.76	1.74	1.58	1.44
29F2917	E62-10A*	90	.035	2.07	1.31	1.18	1.08
29F2918	E62-10K*	26	.030	2.76	1.74	1.58	1.44
SERIES E72-SEALED STD. FORCE—10.1 AMPS							
29F2922	E72-40A	10	.035	5.78	3.65	3.30	3.01

Miniature SPDT snap-action switches with phenolic case. Coil spring mechanism. Rock-wipe contact action. Large overtravel. Wide, rounded wear-resistant acetal resin button. Integral hinged lever and roller actuators in 2 pivot positions. Contact ratings from 3 to 15 amps. .187 QC terminals standard. Size: 1$^{3}/_{32}$"l. × 1$^{3}/_{32}$w. × $^{5}/_{8}$"h.

Series E22 Force: 75 gms. max. . . Rating: 3A @ 125VAC.
Series E23 Force: 170 gms. max. . . Rating: 5A @ 125/250VAC, ¼ hp.
Series E33 Force: 285 gms. max. . . Rating: 10A @ 125/250VAC, ½ hp.
Series E34 Force: 400 gms. max. . . Rating: 15A @ 125/250VAC, ½ hp.

- **UL Listed—CSA Approved**
- **Standard and Light Force**
- **Wide Rounded Wear Resistant Button**

GENERAL PURPOSE SNAP ACTION SWITCHES

•Large Overtravel •Wear Resistant Nylon Button
•Long Life Coil Spring Mechanism

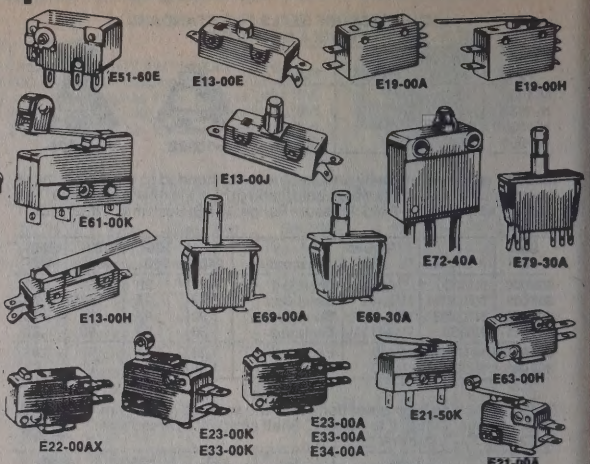
SPDT snap-action switches with phenolic case. Coil spring mechanism. Rock-wipe contact action. Silver-cadmium oxidized contacts. ¼" Quick Connect terminals. UL listed. CSA approved.

Stk No.	Type	Description	EACH 1-99	100-499	500-999	1000-Up
29F2875	E13-00E	Button	1.42	.90	.81	.74
29F2876	E13-00H	1½" Actr, Std. Ratio	1.95	1.23	1.12	1.02
29F2877	E13-00J	Button, Ferrule Mtg.	1.59	1.01	.91	.83
29F2878	E13-00K	1⅜" Roller Actr, Std. Ratio	2.38	1.50	1.36	1.24
29F2879	E13-00M	Button, Ferrule Mtg. Hi Overtravel	2.02	1.28	1.12	1.05

DOUBLE POLE STD. SNAP ACTION SWITCHES

DPDT standard switches with contacts rated at 15 amps at 125/250 VAC; ¾ hp at 125 VAC; 1½ hp at 250 VAC. Standard ¼" Quick Disconnect terminals. Switch Body: 1$^{13}/_{16}$" × 1$^{1}/_{8}$" × 1$^{41}/_{64}$" **E19-00A:** Button. **E19-00H:** 1½" Actuator, standard ratio. **E19-50H:** 1¾" Actuator, high ratio. **E19-00M:** Button; Ferrule mounting, high overtravel.

Stk. No.	Type	Max. Op. Force (Ozs.)	Minimum Overtravel (Ins.)	EACH 1-49	50-99	100-499	500 999
29F2881	E19-00A	30	.080	2.96	1.87	1.69	1.54
29F2882	E19-00H	7	.187	3.50	2.21	2.00	1.82
29F2883	E19-00M	30	.218	3.56	2.25	2.03	1.86
29F2884	E19-50H	4½	.187	3.50	2.21	2.00	1.82



PANEL-MOUNT PUSHBUTTON SNAP ACTION SWITCHES

Series E69 and E79. Rating 10 amp, ⅓ h.p. at 125/250VAC. Quick connect terminals .187" × .020". Snap-in panel-mount switches. Coil spring snap-action mechanism. Rock-wipe contact action. White nylon case, white acetal button, brass terminals, beryllium copper moving blade, stainless steel coil spring, silver-cadium contacts. UL listed, CSA approved. **E69** is SPDT version. Size 1¼ × 1 × 1$^{1}/_{16}$". **E79** is DPDT version. Size: 1½ × 1 × 1$^{1}/_{16}$".

Action: All momentary except for those with additional "cheat" interlock feature indicated with (*).

Stk. No.	Type	Max. Op. Force (Ozs.)	Minimum Overtravel (Ins.)	EACH 1-49	50-99	100-249	250-999
29F2920	E69-00A	15	.375	1.86	1.18	1.06	.97
29F2921	E69-30A	15 (10*)	.100 (.050*)	2.52	1.59	1.44	1.31
29F2923	E79-30A	26 (20*)	.100 (.050*)	4.12	2.60	2.35	2.15

MINIATURE SNAP-ACTION SWITCHES STANDARD AND LIGHT FORCE

Stk. No.	Type	Max. Op. Force (Gms.)	Min. Overtrv. (Ins.)	Actr. Lgth. (Ins.)	EACH 1-49	50-99	100-499	500-999
29F2887	E22-00AX	15	.050	. . .	1.80	1.14	1.03	.94
29F2888	E22-50HX	8	.090	1$^{13}/_{32}$	2.04	1.29	1.17	1.07
29F2889	E22-55HX	3½	.187	2¾	2.04	1.29	1.17	1.07
29F2890	E22-85HX	2	.312	2.932	2.04	1.29	1.17	1.07
29F2891	E23-00A	170	.050	. . .	1.53	.97	.88	.80
29F2892	E23-00K	170	.040	$^{13}/_{16}$	2.06	1.30	1.18	1.08
29F2893	E23-50K	86	.085	1$^{11}/_{32}$	2.06	1.30	1.18	1.08
29F2898	E33-85HX	10	.312	2.932	2.04	1.29	1.17	1.07
29F2894	E33-00A	285	.050	. . .	1.53	.97	.88	.80
29F2895	E33-00K	285	.040	$^{13}/_{16}$	2.06	1.30	1.18	1.08
29F2896	E33-50H	144	.090	1$^{13}/_{32}$	1.77	1.12	1.01	.92
29F2897	E33-50K	144	.085	1$^{11}/_{32}$	2.06	1.30	1.18	1.08
29F2899	E34-00A	400	.050	. . .	1.53	.97	.88	.80

LOW TORQUE SNAP ACTION SWITCHES

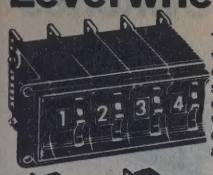
Stk. No.	Type	Actn.	Terminals	EACH 1-99	100-499	500-999	1000-Up
29F2900	E51-00B	CW	.205",std./par.				
29F2901	E51-00E	CCW	.205",std./par.				
29F2903	E51-00T	CCW	.187",std./par.				
29F2904	E51-50B	CW	.205",std./twist.	4.20	2.65	2.40	2.19
29F2905	E51-50R	CW	.187",vert./twist				
29F2906	E51-60B	CW	.205",vert./str.				
29F2907	E51-60E	CCW	.206",vert./str.				

Clockwise (CW) or counter-clockwise (CCW) actuation. Gold-flashed silver-cadmium oxidized SPDT contacts, rated 5 amps at 125/250 VAC. Wireform actuators supplied; unassembled. Terminals available in standard/parallel, vertical/twist and vertical/straight.

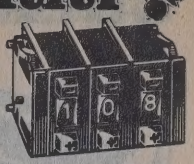
LOW ENERGY SNAP ACTION SWITCHES

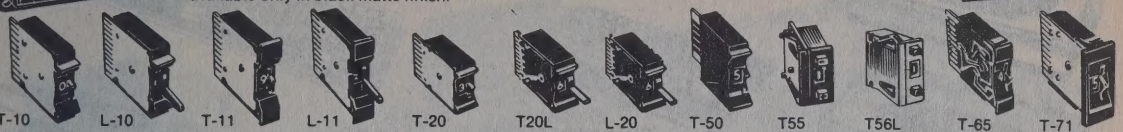
Stk. No.	Type	Description	EACH 1-49	50-99	100-499	500-999
29F2885	E21-00A	Button	2.70	1.71	1.54	1.41
29F2886	E21-50K	1$^{11}/_{32}$" Roller Actr, Std. Ratio	3.24	2.05	1.85	1.69
29F2919	E63-00H	$^{9}/_{32}$" Actr, Std. Ratio	3.83	2.42	2.19	2.00

Leverwheel & Thumbwheel Switches CHERRY



T-Series indicates thumbwheel switch, **L-Series** indicates Leverwheel switch. **T-50 Series** rated at 50 volts @ .125 amp., 3 amps. carrying current. All other switches rated at 28 volts @ .125 amp., 3 amps, carrying current. Contact resistance .1 ohm max. Insulation resistance: 1000M ohms. Dielectric strength: (50, 65 and 71 Series) 500 volt AC; (10, 11 and 20 Series) 1000 volts A.C. Switch life: 1 x 10^6 operations at nominal load. Switch operating force: 7-10 oz. Weight: ¾ oz. per module (except T-50 which is ⅛ oz. per module. **Type 71** has an integral bezel and requires no hardware. (#) Available in either gloss black finish—suffix A or mattle black finish—suffix M. Suffix L denotes lighted switch, available only in black matte finish.





T-10 L-10 T-11 L-11 T-20 T20L L-20 T-50 T55 T56L T-65 T-71

Suffix No.	Description	Positions	Read-out	T-10	L-10	T-11	L-11	T-20	T-20L	L-20	T-50	T55	T56L	T-65	T-71
—01	Decimal	10	0-9	T10-01A	L10-01	T11-01A	.....	T20-01A	T20-01L	L20-01A	T50-01M	T55-01M	T56-01L	T65-01A	T71-01A
—02	BCD	10	0-9	T10-02A	L10-02A	T11-02A	L11-02A	T20-02A#	T20-02L	L20-02A#	T50-02M	T55-02M	T56-02L	T65-02A	.....
—03	Hex	16	0-15	T10-03A	.....	T11-03A	.....	T20-03A	T20-03L	.....	.....	.....	T56-03L	T65-03A	.....
—04	BCD & Comp.*	10	0-9	T10-04A	.....	T11-04A	L11-04A	T20-04A	T20-04L	L20-04A	T60-04M	T55-04M	T56-04L	T65-04A	.....
—07	BCO	8	0-7	.....	.....	.....	.....	T10-07A#	T20-07L	L20-07A	.....	.....	.....	.....	.....
—08	Hex & Comp.*	16	0-15	.....	.....	.....	.....	T20-08A	T20-08L	.....	.....	.....	.....	.....	.....
—09	Hex & Comp.†	16	0-15	.....	.....	.....	.....	T20-09A	T20-09L	.....	.....	.....	.....	.....	.....
—11	Dbl. Pole Dec.	10	0-9	T10-11A	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
—12	BCD Comp. Only	10	0-9	.....	.....	.....	.....	T20-12A	T20-12L	L20-12A#	T50-12M	T55-12M	T56-12L	.....	.....
—13	Hex	16	0-9, A-F	T10-13A	.....	.....	.....	T20-13A	T20-13L	.....	.....	.....	.....	T65-13A	.....
—15	BCD w/S-Fis Bts.	10	0-9	.....	.....	T11-13A	.....	T20-15A	T20-15L	L20-15A#	.....	.....	.....	.....	.....
—20	Decimal	12	0-11	.....	.....	.....	.....	.....	T20-52L	T20-20A	.....	.....	.....	.....	.....
—52	BCD w/Dio Prov.	10	0-9	.....	.....	.....	.....	T20-52A	T20-54L	L20-52A	T60-52M	T55-52M	T56-52L	.....	.....
—54	BCD&C, w/Dio	10	0-9	.....	.....	.....	.....	T20-54A	T20-65L	.....	.....	.....	.....	.....	.....
—65	KV Volt Div.	10	0-9	.....	.....	.....	.....	T20-65A	T20-67L	.....	.....	.....	.....	.....	.....
—67	1-2-2-2-2 Res Dec	10	0-9	.....	.....	.....	.....	T20-67A	T20-88L	.....	.....	.....	.....	.....	.....
—88	Hex & Comp.*	16	0-9, A-F	.....	.....	.....	.....	T20-88A	.....	.....	.....	.....	.....	.....	.....
—89	Hex & Comp.†	16	0-9, A-F	.....	.....	.....	.....	T20-89A	T20-94L	.....	.....	.....	.....	.....	.....
—94	Sng. Pole Rep.	2	-†	.....	.....	.....	.....	T20-94A	T20-95L	L20-94A	.....	.....	.....	.....	.....
—95	Sng. Pole Rep.	2	0-1	.....	.....	.....	.....	T20-95A	T20L	.....	.....	T55-95M	T56-95L	.....	.....

(*) 1 common. (†) 2 commons.

Stock No.	Type	1-49	50-99	100-199
29F2946	T10-01A	6.36	4.77	4.65
29F2947	T10-02A	6.36	4.77	4.65
29F2948	T10-03A	11.47	8.61	8.38
29F2949	T10-04A	10.81	8.11	7.90
29F2950	T10-11A	9.98	7.49	7.29
29F2951	T10-13A	11.59	8.70	8.47
29F2930	L10-01A	7.19	5.40	5.25
29F2931	L10-02A	7.19	5.40	5.25
29F2952	T11-01A	6.42	4.82	4.69
29F2953	T11-02A	6.42	4.82	4.69
29F2954	T11-03A	11.88	8.91	8.68
29F2955	T11-04A	10.88	8.16	7.95
29F2956	T11-13A	11.88	8.91	8.68
29F2932	L11-02A	7.55	5.67	5.52
29F2933	L11-04A	11.47	8.61	8.38
29F2957	T20-01A	5.46	4.10	3.99
29F2975	T20-01M	5.76	4.32	4.21
29F2958	T20-02A	5.46	4.10	3.99
29F2976	T20-02M	5.76	4.32	4.21
29F2959	T20-03A	8.91	6.69	6.51
29F2960	T20-04A	7.60	5.70	5.55
29F2961	T20-07A	5.70	4.28	4.17
29F2977	T20-07M	6.00	4.50	4.38
29F2962	T20-08A	10.28	7.71	7.51
29F2963	T20-09A	11.47	8.61	8.38
29F2964	T20-12A	6.36	4.77	4.65

Stock No.	Type	1-49	50-99	100-199
29F2965	T20-13A	8.91	6.69	6.51
29F2966	T20-15A	8.74	6.56	6.38
29F2967	T20-52A	6.89	5.17	5.03
29F2968	T20-54A	8.91	6.69	6.51
29F2969	T20-65A	10.28	7.71	7.51
29F2970	T20-67A	11.83	8.88	8.64
29F2971	T20-88A	5.46	4.10	3.99
29F2972	T20-89A	5.46	4.10	3.99
29F2973	T20-94A	5.46	4.10	3.99
29F2974	T20-95A	5.46	4.10	3.99
12F1250	T20-01L	11.47	8.61	8.38
12F1251	T20-02L	7.60	5.70	5.55
12F1252	T20-03L	5.70	4.28	4.17
12F1254	T20-07L	10.28	7.71	7.51
12F1255	T20-08L	11.47	8.61	8.38
12F1256	T20-09L	6.36	4.77	4.65
12F1257	T20-12L	8.91	6.69	6.51
12F1259	T20-15L	8.74	6.56	6.38
12F1261	T20-54L	6.89	5.17	5.03
12F1262	T20-65L	8.91	6.69	6.51
12F1263	T20-67L	10.28	8.07	7.51
12F1266	T20-94L	5.46	4.10	3.99
12F1267	T20-95L	5.46	4.10	3.99
12F1268	T55-01M	8.94	6.71	6.53
12F1269	T55-02M	6.24	4.68	4.56
12F1270	T55-04M	9.48	7.12	6.92

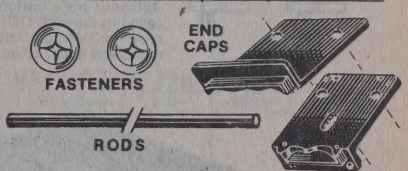
Stock No.	Type	1-49	50-99	100-199
12F1271	T55-12M	9.48	7.11	6.92
12F1272	T55-52M	6.78	5.09	4.95
12F1274	T56-01L	5.94	4.46	4.34
12F1275	T56-02L	5.94	4.46	4.34
12F1276	T56-03L	8.10	6.08	5.92
12F1278	T56-12L	8.10	6.08	5.92
29F2934	L20-01A	6.89	5.17	5.03
29F2935	L20-02A	6.89	5.17	5.03
29F2943	L20-02M	7.19	5.40	5.25
29F2936	L20-04A	8.26	6.20	6.03
29F2937	L20-07A	6.89	5.17	5.03
29F2938	L20-12A	7.48	5.61	5.46
29F2940	L20-20A	6.89	5.17	5.03
29F2941	L20-52A	8.26	6.20	6.03
29F2978	T50-01M	5.41	4.06	3.95
29F2979	T50-02M	5.41	4.06	3.95
29F2980	T50-04M	6.30	4.73	4.60
29F2981	T50-12M	6.54	4.91	4.78
29F2982	T50-52M	6.00	4.50	4.38
29F2983	T65-01A	3.80	2.85	2.78
29F2984	T65-02A	3.80	2.85	2.78
29F2985	T65-03A	7.01	5.26	5.12
29F2986	T65-04A	5.11	3.84	3.73
29F2987	T65-13A	7.01	5.26	5.12
29F2988	T71-01A	3.92	2.94	2.87

FASTENERS

Stock	For Series	Type	Each
29F3003	L20/T20 T50/T65	12-0744	.02
29F3004	T10/L10 T11/L11	12-0093	.03

STOP PINS

Stock	For Series	Type	Each
29F3046 29F3048	T20/T50 T65	607-0011 607-0017	.05



END CAPS

Description	Stk. No.	T10/L10	Each	Stk. No.	T11/L11	Each	Stk. No.	T20/L20	Each	Stk. No.	T50	Stk. No.	T65	Each
Left Gloss	29F2997	09-0498		29F2999	09-0496		29F2996	09-1034		.....	.....	29F3002	609-0810	
Right Gloss	29F2998	09-0499	.35	29F3000	09-0497	.35	29F3044	09-1153	.35	.....	.....	29F3045	09-1691	.35
Left Matte	29F3040	09-0705		20F3042	09-0719		.....	.....		.....	.....	.....	.....	
Right Matte	29F3041	09-0706		29F3043	09-0720		.....	.....		.....	.....	.....	.....	
Left Matte 8MM	.....	.....		.....	.....		.....	.....		29F3001	609-0970	.....	.....	
Right Matte 8MM	.....	.....		.....	.....		.....	.....		29F3001	609-0970	.....	.....	

RODS

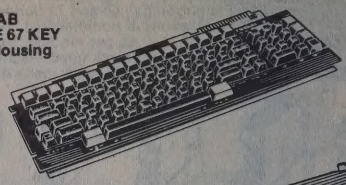
Description	Stk. No.	T10/L10 T11/L11	Each	Stk. No.	T20/L20	Each	Stk. No.	T50	Each	Stk. No.	T65	Each
1 Module	29F3006	12-D147		29F3022	12-0340		29F3028	12-0640		29F3034	12-0450	
2 Module	29F3007	12-0148		29F2023	12-0341		29F3029	12-0641		29F3035	12-0451	
3 Module	29F3008	12-0149		29F3024	12-0342		29F3030	12-0642		29F3036	12-0452	
4 Module	29F3009	12-0150	.19	29F3025	12-0343	.11	29F3031	12-0643	.11	29F3037	12-0453	.11
5 Module	29F3020	12-0151		29F3026	12-0344		29F3032	12-0444		29F3038	12-0454	
6 Module	29F3021	12-0152		29F3027	12-0345		29F3033	12-0645		29F3039	12-0455	

CHERRY Keyboards and Keyboard Switches

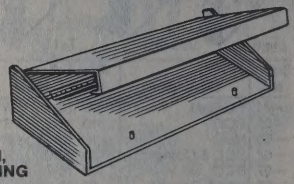
B80-31AA
TRI MODE 66 KEY
ASCII In Housing

B70-54AA
QUAD MODE 53 KEY
ASCII In Housing

B70-4753
QUAD MODE 53 KEY
ASCII (ASR 33) w/o Housing



B70-05AB
QUAD MODE 67 KEY
ASCII w/o Housing



10° SLOPED, ALUMINUM,
HINGED KEYBOARD HOUSING

Model B70-60AA comes with sloped keys (10°), remainder are sloped at the angle of the panel. Encoded boards have 7 data bits; ASR-33 type keyboards have 4 modes, ASCII have 3 modes. 2-key roller and logic data resting high are standard features. Type TTL components used in all keyboards. Power Requirements: 5V, 350 ma. Drive Capability: 10 standard TTL loads. Utilizes same switch module as listed below. Gold crosspoint contacts standard. Keyboards not temperature or humidity sensitive. **Model B70-05AB** comes with sloped keyboard. Features full 67 key array; five user definable keys with changeable plastic covers and hard wiring provisions; TTL and DTL compatible output circuitry; positive logic with outputs resting low; four mode keyboard, upper, lower and control cases, and alpha lock configuration. Special features included Negative logic where output code is compliment of code shown; Tri-State-Positive Logic for use of two or more keyboards in parallel; high voltage CMOS compatibility; non encoded outputs; encoded outputs; flexible factory wired key assignments; provisions for auxiliary keyboards; automatic repeat; variable strobe pulse width; optional parity bit; output latch provided by auxiliary circuit; and external optional shift control mode. **Keyboard Housing** allows keyboard to become stand alone instrument suitable for office or lab. Consists of ⅛ inch aluminum blue-gray base and 10° sloped, off-white cover hinged together in the rear. Features cable strain relief and rubber base pads for protection.

7

KEYBOARD SPECIFICATIONS

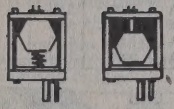
Cherry Part No.	Key Legend Format Similar to	No. of Keys	Sloped or Stepped	Housing	Associated Housing	Code	No. of Modes	Strobe Goes	Logic
B70-05AB	ASCII	67	SL	NO	—	—	—	—	—
B70-4753	ASR-33	53	SL	NO	—	—	—	—	—
B70-60AA	ASR-33	53	ST	NO	—	—	—	—	—
B80-3766	ASCII TRI-MODE	66	SL	NO	—	—	—	—	—
B65-1712	3 x 4	12	SL	NO	.....	NONE	—	—	—
B65-1716	4 x 4	16	SL	NO	.....	NONE	—	—	—

SOLID STATE KEYBOARD

Cherry Part No.	Key Legend Format Similar to	No. of Keys	Sloped or Stepped	Housing	Associated Housing	Code	No. of Modes	Strobe Goes	Logic
CB80-12AA	.....	96	SL	NO	B99-69AF	ASCII	4	HIGH-LOW	POS
CB80-07AA	.....	95	SL	NO	B99-69AF	ASCII	4	HIGH-LOW	POS

Stock No.	Type	1-4	5-9	10-24	Stock No.	Type	1-4	5-9	10-24
29F2991	B70-4753	126.00	118.25	111.05	**13F9852**	CB80-07AA	152.00	146.15	140.65
29F2993	B70-60AA	126.00	118.25	111.05	**29F2989**	B65-1712	35.00	32.25	29.70
29F2994	B80-3766	148.50	140.45	132.95	**29F2990**	B65-1716	41.00	37.60	34.45
13F9851	CB80-12AA	152.00	146.15	140.65	**13F9850**	B70-05AB	148.00	139.80	132.15

KEYBOARD SWITCHES

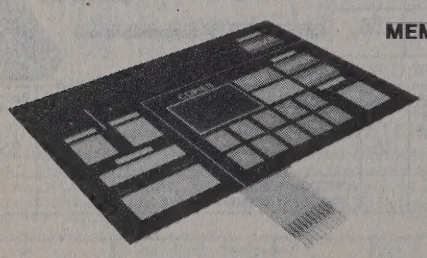


Pretravel: .085" ±.03", total travel is .160" ±.020". Key module case material is Thermoplastic nylon. External terminals are tin plated brass alloy. Contacts are W/E #1 Alloy (69% gold, 25% silver, 5% platinum). Contacts rated at 28 volts max. .125 amp. max. switching current, .5 amp. max. carrying current. DC resistive: 3 watts max.; AC resistive 3 VA max. Initial contact resistance: 200 milliohms max., 25 milliohms typical.

Stock No.	Type	Contacts	Oper. Force (oz.)	1-99	100-499	500-999
29F2926	M61-0120	SPST-NO	2½	1.50	1.44	1.30
29F2927	M61-0800	SPST-(Alt.)	2½	4.40	4.23	3.81
29F2928	M62-0100	DPST-NO	2½	2.40	2.31	2.08
29F2929	M62-0900	SPST-NO/SPST-NC	3½	3.50	3.36	3.03
29F2924	M41-0103*	SPST-NO	2½	2.90	2.79	2.51

*Lighted switch requires standard T-t type bulb.

MEMBRANE KEYBOARDS

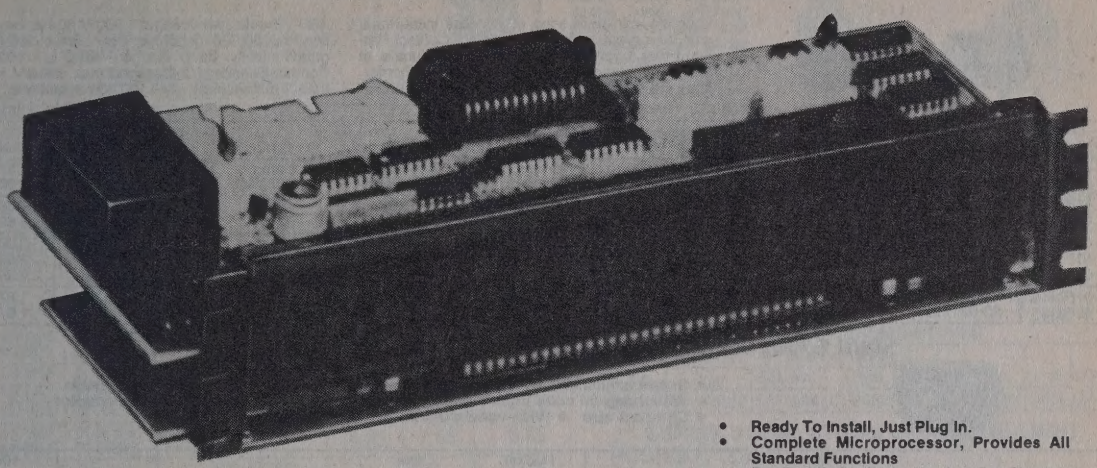


- **Thin, Lightweight and Cost Effective**
- **Completely Sealed, Resist Spills and Corrosive Attack**

Touch panel keyboards are thin lightweight and cost effective. Ideal for demanding applications such as electronic and office equipment, home appliances and communications equipment. Completely sealed construction resists spills and corrosive attack resulting in a long service life in home and office areas as well as hostile industrial environments. 20 mA @ 30VDC; 1mm operations nominal. **V1G1-0071**—Nontactile field telephone format. **V1G1-0075** nontactile field 0-9, A-D.

Stock No.	Type	Description	No. of Keys	1-99	100-499
81F3134	V1G1-0019	Nonencoded	77	40.00	34.90
81F3135	V1G1-0075	4x4 Flexible	15	8.20	7.54
81F3136	V1G1-0071	3x4 Flexible	16	9.25	8.35
81F5800	V1NV-0020	Encoded in housing	77	149.50	120.00

GAS DISCHARGE ALPHANUMERIC DISPLAY SYSTEMS—16, 20 AND 24 CHARACTER



- **Ready To Install, Just Plug In.**
- **Complete Microprocessor, Provides All Standard Functions**
- **For Detailed Information Ask For Cherry's Display Product Catalog.**

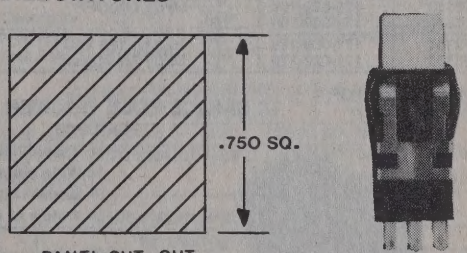
Alphanumeric display systems are available in 16, 20 and 24 characters. These systems are ready to install . . . just plug in . . . no engineering time required. Complete microprocessor controlled circuitry includes drivers, character generator, refresh memory and provides all standard functions. This intelligent display system is self initializing and completely addressable with 19 ASCII control codes. Standard features include three end-of-line modes: left entry with auto line feed carriage return, writeover carriage return, or horizontal scroll. Five levels of brightness are programmable to provide over 6 to 1 range of light output in 4 db steps. A fully addressable flashing visual cursor is provided to indicate the next character position to be written. In addition to backspace, tab, and selective addressing, cursor functions include erase to end-of-line and erase to start of line. Flashing panel and self test are also standard. Requires 12VDC only and accepts parallel or serial input—serial in either RS232 or 20 ma current loop. Selectable baud rates. For more detailed information ask for Cherry's Display Product Catalog.

Stock No.	Mfg. No.	No. Characters	A Dimension	1-9	10-49	50-99
81F3129	W416-10S1	16	10.44	337.00	287.00	240.00
81F3130	W420-10S1	20	12.44	352.00	300.00	250.00
81F3131	W420-10S1	24	12.44	367.00	312.00	261.00

P-4 SERIES—MODULAR PANEL SWITCHES

- **Snap-in Mounting**
- **Attractive Modern Trim-Line Look**
- **UL and CSA Listed**
- **Momentary and Alternate Action**

Offers a variety of standard features including: snap-in mounting from front or operator side of panel, momentary or alternate action, no extra mounting hardware required, attractive modern trim-line look, panel thickness from .060 to .187", easy access to lamp from front of panel without tools, UL and CSA, .110" Q.C. terminals, accepts T1¾ wedge base lamps (not included), gold cross point contacts 1"x1" cap size, contact rating 3A @ 125 VAC, 2A @ 250 VAC.



PANEL CUT-OUT

3 BIT ENCODERS—4 FORM A

Stock No.	Type	Terminal	1-49	50-99	100-499
81F3106	P43C124A	.110 Quick Connect	8.95	6.54	5.64
81F3107	P43C134A	PC Wire Wrap or Push On	8.95	6.54	5.64

8 BIT ENCODERS

81F3108	P44H138A	.020 x .025 PCB	11.93	8.71	7.52

MOMENTARY SWITCHES

81F3109	P43B121C	SPDT—.110 Quick Connect	5.50	4.02	3.47
81F3110	P43B122C	DPDT—.110 Quick Connect	7.30	5.33	4.60
81F3111	P43B131C	SPDT—PC Wire Wrap or Push On	5.50	4.02	3.47
81F3112	P43B132C	DPDT—PC Wire Wrap or Push On	7.30	5.33	4.60

ALTERNATE ACTION SWITCHES

81F3113	P43A121C	SPDT—.110 Quick Connect	4.96	3.62	3.13
81F3114	P43A122C	DPDT—.110 Quick Connect	6.28	4.59	3.96
81F3115	P43A131C	SPDT—PC Wire Wrap or Push On	4.96	3.62	3.13
81F3116	P43A132C	DPDT—PC Wire Wrap or Push On	6.28	4.59	3.96

BUTTONS FOR 3 BIT ENCODERS

Stock No.	Type	BCD Code	1-49	50-99	100-499
81F3117	P4ACB350	0	1.15	.84	.73
81F3118	P4ACB351	1			
81F3119	P4ACB352	2			
81F3120	P4ACB353	3			
81F3121	P4ACB354	4			
81F3122	P4ACB355	5			
81F3123	P4ACB356	6			
81F3124	P4ACB357	7			

BUTTONS FOR 8 BIT ENCODERS

Stock No.	Type	Description	1-49	50-99	100-499
81F3125	P4AH3FF	White	1.22	.89	.77

BUTTONS FOR SWITCHES

Stock No.	Type	Description	1-49	50-99	100-499
81F3126	P4ABC1WN	.19" ht. Blank White	1.15	.84	.73
81F3127	P4ABB1WN	.56" ht. Blank White			
81F3128	P4ABM1WN	.43" ht. Blank White			

MINI MIKE™ LINE ULTRA LOW BOUNCE SLIDE ACTION SWITCHES

Long life, miniature snap action slide instrument/computer grade switches. UL listed. Contact Rating: From 1 volt 10 ma to 1.0 amps inductive at 125VAC. Contact Material: Hard gold over barrier. Life Expectancy: 100,000 actuations. Stroke: .085". Breakdown Voltage: 1,000 V 60 Hz. Insulation Res: 60,000 megohms. Oper. Force: 200-500 grams initially. Temp. Range: −40°C to +100°C. Contact Bounce: 1 millisecond max. Initially; less than 2 milliseconds after 100,000 actuations.

●U.L. Listed

Stock Number	Type	Circuit	Mtg.	Terminal Length	Button Height	Button Color	Contacts	Rating	1-24	25-49	50-99
81F3137	23-021-017	SPST*	Panel	.20	.20	Black	Gold	1 amp	2.97	2.35	1.87
81F3138	23-021-040	SPST*	PC	.12	.20	Black	Gold	125 VAC	2.97	2.35	1.87
81F3139	23-021-105	SPDT	PC	.12	.20	Black	Gold	250 ma	4.16	3.29	2.62
81F3140	23-021-112	SPDT	Panel	.12	.20	Black	Gold	30 VDC	4.16	3.29	2.62
81F3141	23-021-113	DPDT	Panel	.12	.20	Black	Gold	100 ma	4.74	3.74	2.99
81F3142	23-021-114	DPDT	PC	.12	.20	Black	Gold	125 VAC	4.74	3.74	2.99
81F3143	23-021-125	DPDT	PC	.12	.20	White	Gold		4.74	3.74	2.99
81F3144	23-021-304	Form Z*	PC	.12	.14	Black	Gold	500 ma	2.97	2.35	1.87
81F3145	23-021-323	Form Z	Panel	.12	.14	Black	Gold	125 VAC	2.97	2.35	1.87

SINGLE AND DOUBLE POLE—ROCKER SWITCHES—UNLIGHTED

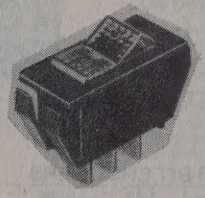
- Snap-installation
- Modern styling
- Wide range of color combinations
- Compact size
- Wide variety of circuits
- Matching panel lights available
- Large hole panel cutout adaptor

Stk. No.	Type	Rating and Circuit	Rocker Color	Case Color	1-24	25-49	50-99	100-Up
81F3146	161-000-009	10 amp 125 VAC	White	White	1.13	1.02	.92	.81
81F3147	161-009-009	SPST ON-OFF	White	Black	1.13	1.02	.92	.81
81F3148	161-029-009		Red	Black	1.13	1.02	.92	.81
81F3149	161-090-009		Black	White	1.13	1.02	.92	.81
81F3150	161-099-009		Black	Black	1.13	1.02	.92	.81
81F3151	161-900-001		Black	Black*	1.46	1.31	1.18	1.05
81F3152	161-099-019	10 amp 125 VAC SPST NO, momentary on	Black	Black	1.58	1.42	1.28	1.14
81F3153	161-009-029	10 amp 125 VAC	White	Black	1.36	1.22	1.10	.98
81F3154	161-099-029	SPDT maintained	Black	Black	1.36	1.22	1.10	.98
81F3155	161-099-049	10 amp 125 VAC 3 Position—Center Off	Black	Black	1.99	1.79	1.61	1.43
81F3156	163-099-009	16 amp 125 VAC SPST ON-OFF	Black	Black	1.36	1.22	1.10	.98
81F3157	163-099-029	16 amp 125 VAC SPDT Maintained	Black	Black	1.56	1.40	1.26	1.12
81F3158	171-009-109	10 amp 125 VAC	White	Black	2.27	2.04	1.84	1.63
81F3159	171-029-109	DPST ON-OFF	Red	Black	2.27	2.04	1.84	1.63
81F3160	171-099-109		Black	Black	2.27	2.04	1.84	1.63
81F3161	171-009-129	10 amp 125 VAC	White	Black	2.57	2.31	2.08	1.85
81F3162	171-099-129	DPDT Maintained	Black	Black	2.57	2.31	2.08	1.85

*Hot stamped: ON-OFF

● U.L. listed and CSA Certified

SINGLE POLE ROCKER SWITCHES—LIGHTED

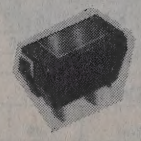


FEATURES

- Snap-in installation
- Wide range of incandescent & neon lamps
- Modern styling
- Variety of color combinations
- Compact size
- Matching panel lights available
- Large hole panel cutout adaptor

Stk. No.	Type	Rating-circuit	Rocker Color	Case Color	Lamp	1-24	25-49	50-99	100-Up
81F3163	161-029-004	10 amp 125 VAC	Red	Black	9.14 V	2.95	2.66	2.39	2.12
81F3164	161-049-004	SPST ON-OFF ½ HD	Amber	Black	Incandescent	2.95	2.66	2.39	2.12
81F3165	161-029-006		Red	Black	125V	2.64	2.38	2.14	1.90
81F3166	161-049-006		Amber	Black	Neon	2.64	2.38	2.14	1.90
81F3167	163-029-006	17 amp 125 VAC SPST ON-OFF	Red	Black	125V Neon	2.89	2.60	2.34	2.08

150 SERIES PANEL INDICATOR LIGHTS

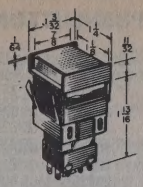


Compact indicators. Designed for applications where reliability, low cost, attractive styling and small size are of prime importance. Snap-in type panel mounting allows for easy installation without additional mounting hardware. Recommended panel cut out 0.48 x 1.08" snaps into panels from 0.015 to 0.125" thick.

Stk. No.	Type	Lamp	Lens Color	Case Color	1-24	25-49	50-99	100-Up
81F3168	150-009-109	125V Neon High Intensity	White	Black	1.58	1.42	1.28	1.14
81F3169	150-029-109		Red	Black				
81F3170	150-049-109		Amber	Black				
81F3171	150-999-199	None	Black	Black				

●U.L. Listed

SERIES 01-665 SNAP IN ONE LIGHT PUSH BUTTON SWITCHES



Snap-in panel mounting. Can be mounted individually or in various strip arrays. Basic switch mechanism is Butterfly double break snap action switch. Available in momentary or maintained action and indicator only. Standard terminals: .110 quick connect. Accepts standard T-1¾ flange base lamps. Replaceable from front panel. UL and CSA listed. 10 amps 125/250 VAC. †SPDT ‡DPDT.

MAINTAINED ACTION

Stk. No.	Type	Description	Housing*	1-49	50-99	100-499
61F2076	01-665111	†Form C	1	10.85	9.98	8.90
61F2087	01-665112	†Form C	2			
61F2095	01-665116	†Form C	6			
61F2100	01-665136	†Form Z	6	10.80	9.94	8.86
61F1821	01-665212	‡Form C	2	13.15	12.10	10.78
61F1974	01-665216	‡Form C	6			
61F2050	01-665232	‡Form Z	2	13.05	12.01	10.70
61F2102	01-665236	‡Form Z	6			

MONENTARY ACTION

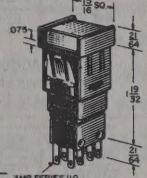
Stk. No.	Type	Description	Housing*	1-49	50-99	100-499
61F1833	01-665512	†Form C	2	9.05	8.33	7.42
61F2072	01-665516	†Form C	6			
61F2090	01-665612	‡Form C	2	11.25	10.35	9.23
61F2069	01-665616	‡Form C	6			
61F1978	01-665632	‡Form Z	2	11.25	10.35	9.23
61F1902	01-665001	Indicator	1	8.35	7.68	6.85
61F2055	01-665002	Indicator	2			

LENS CAP

61F2111	01-921411	Solid White	1.05	.97	.86
61F2117	01-921412	Solid Red			
61F2040	01-921413	Solid Green			
61F2026	01-921421	Projected White	1.80	1.66	1.48
61F1855	01-921422	Projected Red			
61F1910	01-921423	Projected Green			

***NOTE:** Housing Styles. **1**—Vertical row mount with vert. barriers. **2**—Horizontal row mount with vert. barriers. **4**—Horizontal row mount with single vert. barrier. **6**—Horizontal row mount with bezel only.

SERIES 01-865 RECTANGULAR SNAP-IN PUSHBUTTON SWITCHES



Snap-in panel mounting. Butterfly snap-action basic switch mechanism. Momentary maintained, and indicator only functional styles. Solder lug terminals. Accepts one T-1¾ flange base lamp. Available in one or two poles. Attractive rectangular bezel-barrier housing. UL and CSA listed. Rated 10 amps. 125/250 VAC. **1⅛ x⅛" LENS CAP**

AMP SERIES 110 TERMINALS (TYP)

	Solid Color				Projected Color			
Color	Stk. No.	Type	1-49	50-99	Stk. No.	Type	1-49	50-99
White	**61F1934**	01-951911	1.35	1.24	**61F2078**	01-951921	1.35	1.24
Red	**61F2070**	01-951912	1.35	1.24	**61F2065**	01-951922	1.35	1.24
Green	**61F2082**	01-951913	1.35	1.24	**61F1943**	01-951923	1.35	1.24

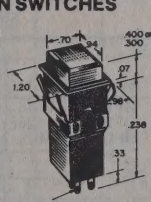
MOMENTARY ACTION

Stk. No.	Type	Description	1-49	50-99	100-499
61F1949	01-865000	Indicator Only	4.70	4.32	3.85
61F2054	01-865510	1 Pole Form C	8.85	8.14	7.26
61F2094	01-865530	1 Pole Form Z	8.85	8.14	7.26
61F2089	01-865610	2 Pole Form C	12.55	11.55	10.29
61F1860	01-865630	2 Pole Form Z	12.55	11.55	10.29

MAINTAINED ACTION

61F2101	01-865110	1 Pole Form C	13.15	12.10	10.78
61F1924	01-865210	2 Pole Form C	13.15	12.10	10.78
61F2123	01-865210	2 Pole Form C	17.15	15.78	14.06
61F2046	01-865230	2 Pole Form Z	17.15	15.78	14.06

SERIES 01-669 LIGHTED PUSHBUTTON SWITCHES



One piece construction. Front of panel re-lamping, mounting. Mounts in .885 x 1.095 cutout. Double break Butterfly switch. Momentary or alternate action. Solid fine silver contacts. Mate with .110 Faston receptacles. T-1¾ flange base lamps. 10 amps (Form Z). 5 amps (Form C). 125/250 VAC.

FIRST GLO LENS CAP

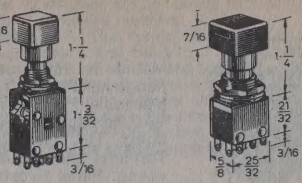
Stk. No.	Type	Description	1-49	50-99	100-499
61F1969	01-969311	Solid White	1.75	1.61	1.44
61F2066	01-969312	Solid Red	1.75	1.61	1.44
61F2099	01-969313	Solid Green	1.75	1.61	1.44

TERMINAL MATE WITH .110 FASTON RECEPTACLE

SWITCHES

Stk. No.	Type	Description	1-49	50-99	100-499
61F2121	01-669511	SPDT Form C Momentary	7.30	6.72	5.99
61F1848	01-669611	DPDT Form C Momentary	9.35	8.60	7.67
61F2097	01-669531	SPDT Form Z Momentary	7.40	6.81	6.07
61F1982	01-669131	SPDT Form Z Alternate	9.80	9.02	8.04
61F2032	01-669631	DPDT Form Z Momentary	9.35	8.60	7.67

SERIES 01-145 AND 01-365 METAL CLAD ONE-LIGHT PUSHBUTTON SWITCHES



Metal housing. 'Butterfly' double break switching mechanism. Silver and gold contacts with solder lug terminals. T-1¾ bulb. During operation socket remains stationary reducing lamp damage during normal operations. Lamp replacement through front of panel. UL and CSA listed. Rated 10 amps 125/250 VAC.

BEZEL ADAPTOR ORDERING GUIDE

Stk. No.	Type	Cap	Bushing	1-49	50-99	100-499
61F1893	70-2110	⅝"	15/32-32	5.35	4.92	4.39
61F1938	70-2116	⅝"	⅜-24	5.35	4.92	4.39

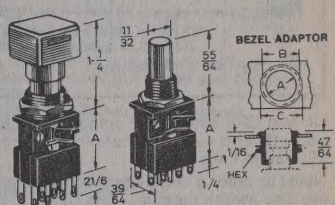
MOMENTARY ACTION SWITCHES

15/32" Bushing Screw		⅝" Bushing Flange				
Stk. No.	Type	Stk. No.	Type	Description	1-49	50-99
61F1852	01-145610	**61R1868**	01-365610	2 Pole Form C	20.90	19.23

MAINTAINED ACTION SWITCHES

15/32" Bushing Screw		⅝" Bushing Flange				
Stk. No.	Type	Stk. No.	Type	Description	1-49	50-99
61F1912	01-145210	**61F1904**	01-365210	2 Pole Form C	27.00	24.84

SERIES 01-748, 01-768, 01-745 ONE-LIGHT PUSHBUTTON SWITCHES



One piece Lexan housing contains Butterfly double break. Silver and gold plated contacts. T-1¾. .110" quick connect terminals. Front of panel lamp replacement. Direct or sub-panel mounting via threaded ⅝ or 15/32 bushing and lock nut. 10 amps 125/250 VAC.

MOMENTARY ACTION

Stk. No.	Type	Color	1-49	50-99	100-499
61F1867	80-010768*	White	.60	.55	.49
61F1911	80-010764	Green			

01-748/01-766 MAINTAINED ACTION SWITCHES

	15/32" Bushing Screw			⅝" Bushing Flange		
Description	Stk. No.	Type	Each	Stk. No.	Type	Each
1 Pole Form C	**61F1801**	01-748110	9.05	**61F1840**	01-768110	8.70
2 Pole Form C	**61F2071**	01-748210	11.40			

01-748/01-766 MOMENTARY ACTION SWITCHES

	15/32" Bushing Screw			⅝" Bushing Flange		
Description	Stk. No.	Type	Each	Stk. No.	Type	Each
1 Pole Form C	**61F2064**	01-748510	7.05	**61F1882**	01-768510	6.75
2 Pole Form C				**61F2020**	01-768610	8.95

01-745 MOMENTARY ACTION SWITCHES

15/32" Bushing Screwbase					
Stock No.	Type	Description	1-49	50-99	100-499
61F2034	01-745610	2 Pole Form C	9.05	8.33	7.42

SOLID COLOR LENS CAPS

FOR SERIES 01-748 AND 01-145

Stk. No.	Type	Size	Color	1-49	50-99	100-499
61F2096	01-931311	⅝" Rd.	White	1.05	.97	.86
61F2105	01-931312	⅝" Rd.	Red			
61F1878	01-931313	⅝" Rd.	Green			

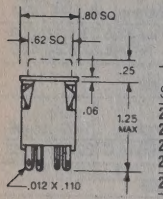
FOR SERIES 01-766 AND 01-365

Stk. No.	Type	Size	Color	1-49	50-99	100-499
61F2111	01-921411	¾" Sq.	White	1.05	.97	.86
61F2117	01-921412	¼" Sq.	Red			
61F2040	01-921413	¼" Sq.	Green			

Pushbutton Switches

SERIES 05-6 LIGHTED PUSHBUTTON SWITCHES

Mount in .75" square cutout. Accept T-1¾ flange base bulbs (not included). Bulbs are replaceable from front panel. Switches all 125 VAC contacts with independently lit indicator bulbs. .110 quick connect terminals on back. Terminal clearance .18" to facilitate hand wiring. Panel thickness range .062-.125". Barriers prevent accidental switching.



LENS DISPLAYS

Stk. No.	Type	Color	1-49	50-99	100-499	500-999
28F2525	80-050602	White	.40	.37	.33	.28
28F2526	80-050603	Red				
28F2527	80-050604	Green				
28F2528	80-050605	Blue				
28F2529	80-050606	Yellow				

MOMENTARY SWITCHES

Stk. No.	Type	Contacts	Amps	1-49	50-99	100-499	500-999
28F2512	05-62125	1 Pole N.O.	1	2.85	2.62	2.34	2.02
28F2513	05-62225	2 Pole N.O.	1	4.50	4.14	3.69	3.20
28F2514	05-62325	SPDT	1	3.35	3.08	2.75	2.38
28F2515	05-62425	1 Pole N.O.	3	4.15	3.82	3.20	2.95
28F2516	05-62525	2 Pole N.O.	3	6.30	5.80	5.17	4.47
28F2517	05-62625	SPDT	3	5.55	5.11	4.55	3.94
28F2518	05-61025	Indicator	—	1.70	1.56	1.39	1.21

MAINTAINED SWITCHES

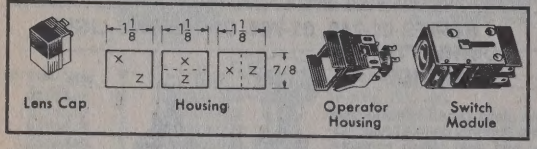
Stk. No.	Type	Contacts	Amps	1-49	50-99	100-499	500-999
28F2519	05-63125	1 Pole N.O.	1	4.75	4.37	3.90	3.37
28F2520	05-63225	2 Pole N.O.	1	5.40	4.97	4.43	3.83
28F2521	05-63325	SPDT	1	5.10	4.69	4.18	3.62
28F2522	05-63425	1 Pole N.O.	3	4.90	4.51	4.02	3.48
28F2523	05-63525	2 Pole N.O.	3	6.40	5.89	5.25	4.54
28F2524	05-63625	SPDT	3	5.10	4.69	4.18	3.62

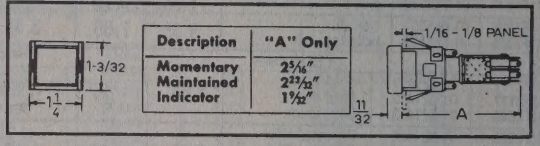
BARRIERS

Stk. No.	Type	Description	1-49	50-99	100-499	500-999
28F2533	80-050634	End	.60	.55	.49	.43
28F2534	80-050635	Center				

7

SERIES 02 RECTANGULAR SNAP-IN TWO LIGHTS PUSHBUTTON SWITCHES





UL and CSA listed at 10 amps 125/250 VAC. Silver or gold plated contacts and solder lug terminals standard. Accepts standard T-1¾ flange base lamps.

Note: to order a complete switch you must order lens cap, housing and switch module. Lens Caps. 1⅛" x ⅞" rectangular.

Ample room for legend indication. Snap in or out easily for front of panel relamping. For desired color replace XZ with 1) White 2) Red 3) Green 4) Blue 5) Yellow 6) Amber 7) Orange.

SOLID COLOR DISPLAY LENS CAPS

Description	Type	1-49	50-99	100-499	500-999
Full Screen	02-61XZ	1.70	1.56	1.39	1.21
Split Screen Vertical	02-62XZ	2.85	2.62	2.34	2.02
Split Screen Horizontal	02-63XZ	2.85	2.62	2.02	2.02

PROJECTED COLOR LENS CAPS

Full Screen	02-64XZ	2.85	2.62	2.34	2.02
Split Screen Vertical	02-65XZ	4.30	3.96	3.53	3.05
Split Screen Horizontal	02-66XZ	4.30	3.96	3.53	3.05

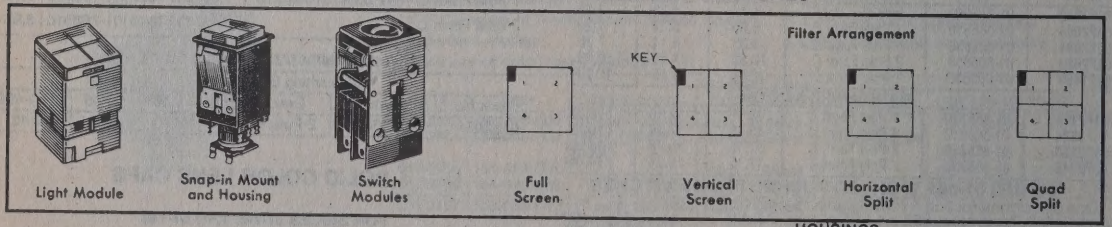
Housing. Bezel barrier housing. May be individually mounted or mounted in various strip arrays. Cut out size: 1.0 x 1.14.

Stock No.	Type	Description	1-49	50-99	100-499	500-999
61F1970	02-73	Operator Housing	4.85	4.46	3.98	3.44

Switch Module. Module snaps on to switch housing to complete lighted switch assembly. Contain one or more "Butterfly" double break basic switches in momentary or maintained action.

Stock No.	Type	Description	1-49	50-99	100-499	500-999
61F1845	76-2751	1 Pole Form C*	7.00	5.74	4.69	3.99
61F2010	76-2763	2 Pole Form Z*	11.50	9.43	7.71	6.56
61F2031	76-2711	1 Pole Form C†	10.70	8.77	7.17	6.10
61F2035	76-2721	2 Pole Form C†	13.50	11.07	9.05	7.70
61F1885	76-2723	2 Pole Form Z†	13.40	10.99	8.98	7.64
61F2004	76-2731	3 Pole Form C†	23.50	19.27	15.75	13.40
61F1901	76-2733	3 Pole Form Z†	23.25	19.07	15.58	13.25

SERIES 04 4 LIGHT PUSHBUTTON SWITCHES



Complete unit consists of light module, housing and snap on switch module Accepts 4 standard T 1¾ flange base lamps. Relamping from front of panel. UL and CSA listed at 10 amps, 125/250 VAC. Solder lug terminals, silver contacts standard. Cut out size: .89 x 1.0

Stock No.	Type	Description	1-49	50-99	100-499	500-999
61F1845	76-2751	1 Pole Form C*	7.00	5.74	4.69	3.99
61F2035	76-2721	2 Pole Form C†	13.50	11.07	9.05	7.70
61F2010	76-2763	2 Pole Form Z*	11.50	9.43	7.71	6.56
61F1885	76-2723	2 Pole Form Z†	13.40	10.99	8.98	7.64

HOUSINGS

Stock No.	Type	Description	1-49	50-99	100-499	500-999
61F1804	04-76	Black Bezel Operator	11.20	10.30	9.18	7.95
61F1929	04-26	Black Bezel Indicator	10.70	9.84	8.17	7.60
61F1826	04-78	Black Bezel Barrier Operator	11.20	10.30	9.18	7.95

LIGHT MODULE

Description	Solid Screen		1-49	50-99	100-499	500-999
	Operator	Indicator				
Full Screen	04-601	04-631	7.30	6.72	5.99	5.18
Vert. Split	04-602	04-632	8.20	7.54	6.72	5.82
Horiz. Split	04-603	04-633	8.20	7.54	6.72	5.82
Quad Split	04-607	04-637	9.30	8.56	7.62	6.60

Note: State color filter arrangement by listing, in numerical order shown in artwork, appropriate letter symbol for each filter. W = white, R = red, G = green, Y = yellow, A = amber, B = blue, O = orange. *Momentary. †Maintained.

Series 50 Lighted Pushbutton Switches

LICON

Complete Assortment of Pushbutton Switches and Display Options

The Series 50 Line includes mechanical and solid state control pushbuttons and indicators in square and rectangular shapes. A power duty pushbutton is also available to complement the Series 50 control switches. Most are available with LED or incandescent lighting, or non-lighted. Display options include a selection of legend sizes, 3 button heights, full or split section display. There is a choice of 8 colors and 3 different color display methods for flexibility in using color as an indicator of operating functions and as an aid to visibility.

Bezels are matte black for excellent separation and visibility.

Designed for Harmony

LICON engineers have designed the Series 50 line for aesthetic and technical compatibility with other widely used switches and components. Series 50 Switches are completely interchangeable with comparable switches such as the Micro Switch AML. This compatibility gives designers more options and freedom in selecting switch components. All buttons and bezels are designed to blend aesthetically for clean, attractive panels, efficient operating patterns and simplicity of design. **Part Numbers Are Interchangeable With Microswitch.** NOTE: Buttons and Incandescent Lamps must be ordered separately.

SIZES 50-11 SOLID STATE (INCANDESCENT & UNLIGHTED DISPLAY)

Stock No.	Type	Circuitry	1-49	50-99	100-499	500-999
81F075	50-11CBA2AA	5VDC Mom. Action	7.00	6.44	5.74	4.97
81F076	50-11CBA3AA	5VDC Mom. Action				

SERIES 50-12 SOLID STATE (WITH LED DISPLAY)

81F077	50-12CBC2AA	5VDC Mom. Action	10.40	9.57	8.57	7.38
81F078	50-12CBJ2AA	5VDC Mom. Action				
81F079	50-12CBS2AA	5VDC Mom. ACtion				

SERIES 50-21 ELECTROMECHANICAL CONTROL (INCANDESCENT & UNLIGHTED DISPLAY)

81F080	50-21BBA2AA	Silver Contacts Mom. Action, 1 Pole	3.90	3.59	3.20	2.77
81F081	50-21BBA2BA	Gold Contacts Mom. Action, 1 Pole	4.55	4.19	3.73	3.23
81F082	50-21CBA2AA	Silver Contacts Mom. Action, 1 Pole	5.00	4.60	4.10	3.55
81F083	50-21CBA2AB	Silver Contacts Alt. Action, 1 Pole	5.10	4.69	4.18	3.62
81F084	50-21CBA2AC	Silver Contacts Mom. Action, 1 Pole	6.35	5.84	5.21	4.51
81F085	50-21CBA2AD	Silver Contacts Alt. Action, 2 Pole	6.45	5.93	5.29	4.58
81F086	50-21CBA2BA	Gold Contacts Mom. Action, 1 Pole	5.65	5.20	4.63	4.01
81F087	50-21CBA3AA	Silver Contacts Mom. Action, 1 Pole	5.00	4.60	4.10	3.55
81F088	50-21FBA2AA	Silver Contacts Mom. Action, 1 Pole	5.50	5.06	4.51	3.91
81F089	50-21FBA2AC	Silver Contacts Mom. Action, 2 Pole	6.85	6.30	5.62	4.86

SERIES 50-22 ELECTROMECHANICAL (WITH LED DISPLAY)

81F091	50-22CBJ2AA	Silver Contacts, Mom. Action, 1 Pole	8.70	8.00	7.13	6.18
81F092	50-22CBS2AA	Silver Contacts, Mom. Action, 1 Pole				

SERIES 50-41/42 LIGHTED INDICATORS (INCANDESCENT & LED)

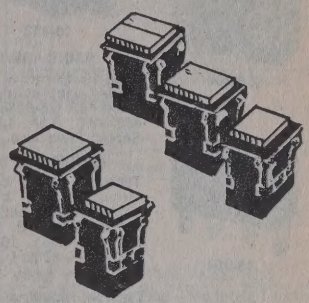
Stock No.	Type	Lamp Type	1-49	50-99	100-499	500-999
81F093	50-41CBA2 (Incandescent)	N/A	3.50	3.22	2.87	2.49
81F094	50-41FBA2 (Incandescent)	N/A	4.00	3.68	3.28	2.84
81F095	50-41GBA2 (Incandescent)	N/A	5.00	4.60	4.10	3.55
81F096	50-42CBC2 (LED)	Red, 5V	8.05	7.41	6.60	5.72
81F097	50-42CBJ2 (LED)	Yellow, 5V				
81F098	50-42CBS2 (LED)	Green, 5V				

SERIES 50-51/52 BUTTONS (LENSES)

Stock No.	Type	Color	1-49	50-99	100-499	500-999
81F099	50-51B10W (For Incandescent)	White	.50	.46	.41	.36
81F100	50-51C10B (For Incandescent)	Blue	.35	.32	.29	.25
81F100	50-51C10G (For Incandescent)	Green				
81F100	50-51C10K (For Incandescent)	Black				
81F100	50-51C10R (For Incandescent)	Red				
81F100	50-51C10W (For Incandescent)	White				
81F100	50-51C10Y (For Incandescent)	Yellow				
81F101	50-51F10B (For Incandescent)	Blue	.50	.46	.41	.36
81F101	50-51F10G (For Incandescent)	Green				
81F101	50-51F10R (For Incandescent)	Red				
81F101	50-51F10Y (For Incandescent)	Yellow				
81F102	50-52C10K (For LED)	Black	.35	.32	.29	.25
81F102	50-52C10W (For LED)	White				

SERIES 50-71 BARRIERS

Stock No.	Type	Barrier Length	1-49	50-99	100-499	500-up
81F103	50-71LCB	Long	.40	.37	.33	.28
81F104	50-71LEB	Long				
81F105	50-71SCB	Short				
81F106	50-71SEB	Short				



FEATURES (50-11)

- Interfaces With DC Logic Level Loads.
- Reliable Hall Effect Circuitry.
- UL Recognized.
- 5 VDC or 6-16 VDC Supply Voltage.
- Selection of Bright Colors and Display Options.
- Buttons and Lamps are Ordered Separately.

FEATURES (50-12)

- High Efficiency LED Display.
- Identical to Series 50-11 but with LED Display.
- Bright, Wide Angle Indication With Low Power Consumption.
- Extremely Long Lamplife.
- LED Buttons are Ordered Separately.

FEATURES (50-21)

- Up to 3 AMPS 125 VAC; 1 or 2 Poles.
- Silver or Gold Contacts.
- Momentary or Two Level Alternate Action.
- Selection of Bright Colors and Display Options.
- Buttons and Lamps Ordered Separately.
- Deisgned to Meet UL, CSA, VDE and CEE-24 STandards.

FEATURES (50-22)

- High Efficiency LED Display.
- Identical to Series 50-21 but with LED Display.
- Bright, Wide Angle Indication With Low Power Consumption.
- Long Lamp Life.
- LED Buttons are Ordered Separately.
- 5 and 15 VDC Devices have an Internal Resistor to Maintain LED Current at Nominal 20 mA.

FEATURES (50-41/42)

- Matches Appearance of Lighted Switches.
- Buttons and Incandescent Lamps Ordered Separately
- Designed for UL and CSA Recognition.

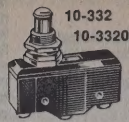
FEATURES (50-71)

- Help Avoid Accidental Activation.
- Mount to Switch Prior to Installation in Panel.

LICON Snap Switches and Actuators

16-104

10-132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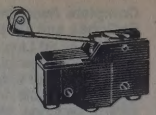
10-632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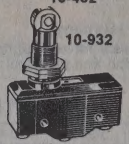
16-304

10-832

11-104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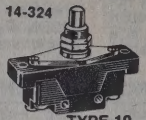
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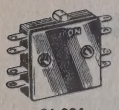
14-124

14-724

16-404

18-40421

22-304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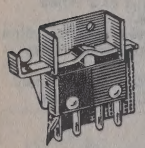

76-6005

BASIC SWITCHES

Type 10. Sensitive "serpentine blade" snap action switch. UL rated 15A (75-80%PF) 126, 250 480 VAC. 0.5A, 128 VDC. #6 Screw Term and cup washer.

MINIATURE SWITCH

Type 11. High capacity two circuit Double break mechanism. Wiping action. UL/CSA listed. SPDT-DB. Form Z. ¾ Hp. 250 VAC. 10 A 125/250 VAC 75%-80% P.F.

HEAVY DUTY SWITCH

Type 14. Industrial limit switch. Double break mechanism for high electrical rating. UL listed. 20A @ 125/250 480 VAC. 75-80%PF. SPDT-DB. Form Z.

SUBMINIATURE SWITCH

Type 16. Double break. 2 circuit. UL/CSA listed. 10 A @ 125/250 VAC.

SUB SUBMINIATURE

Type 18. Double break. Rated: 7 A @ 125/250 VAC; 3 amps ind. @ 28 VDC. UL listed. Diallylphthalate case.

DOUBLE POLE SWITCH

Type 22. DPDT high current interruption. Rated: 10 A @ 125/250 VAC. 75-80%PF. UL listed. 10 A @ RES 30 VDC. Double bearing guide. Wiping action. Beryllium copper switch blades.

DOUBLE POLE SUBMINIATURE SWITCH

Type 26. Two Butterfly Double break mechanisms. Poles operate simultaneously due to special linkage. Uses type 76 actuators. UL rated 8 A @ 125/250 VAC, 75-80%PF. UL listed. DPDT-DB (Form ZZ). 10 A res., 5 ind. @ 28 VDC.

TYPE 76

Type 76. Subminiature door interlock switch for electronic equipment. Manual set for servicing. Uses Type 26 or 36 double break switches.

TYPE 10

Stock No.	Type	Splash Proof Seal	Oper. Force (Oz.)	RLS Force (Oz.)	Pre Travel	Over Travel	Mov. Diff.	1-49	50-99	100-499
23F151	10-132	No	10± 3	4 Min.	.015 Max.	.005 Min.	.004-.002	5.60	4.59	3.75
23F155	10-332	No	10± 3	4 Min.	.015 Max.	.219 Min.	.004-.002	11.90	9.76	7.97
61F1814	10-332001	Yes	11± 4	4 Min.	.015 Max.	.219 Min.	.004-.002	13.75	11.28	9.21
23F156	10-432	No	6 Max.	½ Min.	.156 Max.	.060 Min.	.050 Max.	6.15	5.04	4.12
23F157	10-532	No	6 Max.	½ Min.	.187 Max.	.060 Min.	.050 Max.	8.25	6.77	5.53
23F158	10-632	No	3.5 Mx.	½ Min.	.406 Max.	.156 Min.	.005-.045	7.00	5.74	4.69
23F159	10-732	No	3.5 Mx.	½ Min.	.312 Max.	.156 Min.	.045 Max.	8.75	7.18	5.86
23F160	10-832	No	10± 3	4 Min.	.015 Max.	.060 Min.	.0004-.002	7.25	5.95	4.86
23F181	10-932	No	10± 3	4 Min.	.015 Max.	.140 Min.	.0004-.002	23.80	19.52	15.95

TYPE 11

Stock No.	Type	Terminals	Description	1-49	50-99	100-499
23F161	11-104	End Solder	Basic Switch	5.00	4.10	3.35
23F162	11-204	#4 Screw	Basic Switch	5.05	4.14	3.38
23F163	11-304	Side Solder	Basic Switch	5.00	4.10	3.35
61F1830	11-504	Quick Disconnect, 250	Basic Switch	4.85	3.98	3.25

TYPE 14

Stock No.	Type	Mntg.	Oper. Force	Release Force	Pre-Travel	Over Travel	Mov. Diff.	1-49	50-99	100-499
6142041	14-324	Stan.	12± 3	4 Min.	.074 Max.	.218 Min.	.020±.005	13.55	11.11	9.08
23F178	14-12403	Vert.	12± 3	4 Min.	.074 Max.	.218 Min.	.020+.005	9.80	8.04	6.57
61F1953	14-124	Stan.	12± 3	4 Min.	.074 Max.	.030 Min.	.020+.005	9.30	7.63	6.23
61F1900	14-724	Stan.	5± 2	2 Min.	.56 Min.	.060 Max.	.046±.0121	12.15	9.96	8.14
61F2049	14-72403	Vert.	5± 2	2 Min.	.156 Min.	.060 Min.	.046+.012	12.70	10.41	8.51

TYPE 16

23F179	16-104	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	5.55	4.55	3.72
23F182	16-304	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	5.55	4.55	3.72
23F183	16-404	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	5.55	4.55	3.72
61F2119	16-403	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	5.05	4.14	3.38
23F187	16-504	Stan.	3-8± 2	2 Min.	.050 Max.	.012 Min.	.020±.005	5.55	4.55	3.72

TYPE 18

Stk. No.	Type	Terminal	Circuit	1-49	50-99	100-499
60F1952	18-40421	Solder-Lug	SPDT-DB (Form ZZ)	10.65	8.73	7.14
60F1950	18-40421	Solder-Lug	SPDT-DB (Form Z)			

TYPE 22

61F1979	22-104	End Solder	DPDT-DB (Form ZZ)	14.25	11.69	9.55
23F185	22-304	Side Solder	DPDT-DB (Form ZZ)	14.25	11.69	9.55
61F1948	22-202	#4 Screw	DPST-DB (N.O.)(Form XX)	13.85	11.36	9.28
61F1802	22-504	½" Quick Disconnect	DPDT-DB (Form ZZ)	14.25	11.69	9.55

TYPE 26

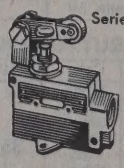
60F1961	26-804	End Solder	DPDT-DB (Form ZZ)	14.60	11.97	9.78
60F1962	26-904	Side Solder	DPDT-DB (Form ZZ)			

TYPE 76-6

28F2535	76-6005	.125 Lug	Single pole	8.10	6.64	5.43

SERIES 30 DIECAST ENCLOSED SWITCHES

Stock No.	Type No.	Description	Housing	Mfg.	1-49	50-99
23F175	30-100	Overtravel plngr	Diecast	Side	16.85	13.82
23F172	30-200	Sealed OT plngr	Diecast	Side	20.20	16.56
23F176	30-300	Roller lever	Diecast	Side	27.55	22.59
23F173	30-400	Sealed roller	Diecast	Side	31.20	25.58
23F177	30-500	Roller plunger	Diecast	Side	27.55	22.59
25F2108	30-700	Sealed roller	Diecast	Side	29.80	24.44
25F2114	30-200010	Sealed OT plngr	Diecast	Side	24.00	19.68
25F2115	30-220010	Sealed OT plngr	Diecast	Base	24.00	19.68


Series 30

Available in a variety of infinitely adjustable actuators. Aluminum housing. Permits adequate wiring room. Has ½-14 internal tap conduit hub. Rated 15 amps, 125, 250 and 480 VAC; ½ amp 115 VDC. Size: 3 x1 x 2½".

Series 65

SERIES 65 SUBMINIATURE SEALED SWITCHES

Dependable, environment-free snap action switching with ratings up to 10 amps, 30 VDC. SPDT 2-circuit configuration. Solder terminals. Quick disconnect, screw and potted leads available on special order. Size: .850" x .320", ½" mounting centers. UL listed.

Stock No.	Type	Description	1-49
25F2135	65-101	Rigid lever	23.15
25F2137	65-301	Roller lever	24.70
25F2138	65-401	OT Plunger	27.80

ACTUATORS FOR SWITCHES

TYPE 11 ACTUATORS

Stock No.	Type	Kind	Oper. Force	RLS Force	Pre-travel	Over trvl	Mov. Dif.	Price Each
23F168	71-1040	Roller	3.5 Max.	2 Min.	.093 Max.	.062 Min.	.030+.015	2.15
23F169	71-2010	O.T.	8+3	4 Min.	.050 Max.	.215 Min.	.020+.005	5.35

TYPE 16/26/36 ACTUATORS

23F188	76-1200	Roller	2.5 Max.	1 Min.	.125 Max.	.025 Min.	.047+.011	2.15
23F189	76-1210	Lever	2.5 Max.	1 Min.	.125 Max.	.025 Min.	.047+.013	1.40
61F1895	76-1220	Roller	5+3	2 Min.	.050 Max.	.012 Min.	.020+.005	5.25
61F1864	76-2260	O.T.	5/32 Min.	.....	.....	.....	.....	5.25

TYPE 18 ACTUATORS

Stock No.	Type	Kind	Oper. Force	RLS Force	Pre-travel	Over Trvl	Mov. Dif.	Price Each
61F1856	78-3000	Lever	5+3	1½ Min.	.035	.006	.015+.005	1.50
61F2027	78-3100	Roller	6+2	2 Min.	.125 Max.	.030 Min.	.035+.015	2.70

TYPE 22 ACTUATORS

61F1875	72-1160	Roller	.....	.....	.....	.....	.....	3.15
61F1918	72-1150	Lever	10 Max.	1.5 Max.	.150 Max.	.035 Min.	.070+.015	1.45
61F1849	72-2080	O.T.	17+5	4 Min.	.060 Max.	.215 Min.	.030+.007	5.05

Magnetic Reed Switches

HAMLIN

Dry and mercury wetted magnetic switches are precision created for reliable operation under most critical conditions. They offer excellent flexibility in a broad range of applications. These switches are hermetically sealed for safe, dependable use in any atmosphere—even under explosive conditions and are unaffected by high or low temperatures or pressure. They offer long life with high sensitivity and their rapid cycling rate makes these ideal for a wide variety of uses. Applications include position indicators, counting devices, limiting switches, flow meters, communication instruments and reed relays. Actuating time: 1 millisecond or less. Life Expectancy; Dry reed switches—50 million operations. Mercury Wetted switches—1 billion operations. Contacts: Form A (SPST-NO), and Form C (SPDT). These switches may be actuated by permanent magnets, shown below, or electro magnets. Average shipping weight 1 oz. each.

MINIATURE MAGNETIC REED SWITCHES

Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull in	Use Mag.	1-24	25-99	100-499	SPECIAL FEATURES
33F1051	MRR-2-185	11	A	10	.500	200	.100	30 ± 7.5	H-33	1.05	.84	.79	Mini-Form A-Rhodium Contacts
33F1201	MARC-2-186	10	A	10	.500	100	.250	30 ± 10	H-33	.89	.72	.67	Economy Form A

SUB-MINIATURE MAGNETIC REED SWITCHES

33F1057	MSRR-2-185	9	A	10	.500	200	.100	30 ± 7.5	H-33	1.00	.80	.75	Sub-Mini Form A-Rhodium Contacts
33F1058	MSRR-2CD-155	9	A	10	.500	200	.200	25 ± 7.5	H-33	2.50	2.00	1.88	Close Differential

TINY MAGNETIC REED SWITCHES

Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull In	Use Mag	1-24	25-99	100-499	SPECIAL FEATURES
33F1061	MTRR-2-185	6	A	10	.250	100	.150	30 ± 7.5	H-33	1.20	.96	.90	Off Center Cap—Moderate Cur/Volt.
33F1064	MDRR-4	3	A	10	.500	200	.100	25 ± 7.5	H-33	.95	.76	.71	Form C—Moderate Current/Voltage
33F1203	MLC-DT-186	7	C	3	.250	28	.150	30 ± 10	H-33	2.80	2.25	2.10	Economy Form C

MICRO AND MINI MAGNETIC REED SWITCHES

33F1066	MMRR-2-185	1	A	3	.010	28	.200	30 ± 7.5	H-31	2.50	2.00	1.88	The "Grain of Wheat"
33F1067	MINI-2S-115	2	A	3	.110	28	.200	20 ± 7.5	H-31	1.60	1.28	1.20	The "Mini Reed"

HIGH CURRENT MAGNETIC REED SWITCHES

Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull In	Use Mag.	1-24	25-99	100-499	SPECIAL FEATURES
33F1078	SRT-2-455	15	A	110VA	1.0	28	.500	75 ± 7.5	H-32	3.45	2.88	2.59	Power Switch—1 Amp
33F1079	DRR-129-425	14	A	100VA	3.0	28	.500	70 ± 7.5	H-34	3.75	3.00	2.81	

STANDARD MAGNETIC REED SWITCHES

33F1072	DRR-1-425	14	A	15	1.0	400	.060	70 ± 7.5	H-34	1.76	1.65	1.32	Standard Form A-Rhodium Contacts
33F1074	DRR-5-425	14	A	25	1.0	1000	.060	70 ± 7.5	H-34	3.00	2.81	2.25	High Breakdown Voltage
33F1075	DRT-5-425	14	A	50	3.0	1000	.100	70 ± 7.5	H-34	5.00	4.68	3.75	Inductive Load

COMPACT MAGNETIC REED SWITCHES

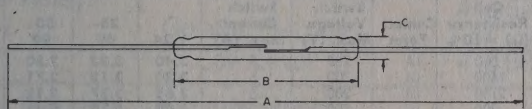
33F1077	SRR-2-425	12	A	15	1.0	400	.060	70 ± 7.5	H-32	2.45	1.96	1.84	Off Center Gap-Moderate Cur/Volt
33F1080	DRR-DTH-445	13	C	10	.5	250	.075	72.5 ± 7.5	H-32	2.55	2.05	1.65	High Breakdown Voltage
33F1081	DRT-DTH-445	13	C	20	1.5	500	.150	72.5 ± 7.5	H-34	5.30	4.24	3.45	Inductive Loads
33F1205	DLC-DT-327	13	C	10	.5	200	.100	55 ± 15	H-32	2.25	1.80	1.47	Economy Form C

HIGH VOLTAGE MAGNETIC REED SWITCHES

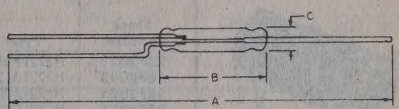
Stock No.	Type	Size	Form	Maximum Cont. Ratg. Watts	Maximum Amps.	Maximum DC Volts	Maximum Cont. Rests.	Amp. Turn Pull In	Use Mag.	1-24	25-99	100-499	SPECIAL FEATURES
33F1084	DRVT-10-658	14	A	50	3.0	7500	.080	120 ± 20	H-34	6.00	4.80	4.50	Form A Breakdown Voltage 10 KVDC

HIGH INRUSH CURRENT MERCURY WETTED MAGNETIC REED SWITCHES

33F1088	MDC-1-387	50	A	50	20	100	.050	65 ± 15	H-33	2.50	2.00	1.63	Miniature Form A Mercury Wetted
33F1207	MDC-DT-420	3	C	14	.500	28	.050	70 ± 15	H-33	9.25	7.45	6.95	Form C Mercury Wetted



Form A



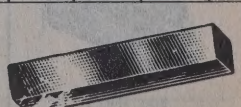
Form C

DIMENSION CHART FOR SWITCHES

Size Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A Overall Length—Nominal	2.000	1.235	1.600	2.076	1.500	2.125	2.125	.950	2.250	2.250	2.250	3.375	3.375	3.250	3.465
B Glass Length—Maximum—	.375	.500	.600	.563	.850	.750	.610	.800	.800	.800	.800	1.610	1.562	1.950	1.640
C Glass Diameter—Maximum	.090	.070	.130	.105	.214	.092	.130	.145	.090	.105	.130	.195	.218	.218	.212

ALNICO V PERMANENT MAGNETS

Stock No.	Magnetic Type	Dimensions	1-24	25-99
33F1090	H31-604	1/16 × 1/16 × 1/2"	.75	.75
33F1091	H32-605	3/16 × 3/16 × 1"	.85	.85
33F1092	H33-606	1/8 × 1/8 × 3/4"	1.10	1.10
33F1093	H34-607	1/4 × 1/4 × 1"	1.10	1.10



CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES

Proximity Switches and Reed Relays

Series 5701
Magnetic
Actuator

Series 5801
SPST-Form A

- High reliability and long life
- Come packaged for mounting in any position
- Hermetic seals—for safe use in hazardous environments

MAGNETICALLY ACTUATED REED PROXIMITY SWITCHES

Offer the long life and high reliability of reed switches. Include all the advantages of magnetic reed switches but come packaged ready for mounting. Epoxy package resists most solvents, acids and salts. Safe for use in hazardous environments. Shock and vibration characteristics comparable with the basic reed switch.

FORM A & C TYPES FOR AC & DC OPERATION

Stock No.	Mfr's Type	Form	Contact Rating Watts	Switching Voltage VDC	Current AMPS	Break-Down Voltage	1-24	25-49	50-99	100-249
33F1208	5801	A	10	200DC/240AC	.500	400 V	3.95	3.60	3.15	2.75
33F1209	5802	C	3	100DC/120AC	.250	200 V	8.20	7.35	6.50	5.60
33F1073	5804	A	10	100DC/120AC	.500	250 V	1.55	1.40	1.20	1.05

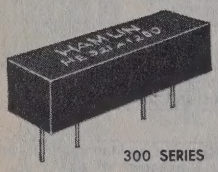
FORM A 1½ AMP REED/TRIAC COMBINATION AC ONLY

Stock No.	Mfr's Type	Form	Current Rating	Voltage Rating	Break-Down Voltage	1-24	25-49	50-99	100-249
33F1210	5901	A	1.5 AMPS	120-240 VAC 50-60Hz	400 V	8.20	7.35	7.00	6.00

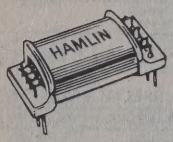
MAGNETIC ACTUATOR

Stock No.	Mfr's Type	Operating Distance	Differential	Release Distance	1-24	25-49	50-99	100-249
33F1211	5701	To ⅜"	⅛" to ¼"	9/16" to 13/16"	2.40	2.15	1.90	1.70
33F1076	5805	To 7/32"	1/32" to 7/16"	3/4" to 1"	2.40	2.15	1.90	1.70

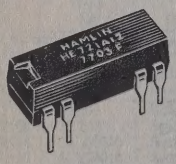
REED RELAYS



300 SERIES



400 SERIES



700 SERIES

800 SERIES

HE300 SERIES—SIP (SINGLE-IN LINE PACKAGE)

Stock Number	Type	Coil Voltage (V)	Coil Resistance (Ω) ±10%	Contact Form	Switch Voltage Max. (V)	Switch Current Max. (A)	1-24	25-49	50-99	100-249
28F2010	HE321A0500	5	125	1A	200	.5	**2.13**	**1.98**	**1.84**	**1.52**
28F2011	HE321A1200	12	500	1A	200	.5	**2.13**	**1.98**	**1.84**	**1.52**
28F2012	HE321A2400	24	2000	1A	200	.5	**2.13**	**1.98**	**1.84**	**1.52**

HE400 SERIES—MINIATURE OPEN FRAME 1" x .1" GRID

Industrial standard open frame package. Contacts run-in 1 million times before testing. Size: 1.20"L x .375"W x .350"H.

28F2013	HE421A0500	5	240	1A	200	.5	**2.33**	**2.22**	**2.10**	**1.75**
28F2014	HE421A1200	12	960	1A	200	.5	**2.33**	**2.22**	**2.10**	**1.75**
28F2015	HE421A2400	24	3840	1A	200	.5	**2.33**	**2.22**	**2.10**	**1.75**
28F2016	HE421C0500	5	240	1C	200	.250	**6.58**	**6.26**	**5.93**	**4.71**
28F2017	HE421C1200	12	960	1C	200	.250	**6.58**	**6.26**	**5.93**	**4.71**
28F2018	HE421C2400	24	3840	1C	200	.250	**6.58**	**6.26**	**5.93**	**4.71**
100 WATT POWERHOUSE										
28F2019	HE461A0500	5	75	1A	200	1.0	**2.95**	**2.88**	**2.73**	**2.26**
28F2020	HE461A1200	12	300	1A	200	1.0	**2.95**	**2.88**	**2.73**	**2.26**
28F2021	HE461A2400	24	1200	1A	200	1.0	**2.95**	**2.88**	**2.73**	**2.26**

HE700 SERIES DIP

High speed with low power requirements. Ideal logic compatibility. Size: .750"L x .240"W x .275"H.

Stock Number	Type	Coil Voltage (V)	Coil Resistance (Ω) ±10%	Contact Form	Switch Voltage Max. (V)	Switch Current Max. (A)	1-24	25-49	50-99	100-249
28F2022	HE721A0500	5	500	1A	200	.5	**3.40**	**3.23**	**2.80**	**2.29**
28F2023	HE721A1200	12	1600	1A	200	.5	**3.20**	**3.12**	**2.71**	**2.16**
28F2024	HE721A2400	24	2150	1A	200	.5	**3.65**	**3.37**	**3.12**	**2.35**
28F2025	HE721C0500	5	200	1C	200	.250	**5.95**	**5.70**	**5.41**	**4.24**
28F2026	HE721C1200	12	500	1C	200	.250	**5.95**	**5.80**	**5.20**	**4.15**
28F2027	HE721C2400	24	2000	1C	200	.250	**6.65**	**6.00**	**5.60**	**4.40**

HE800 SERIES DIL (ALTERNATE TO DIP)

Alternate design to DIP. Mercury wet in all positions. High voltage hold-off 600 VDC across contacts Size: 1.00"L x .430"W x .350"H.

28F2028	HE821A0500	5	190	1A	200	.5	**3.10**	**2.89**	**2.48**	**2.09**
28F2029	HE821A1200	12	1150	1A	200	.5	**3.10**	**2.89**	**2.48**	**2.09**
28F2030	HE821A2400	24	4200	1A	200	.5	**3.10**	**2.89**	**2.48**	**2.09**
28F2031	HE821C0500	5	300	1C	200	.250	**5.70**	**5.41**	**4.30**	**3.75**
28F2032	HE821C1200	12	1150	1C	200	.250	**5.70**	**5.41**	**4.30**	**3.75**
28F2033	HE821C2400	24	3000	1C	200	.250	**5.85**	**5.61**	**4.65**	**4.20**
MERCURY WETTED CONTACTS TO OPERATE WITHIN 30% OF VERTICAL										
28F2034	HE831A0500	5	50	1A	100	2.0	**6.50**	**6.33**	**5.80**	**4.50**
28F2035	HE831A1200	12	220	1A	100	2.0	**6.50**	**6.33**	**5.80**	**4.50**
28F2036	HE831A2400	26	1000	1A	100	2.0	**6.50**	**6.33**	**5.80**	**4.50**

SWITCHES FOR MULTIPOLE, HI-DENSITY SWITCHING

T-Bar

Designed especially for general purpose and 10 level man, switching. Capability of switching up to 72 circuits at one time. Toggle and pushbutton switches mate with snap-on, crimp type T-Bar connectors. (See index under T-Bar relays.)

SWITCH SPECIFICATIONS

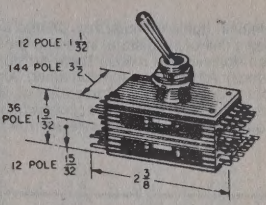
Contacts: Series 800 — general purpose gold plated; Series 900 — low-level bifurcated gold plated. Contact Rating: Series 800 — 5 amps max. resistive to 150 watts; Series 900 — 1 amp max. resistive to 50 watts. Life Expectancy: Series 800 — 50,000 cycles; Series 900 — 50,000 cycles at 20 CPM. Contact Resistance: 20 milliohms typical. Ambient Temp.: — 55°C to + 85°C. Terminals: Mate with T-Bar Connectors. Dielectric Strength: 1000 VRMS @ 60 cycles/sec. Insulation: 5000 megohms min.

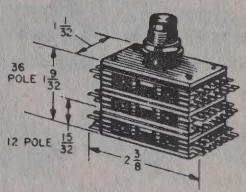
SERIES 803 PUSHBUTTON SWITCHES

Stk. No.	Type	Action	1-24	25-99	100-499
59F732	803- 4C	4PDT	13.05	12.40	10.77
59F733	803- 8C	8PDT	17.45	16.58	14.40
59F734	803-12C	12PDT	19.65	18.67	16.22
59F737	803-24C	24PDT	41.90	39.81	34.57
59F740	803-36C	36PDT	59.30	56.34	48.93

SERIES 802/902 TOGGLE SWITCHES

All types are double throw (Form C). Switch from 8 to 72 circuits simultaneously. For lo-level applications (less than 1 amp), specify the new 902 bifurcated series. For general purpose, hi-current applications, use 802 series. The 8, 12, 24 and 36 pole units are single stacks. The 48 and 72 pole units are double stacks.





Stock No.	Type No.	Pole Units	1-24	25-99	100-499
59F725	802- 8C	8	25.10	23.85	20.71
59F726	802-12C	12	27.70	26.32	22.86
59F729	802-24C	24	54.05	51.35	44.60
59F731	802-36C	36	75.45	71.68	62.25
59F744	802-48C	48	105.40	100.13	86.96
59F746	802-72C	72	158.65	150.72	130.89
23F1160	902- 8C	8	25.10	23.85	20.70
23F1161	902-12C	12	27.70	26.32	22.86
23F1162	902-24C	24	54.05	51.35	44.60
23F1163	902-36C	36	75.45	71.68	62.25
23F1164	902-48C	48	105.40	100.13	86.96
23F1165	902-72C	72	158.65	150.72	130.89

7

ORDERING INFORMATION

SPECIFY:	1. Series	2. Number of Poles and Contact Form	3. Coil Voltage (Relay)	4. Options
	901	12C	24	page 5

Don't forget to order the mating T-Bar Series 88601 Connector! One for each 6 poles.

Series	Application	Number of Poles	Contact Forms*	Coil Voltage
T-Bar Relays				
801	General Purpose	4 to 52	"C"	6, 12, 24, 28, 48, 110 VDC 115 VAC
901	Low Level	or 4 to 60	"A"	
T-Bar Magnetic Latching Relays				
807	General Purpose	12 to 52	"C"	6, 12, 24, 28, 48 110 VDC
907	Low Level			
T-Bar Maintained Action Toggle Switches				
802	General Purpose	4 to 144	"C"	
902	Low Level			
T-Bar Momentary Action Pushbutton Switches				
803	To 3 amps @ 28 VDC Resistive	4 to 36	"C"	

*Form "A" — normally open contacts. Form "C" — double throw, break-before-make.

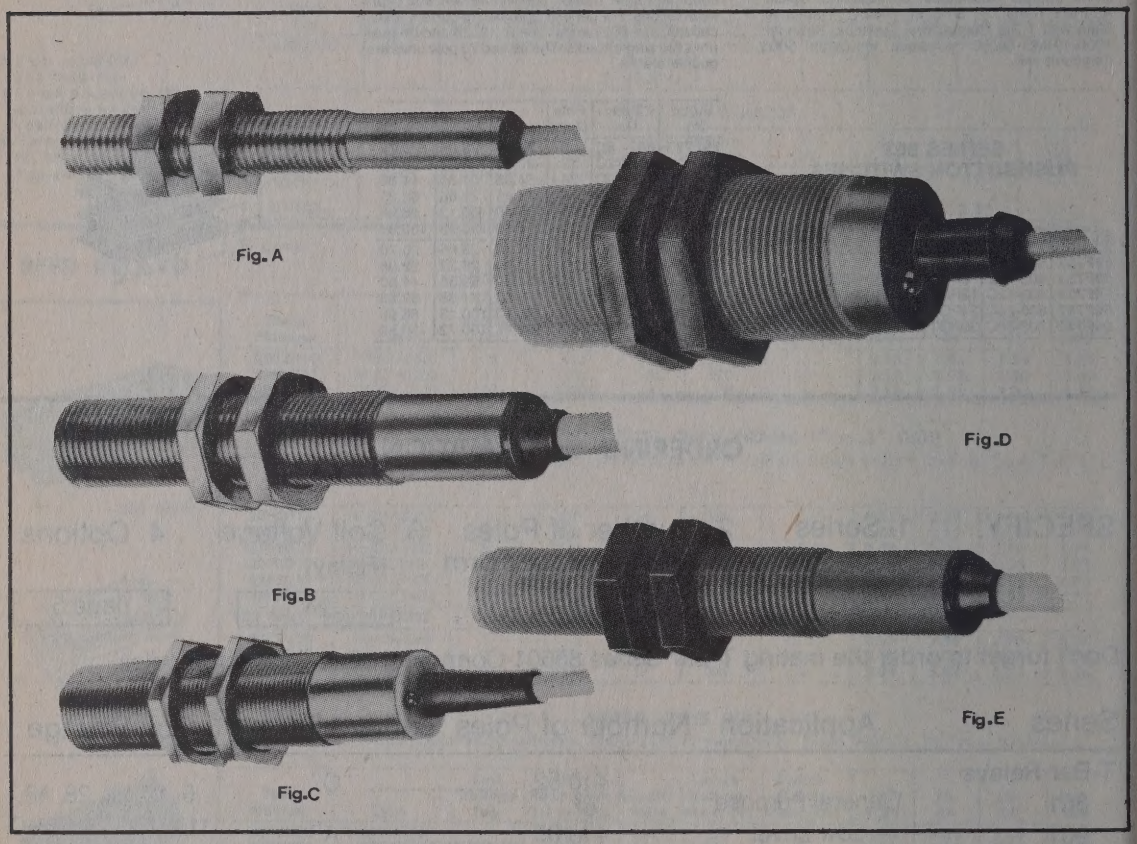
Unimax Switch Unimax Inductive Proximity Switches

Introduction

The selection guide summarizes Unimax's comprehensive line of solid-state, inductive proximity switches for sensing metals (both ferrous and non-ferrous). All units are self-contained. As such they do not require auxilliary amplifiers or associated circuitry. Each is fully encapsulated, making them completely reliable in hostile environments.

General Design Features

- Senses all metals, ferrous & non-ferrous.
- Sensing ranges to 50mm.
- Shielded and Unshielded models.
- Most AC units operate from 90-250V.
- AC units feature 2-wire installation.
- DC units operate from 10-30V.
- DC units available with PNP or NPN outputs.
- Most DC units offer either N.O. or N.C. outputs.
- Output currents to 200ma.
- All units meet NEMA 1, 2, 4, 12, & 13 enclosure requirements. (Most also satisfy NEMA 6).
- All AC units internally protected for transient voltage peaks to 5kV (10ms).
- All DC units internally protected against inductive voltage peaks, spurious line pulses, and reverse polarity of supply lines.
- Short circuit protection standard on most DC models.
- LED function indicator standard on most models.

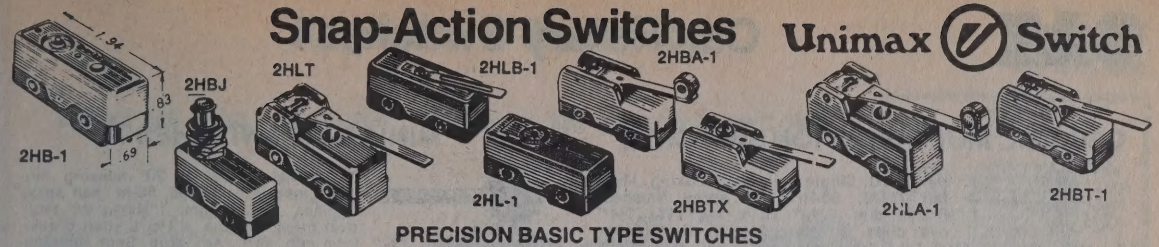


SELECTION GUIDE

Newark No.	Fig.	UX. Part No.	Supply Voltage	Nominal Sensing Range	Output Current	Max. Cycling Rate	1-9	10-24	25-49	50-99	100-249
81F1973	A	IHL1-8-10ZN	10-30VDC	1MM	100mA	800Hz	46.00	43.70	41.40	36.80	32.20
81F1974	B	IHL2-12-10Z	90-140VAC	2MM	200mA	12Hz	59.45	56.50	53.50	47.60	41.60
81F1975	B	IHL2-12-10ZN	10-30VDC	2MM	100mA	800Hz	40.35	38.30	36.30	32.25	28.25
81F1978	C	IHL5-18-10ZB	90-250VAC	5MM	200mA	10Hz	59.45	56.60	53.75	48.05	42.35
81F1979	C	IHL5-18-11ZNB	10-30VDC	5MM	100mA	500Hz	50.75	48.35	45.90	41.10	36.30
81F1982	D	IHL10-30-10ZTB	90-250VAC	10MM	200mA	10Hz	71.15	67.70	64.30	57.45	50.55
81F1983	D	IHL10-30-11ZTNB	10-30VDC	10MM	100mA	300Hz	57.50	54.75	52.00	46.50	41.00
81F1976	E	IHL4-120-107	90-140VAC	4MM	200mA	12Hz	57.50	54.65	51.75	46.00	40.25
81F1977	E	IHL4-120-107N	10-30VDC	4MM	100mA	400Hz	38.60	36.70	34.75	30.90	27.05
81F1980	C	IHL8-18-107B	90-250VAC	8MM	200mA	10Hz	59.45	56.60	53.75	48.05	42.35
81F1981	C	IHL8-18-117NB	10-30VDC	8MM	100mA	200Hz	50.75	48.35	45.90	41.10	36.30
81F1984	D	IHL15-30-10ZTB	90-250VAC	15MM	200mA	10Hz	71.15	67.70	64.30	57.45	50.55
81F1985	D	IHL15-30-11ZTNB	10-30VDC	15MM	100mA	100Hz	57.50	54.75	52.00	46.50	41.00

Snap-Action Switches

Unimax Switch



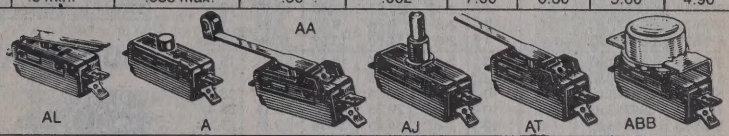
PRECISION BASIC TYPE SWITCHES

Pin actuator. Used in applications requiring minimum pre-travel and over-travel, with moderate operating force. 20 amps 125/250/480VAC. ½ amp, 125VDC. ¼ amp, 250VDC. UL and CSA listed. Double-throw. Mounting holes will accept .139" dia. max. on 1.0" centers ± .002". **Suffix —1:** Recessed solder lug terminals of tinned copper. **Suffix —5:** screw terminals widely spaced on a stepped base. Contact separation is .020 in. except (*), which is .025 in.

Stock No.	Type	Actuators	Operate Force Ounces	Release Force Ounces	Movement Differential Inches	Pretravel Inches	Total Overtravel Inches	1-9	10-19	20-49	50-99
07F041	2HB-1	Pin	9 to 13	4 min	.0004-.002	.020	.005	4.05	3.65	3.24	2.84
07F042	2HB-5	Pin	9 to 13	4 min	.0004-.002	.020	.005	4.25	3.83	3.40	2.98
07F043	2HBL-1	Leaf Spring	5 max.	.5 min.	.050 max.	.156	.062	4.10	3.69	3.28	2.87
07F045	2HBJ-5	Lg. Plunger	9 to 13	4 min.	.0004-.002	.020	.219	9.30	8.37	7.44	6.51
07F046	2HBT-1	Rigid Lever	1 to 2.5	.5	.078 max.	.125-.375	.188	5.40	4.86	4.32	3.78
07F047	2HBT-5	Ridig Lever	1 to 2.5	.5	.078 max.	.125-.375	.188	5.45	4.91	4.36	3.82
07F048	2HBTX-1	Adj. Ridig Lev.	2 max.	.25	.031 max.	.05-.187	.093	6.60	5.94	5.28	4.62
07F049	2HBTX-5	Adj. Ridig Lev.	2 max.	.25	.031 max.	.05-.187	.093	6.90	6.21	5.52	4.83
07F050	2HBA-1	Roller Contact	1 to 3.5	.75	.062 max.	.094-.313	.156	6.75	6.08	5.40	4.73
07F051	2HBA-5	Roller Contact	1 to 3.5	.75	.062 max.	.094-.313	.156	6.85	6.17	5.48	4.80
07F053	2HLT-5	Ridig Lever	2.5 max.	.5 min.	.109 max.	.59	.078	5.55	5.00	4.44	3.89
07F054	2HLA-1	Roller Contact	2.5 max.	.5 min.	.085 max.	.56	.062	7.30	6.57	5.84	5.11
07F055	2HLA-5	Roller Contact	2.5 max.	.5 min.	.085 max.	.56	.062	7.00	6.30	5.60	4.90

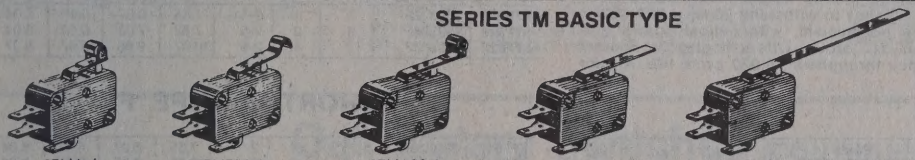
SERIES A GENERAL PURPOSE

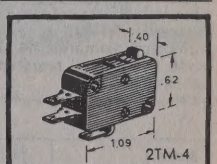
Fully enclosed, snap-acting switches with quick connect terminals integral with stationary contacts and spring mechanism. High strength. Low heating. 15 amps 125/250VAC, ¾ Hp 125VAC, 1½ Hp 250VAC. UL and CSA listed. Contact separation is .02 in.



Stock No.	Type	Actuators	Operate Force Ounces	Release Force Ounces	Movement Differential Inches	Pre-travel Inches	Total Overtravel Inches	1-49	50-99	100-400
07F034	A	Push Button	20 max.	3 min.	.010 max.	.050	.050	1.40	1.02	.88
07F035	AL	Integral Leaf	12 max.	1 min.	.093 max.	.281	.062	1.60	1.17	1.01
07F036	AT	Hinged Lever	4 max.	.5 min.	.062 max.	.250	.187	1.95	1.42	1.23
07F037	AA	Hinged Roller Lev.	4 max.	.5 min.	.062 max.	.250	.187	2.40	1.75	1.51
07F038	AJ	Plngr. Bush. Mtg.	20 max.	3 min.	.010 max.	.050	.187	1.95	1.42	1.23
07F039	ABB	Push Button (Red)	20 max.	3 min.	.010 max.	.050	.050	3.05	2.23	1.92
07F040	ABB1	Push Button Blk.)	20 max.	3 min.	.010 max.	.050	.050	3.05	2.23	1.92

SERIES TM BASIC TYPE



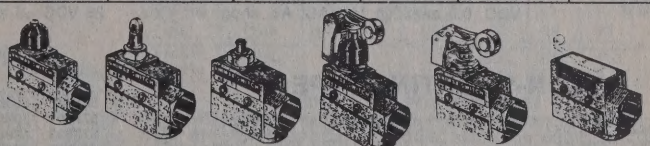


Silver contacts standard. Low operating force with negative force gradient (overtravel forces less than operating forces). Long life. Quick connect terminals. **2TM.** Basic switch. **2TMA.** Short roller lever. **2TMA15.** Standard roller lever. Low motion lever position. **2TMT15.** Standard lever. Low motion lever position. **2TMT14.** Simulated roller. **2TMT18.** Extra long lever. Electrical Ratings: 10 amps—250VAC, ½ amp—125VAC, ¼ amp—250 VDC, ⅓ HP—125/250VDC.

Stock No.	Type	Operate Force Grams	Movement Differential Inches	Inches	Total Overtravel Inches	1-49	50-99	100-499
07F028	2TM-4	75 max.	.013 max.	.056 max.	.040	1.70	1.24	1.07
07F029	2TMA-4	90 max.	.013 max.	.420 max.	.040	2.35	1.72	1.48
07F030	2TMT15-4	45 max.	.032 max.	.160 max.	.075	1.95	1.42	1.23
07F031	2TMA15-4	45 max.	.030 max.	.160 max.	.065	2.35	1.72	1.48
07F032	2TMT14-4	50 max.	.505 max.	.140 max.	.060	2.00	1.46	1.26
07F033	2TMT18-4	15 max.	.078 max.	.375 max.	.160	2.00	1.46	1.26

METAL-CASED KS SERIES SNAP-ACTION SWITCHES

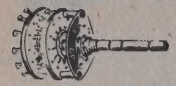
20 amp basic switches with die-cast aluminum housings mounted flat with style T housing or upright with style F housing. Conduit-hub has ½-14 NPSM internal thread. Hex shape facilitates installation. Two part housing separates so screw terminals of basic switch are fully accessible. 20 amps, 125/250/480VAC. ½ amp, 125VDC, ¼ amp 250 VDC. Contact separation is .020 in.



Stock No.	Type	Actuators	Operate Force Ounces	Release Force Ounces	Movement Differential Inches	Pretravel Inches	Total Overtravel Inches	1-9	10-19	20-49	50-99
07F013	KSB-T	Sealed OT Plngr.	9 to 24	4 min.	.002 max.	.078 max.	.219	16.80	15.12	13.44	11.76
07F017	KSJ-T	Plain OT Plngr.	9 to 13	4 min.	.002 max.	.020 max.	.219	12.85	11.57	10.28	9.00
07F019	KSR-T	Roller Plngr.	9 to 13	4 min.	.002 max.	.020 max.	.140	21.90	19.71	17.52	15.33
07F021	KSBP-T	Sealed Roller Plngr.	10 to 20	6 min.	.006 max.	.188 max.	.219	24.70	22.23	19.76	17.29
07F023	KSJP-T	Roller Plngr.	10 to 18	6 min.	.006 max.	.188 max.	.219	24.70	22.23	19.76	17.29
07F026	TC-2	Thru bolt mounting enclosure						8.20	7.38	6.56	5.74

OAK Oak Rotary Switches

CERAMIC MULTI-SECTION SWITCHES



Series JC. Single ball, 30° indexing. Meet MIL-S3786, 50-Hr. salt spray finishes. Frame dim. 1 17/32" H. x 1 3/8" W., 1 1/2" over clips. 1/4" dia. x 2 3/8" L., shaft break-off points @ 3/4", 1 1/8", 1 7/8" from mtg. surf., adj. stop. Sect. spacing, 1st spaces 3/8", 2nd 7/16", 3rd 15/32", 4th 15/32"; approx. 1800V peak break-down voltage; break 1 amp @ 28 VDC, .5 amp @ 115 VAC. Av. shpg. wt., 5 oz.

SHORTING TYPES JC

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F666	399468JC	1	1	2-12	9.43	8.71	8.09	7.55
57F668	399470JC	2	2	2-12	14.02	12.94	12.01	11.21

NON-SHORTING TYPES JC

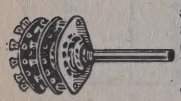
57F667	399469JC	1	1	2-12	9.43	8.71	8.09	7.55
57F669	399471JC	2	2	2-12	14.02	12.94	12.01	11.21
57F671	399473JC	3	3	2-12	18.63	17.20	15.97	14.91
57F673	399475JC	4	4	2-12	23.22	21.43	19.90	18.57
57F675	399477JC	1	2	2-6	9.78	9.03	8.39	7.83
57F677	399479JC	2	4	2-6	14.70	13.57	12.60	11.76
57F679	399481JC	3	6	2-6	19.65	18.14	16.84	15.72
57F543	399705JC	1	3	2-5	10.15	9.37	8.70	8.12
57F549	399711JC	2	10	2-3	16.35	15.09	14.01	13.08
57F551	399713JC	5	10	2-6	29.33	27.08	25.14	23.47
57F553	399715JC	6	12	2-6	34.43	31.78	29.51	27.55

SUBMINIATURE ROTARY SWITCHES

Ultra-compact switches provide superior insulating quality, with dimensional stability even under severe environmental conditions. For all applications where extremely small size is essential. Long-life silver alloy contacts. Double wiping design, with frame components of materials and finishes to withstand 50-hour salt spray. Exclusive Tri-Ball detente mechanism, with helical spring provides approximately 16 in.-oz. torque. Offers negligible contact noise and circuit resistance throughout 10,000 cycle life. All are non-shorting.

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F888	399634-512	2	2	2-12	17.72	16.35	15.19	14.17
57F889	399639-511	1	2	2-6	14.17	13.08	12.14	11.33
57F891	399635-513	3	3	2-12	21.42	19.77	18.36	17.13
57F895	399641-513	3	6	2-6	21.42	19.77	18.36	17.13

PHENOLIC MULTI-SECTION SWITCHES



Series K. Meet MIL S-3786. Single ball 30° indexing. 1 9/16" over clips; 1/4" dia. x 2 3/8" L., bushing 3/8"-32 thread, 3/8" L. nut & washer. 1st spacer 3/8", 2nd, 3rd, 4th 1/2" ea. 1800 V, peak breakdown voltage; break 1 amp. @ 28 VDC, 0.5 amp. @ 115VAC. Av. shpg. wt. 4 oz.

NON-SHORTING TYPE "K"

57F649	399419K	1	1	2-12	7.82	7.22	6.70	6.25
57F651	399421K	2	2	2-12	11.72	10.82	10.04	9.37
57F653	399423K	3	3	2-12	14.15	13.06	12.13	11.32
57F655	399425K	4	4	2-12	18.58	17.15	15.93	14.87
57F657	399427K	1	2	2-6	8.58	7.92	7.36	6.87
57F659	399429K	2	4	2-6	12.30	11.35	10.54	9.84
57F661	399431K	3	6	2-6	16.10	14.86	13.80	12.88
57F663	399433K	1	6	2	9.13	8.43	7.83	7.31
57F665	399435K	2	12	2	13.42	12.38	11.50	10.73
57F862	399493K	2	6	2-5	13.07	12.06	11.20	10.45
57F864	399495K	3	9	2-5	17.20	15.88	14.74	13.76
57F563	399733K	5	5	2-11	18.00	16.62	15.43	14.40
57F567	399737K	6	6	2-11	20.62	19.03	17.67	16.49

MINIATURE SWITCHES

Series AM. Unidex™, 30° indexing. Finishes meet MIL-S-3786, 50-hr. salt spray finishes. Frame dim. 1"Hx 15/16"W; 1 3/16" over clips; 1/4" dia. x 1 1/2"L shaft break-off points @ 3/4", 1 1/8", from mtg. surf., Adj. stop. Sect. spacing, 1st spacer 1/64", 2nd 5/32", 3rd 3/32" approx. 750V peak breakdown voltage 0.5 amp @ 28 VDC, .25 amp. @ 115 VAC. Av. shpg. wt. 4 oz.

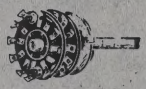
SHORTING—TYPE "A"

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F602	399283AM	2	2	2-12	11.93	11.02	10.23	9.55
57F608	399287AM	2	4	2-6	12.43	11.48	10.66	9.95

NON-SHORTING TYPE "A"

57F605	399286AM	3	3	2-12	15.07	13.91	12.91	12.05
57F607	399282AM	1	2	2-6	9.48	8.75	8.13	7.59
57F611	399292AM	3	6	2-6	15.68	14.48	13.44	12.55

SUBMINIATURE PHENOLIC SWITCHES



Series F. Dual ball, 30° indexing. Meet MIL-S3786, 50-Hr. salt spray finishes. Frame dim. 1 5/16" H. x 1 1/4" W; 1 3/8" over clips; 1/4" dia. x 2 3/8" L., shaft break-off points @ 3/4", 1 1/8" from mtg. surf., adj. stop, except 2-pos. fixed stop. Sect. spacing, 1st spacer 5/16", 2nd 3/8" approx. 1000V peak breakdown voltage; break 1 amp @ 28 VDC, 0.5 amp @ 115 VAC, Av. shpg. wt. 3 oz.

SHORTING TYPE "F"

57F616	399322F	1	1	2-11	7.55	6.97	6.47	6.04
57F620	399326F	1	2	2-5	7.62	7.03	6.53	6.09
57F622	399328F	2	4	2-5	10.47	9.66	8.97	8.37

NON-SHORTING TYPE "F"

57F617	399323F	1	1	2-11	7.55	6.97	6.47	6.04
57F619	399325F	2	2	2-11	10.35	9.55	8.87	8.28
57F621	399327F	1	2	2-5	7.62	7.03	6.53	6.09
57F623	399329F	2	4	2-5	10.47	9.66	8.97	8.37
57F627	399333F	2	6	2-3	10.60	9.78	9.09	8.48

STANDARD PHENOLIC SWITCHES

Series H. Dual ball, 30° indexing. Meet MIL-S-3786, 50-Hr. salt spray finishes. Frame dim. 1 7/8"H. x 1 19/32"W., 1 13/16" over clips. 1/4" dia. x 2 3/8"L., shaft breakoff points @ 3/4", 1 1/8", 1 7/8" from mounting surface. Adj. stop. Sect. spacing 1st spacer 1/2"; 2nd 1"; 3rd 1". Approx. 2500V peak break-down voltage. 1 amp @ 28 VDC, .5 amp @ 115 VAC. Av. shpg. wt. 4 oz.

NON-SHORTING TYPE "H"

57F687	399515H	2	2	2-11	10.57	9.75	9.06	8.45
57F691	399519H	1	2	2-5	7.65	7.06	6.56	6.12
57F693	399521H	2	4	2-5	10.68	9.86	9.16	8.55
57F597	399529H	4	4	2-11	16.57	15.29	14.20	13.25

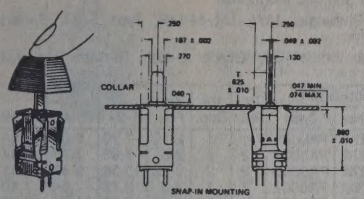
SHORTING TYPE "K"

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F648	399418K	1	1	2-12	7.82	7.22	6.70	6.25
57F656	399426K	1	2	2-6	8.58	7.92	7.36	6.87
57F658	399428K	2	4	2-6	12.30	11.35	10.54	9.84
57F654	399424K	4	4	2-12	18.58	17.15	15.93	14.87

Keyboard Switches

OAK

SERIES 400 SINGLE SWITCHES



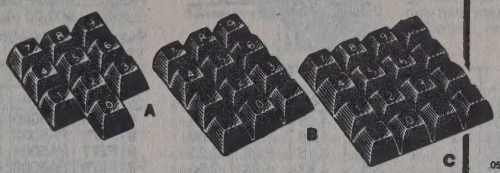
All specifications for 10, 12 and 16 button pads apply for single switches. Switches furnished with one blank button. Engineered for comfortable, fatigue-free operation. Applications range from data input terminals, bank terminals, typewriter cation systems. Recommended panel cutout 0.531 ±0.003 square.

Stk. No.	Type	Action	1-24	25-49
57F511	399576-KS	SPST N.O.	3.64	2.95
57F512	399582-KS	DPST N.O.	5.50	4.29
57F513	399577-KS	SPDT	5.30	4.29
57F514	399583-KS	SPST N.O.	4.81	3.90

⅝" KEYTOP

Stk. No.	Type 399-	Each
57F515	591-LP Single Blk	1.21
57F516	592-LP Single Red	1.21
57F517	593-LP Dble. Blk.	1.89
57F518	594-LP Dble. Red	1.89
57F519	595-LP Set 0-9 Wh.	1.23
57F520	596-LP Single Wh.	1.21
57F521	597-LP Single Blu.	1.21
57F522	598-LP Dble. Wh.	1.89
57F523	599-LP Dble. Blu.	1.89

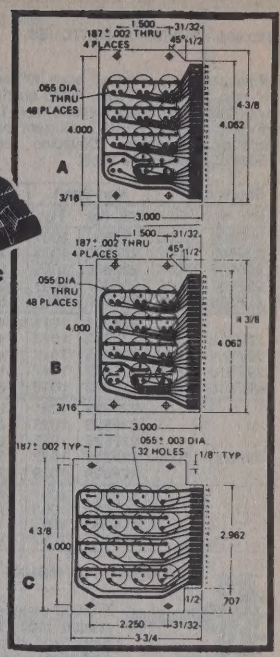
SERIES 400 KEYBOARD SWITCHES



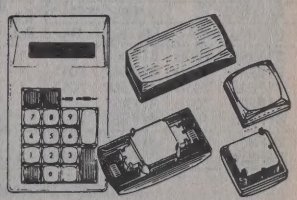
• Less than 100 milliohms contact resis. **• Gold-alloy contacts, nickel base**

Breakdown voltage: over 500 VAC. Contact resistance less than 100 milliohms throughout switch life. Contact rating 5 VDC, resistive load, 100mA. Housing—0.52″ x 0.52″ x 1.00″ high. Contact bounce less than 3 millisec., N.O. only. Tested for 20 million operations, per key at rated load. Temp. range 0 to 85°C. Operating force 3 oz. ±½ oz. (85 gm. ±15 gm.) Key travel 0.125″ ±0.010″ total, pre-travel 0.070″ nominal. Contacts: gold-alloy crown on nickel base, crossbar wiping. Copper alloy contact leaves. Terminals: 0.050″ (±0.002) x 0.008″ x 0.240″ long below standoffs on housing. Terminal ends tinned to facilitate soldering.

Stk. No.	Type	Fig.	1-4	5-9
57F508	399578-KB	A	46.08	38.40
57F509	399579-KB	B	51.02	42.52
57F510	399580-KB	C	60.66	50.55



LOW PROFILE 415 SERIES



• PC board mtg. **• Range —20 to +75°C**

Tested to 10 million operations. Switch action SPST/N.O. Contact resistance 100 milliohms maximum. Height .415″ (incl. terminals, which are 0.125″ long on .400″ grid). Temp. range —20 to +75°C. PC board mtg. Travel 0.100″ approx., pretravel 0.070″ nom. Operating force 70 gm. (+20 gm., —15 gm.). Contact bounce 3 millisec. max.

Oak Rotary Switches (CONTINUED)

TYPE 200 SERIES SLIDE SWITCHES

30% narrower than ordinary slide switches; Double-Wiping contacts which are self-cleaning. Rated 3 amps at 125 VAC operation. Non-shorting.

Stk. No.	Type	Func.	Cont.	1-24	25-49	50-99	100-499
57F819	399278-278	DPDT	6	1.00	.92	.86	.80

ANTI-STATIC KEYLOCK SWITCH

Designed to protect sensitive electronic circuitry from inadvertent static discharge up to 20,000 volts. 90° throw, SP switching. Positions. -501, OFF-ON(CW); -601 ctr. OFF, ON(CW) and ON(CCW); -701 ctr. OFF-ON-ON-ON cont. rotn. Rated 1.0A@ 28VDC, 3.0A@ 120VAC. Cont. resis. 10 milliohms. ¾″ dia. x 2 1/16″ dp. Up to 10,000 operations. UL/CSA recognized.

Stock No.	Type	No. Pos.	Switch Function	1-24	25-49	50-99	100-499
57F537	5-51115-501	2	off/on (CW)	12.68	8.45	6.05	4.65
57F538	5-51115-601	3	off/on (CW), on (CCW)	13.47	9.02	6.44	4.95
57F539	5-51115-701	4	off/on/on/on cont.	14.33	9.60	6.86	5.27

PHENOLIC 17 POS. SWITCHES

Series L. Three ball, 20° indexing. Meet MIL-S-3786 50-Hr. salt spray finishes. Frame dim. 2 5/16″Hx1 3/32″W. 2⅛ over clips. ¼″ dia. x 2⅜″L., shaft, break-off points @ ¾, 1⅛, 1⅞, from mounting surf. Adj. stop 2-17 pos. adjustable. Sect. spacing all ½″. Approx. 1000V. peak break-down voltage 1 amp @ 28VDC, 5 amps @ 115 VAC. Av. shpg. wt., 4 oz.

NON-SHORTING TYPE "L"

Stock No.	Type	Sec.	Poles Tot.	Poles Pos.	1-24	25-49	50-99	100-499
57F713	399648L	3	3	2-17	18.22	16.82	15.61	14.57
57F715	399616L	4	4	2-17	23.13	21.35	19.83	18.51

PHENOLIC 23 POS. SWITCHES

Series MF. 50 hour salt spray. MIL-P-3115. Ball type indexing, one fixed and adjustable stop per switch. Break one amp at 28 VDC or 0.5 amp at 110 VAC, resistive. Carry 5 amps.

SHORTING TYPE "MF" SERIES

57F716	399684MF	1	1	2-23	10.28	9.49	8.81	8.23
57F718	399686MF	2	2	2-23	15.32	14.14	13.13	12.25
57F722	399690MF	4	4	2-23	25.42	23.46	21.79	20.33

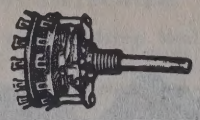
NON SHORTING TYPE "MF" SERIES

57F717	399685MF	1	1	2-23	10.28	9.49	8.81	8.23
57F719	399687MF	2	2	2-23	15.32	14.14	13.13	12.25
57F723	399691MF	4	4	2-23	25.42	23.46	21.79	20.33

MINIATURE ROTARY SWITCHES, SECTIONS and INDEX ASSEMBLIES

PA1000—PHENOLIC SWITCHES

Miniature rotary switches have 30° indexes, ⅜" mtg. bushing, ¼" dia. round shafts, 2¼" long. Make and break resistive load 1.5A @ 28VDC, .5A @ 115VAC. Current carrying capacity 9 amps. Dielectric strength 1500VAC. Use P-120 knob.



Shorting		Non-Short.		Tot.	Tot.	No.			
Stk. No.	PA-	Stk. No.	PA-	Pol.	Sec.	Pos.	1-24	25-49	50-99
22F800	1000	22F801	1001	1	1	2-11	4.63	4.24	3.96
22F802	1002	22F803	1003	2	1	2-5	4.68	4.28	4.00
22F804	1004	22F805	1005	2	2	2-11	6.13	5.62	5.25
22F806	1006	22F807	1007	3	1	2-3	4.63	4.24	3.96
22F808	1008	22F809	1009	3	3	2-11	7.65	7.01	6.55
.....	....	22F811	1011	4	1	2*	4.56	4.18	3.90
22F812	1012	22F813	1013	4	2	2-5	6.16	5.65	5.28
22F814	1014	22F815	1015	4	4	2-11	9.10	8.34	7.79
22F816	1016	22F817	1017	5	5	2-11	12.54	11.49	10.74
22F818	1018	22F819	1019	6	2	2-3	6.16	5.65	5.28
.....	....	22F821	1021	6	3	2-5	7.70	7.05	6.59
.....	....	22F823	1023	6	6	2-11	12.19	11.17	10.44
.....	....	22F825	1025	8	2	2*	6.16	5.65	5.28
22F826	1026	22F827	1027	8	4	2-5	9.15	8.38	7.84
.....	....	22F829	1029	12	3	2*	7.70	7.05	6.59
.....	....	22F831	1031	10	5	2-5	10.74	9.84	9.19
.....	....	22F833	1033	12	6	2-5	12.32	11.29	10.55
.....	....	22F835	1035	1	1	2-6	4.38	4.01	3.75
.....	....	22F837	1037	2	2	2-6	5.79	5.31	4.96

PA7000—P.C. MOUNT PHENOLIC SWITCHES

PA7000 series—Miniature phenolic switches, can be printed circuit board or bushing mounted. Switches have fixed stop indexes 3 thru 11 position. Physical and electrical specs same as PA1000 series.

Shorting		Non-Short.		Tot.	Tot.	No.			
Stk. No.	PA-	Stk. No.	PA-	Pol.	Sec.	Pos.	1-24	25-49	50-99
81F244	7006	81F245	7007	1	1	6	4.31	3.95	3.72
81F246	7010	81F247	7011	1	1	8	4.44	4.07	3.83
81F248	7014	81F249	7015	1	1	10	4.68	4.28	4.03
81F250	7016	81F251	7017	1	1	11	4.78	4.38	4.12
81F252	7020	81F253	7021	2	1	4	4.73	4.33	4.08
81F254	7022	81F255	7023	2	1	5	4.91	4.50	4.23
81F256	7024	81F257	7025	3	1	3	5.03	4.61	4.33

SEPARATE CERAMIC SECTIONS

For use with index assemblies PA300 series and PA550 series for assembly of special switches to meet your requirements. (*) Unused contacts one side of common connected and shorted out. (+) All unused contacts connected and shorted out. (‡) Progressively shorted with CW rot. (#) Active contacts all shorted to common in full CCW progressively opened and dropped with CW rot.

Shorting		Non-Short.		Tot.				
Stk. No.	PA-	Stk. No.	PA-	Pol.	Pos.	1-24	25-49	50-99
22F660	0	22F661	1	1	2-12	4.43	4.05	3.79
22F662	2	22F663	3	2	2-6	4.56	4.18	3.90
22F664	4	22F665	5	3	2-5	4.81	4.41	4.12
22F666	6	22F667	7	5	2-3	5.13	4.70	4.39
.....	...	22F669*	9	6	2	5.06	4.64	4.33
22F670*	10	22F679	19	1	2-5	3.89	3.56	3.33
.....+	...	22F678	18	2	2-11	5.13	4.70	4.39
22F672‡	12	.....	.....	1	2-10	4.07	3.73	3.49

SEPARATE DIALLYL PHTHALATE SECTIONS

81F258	500	81F259	501	1	2-12	2.95	2.69	2.54
81F260	502	81F261	503	2	2-6	3.14	2.87	2.71
81F262	504	81F263	505	3	2-5	3.41	3.12	2.94
81F264	506	81F265	507	5	2-3	3.75	3.42	3.23
81F266	508	81F267	509	6	2	3.64	3.33	3.14
81F268*	510	81F269*	519	1	2-5	2.34	2.04	2.02
81F270+	511	81F271+	518	2	2-11	3.61	3.30	3.11
81F272‡	512	.....‡	.....	1	2-10	2.61	2.39	2.25

SEPARATE PHENOLIC SECTIONS

22F840	30	22F841	31	1	2-11	1.77	1.62	1.52
22F842	32	22F843	33	2	2-5	1.84	1.68	1.57
.....	...	22F845	35	3	2-3	1.87	1.71	1.60
.....	...	22F847	37	4	2	1.89	1.73	1.62
.....	...	22F851	41#	2	2-11	3.02	2.77	2.59

* Unused contacts one side of common connected and shorted out.
\+ All unused contacts connected and shorted out.
‡ Progressively shorted with CW rotation.
\# Active contacts all shorted to common contact in CCW progressively opened and dropped with CW rotation.

PA5000—DIALLYL PHTHALATE ROTARY SWITCHES

PA1000 series—Laminated phenolic Std. NEMAXXXP, MIL-P-3115P, Type BPEP. Surface resistivity 500,000 megohms.

PA5000 series—Diallyl Phthalate, IAW, MIL-M-14F, Type SDG. Surface resistivity 900,00 megohms.

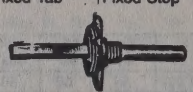
PA2000 series—Ceramic MIL-1-10A, Grade L-422. Surface resistivity 1 Million megohms.

Shorting		Non-Short.		Tot.	Tot.	No.			
Stk. No.	Type	Stk. No.	Type	Pol.	Sec.	Pos.	1-24	25-49	50-99
81F273	PA5000	81F274	PA5001	1	1	2-12	7.70	7.05	6.64
81F275	PA5002	81F276	PA5003	2	1	2-6	7.93	7.77	6.84
81F277	PA5004	81F278	PA5005	2	2	2-12	10.34	9.47	8.91
81F279	PA5006	81F280	PA5007	3	1	2-5	8.73	7.54	7.10
81F281	PA5008	81F282	PA5009	3	3	2-12	12.83	11.75	11.06
81F283	PA5010	81F284	PA5011	4	2	2-6	10.82	9.91	9.33
81F285	PA5012	81F286	PA5013	4	4	2-12	15.36	14.08	13.25
.....	.....	81F287	PA5015	5	1	2-3	8.70	7.97	7.50
.....	.....	81F288	PA5017	5	5	2-12	18.07	16.55	15.58
.....	.....	81F289	PA5019	6	1	2†	8.10	7.42	6.98
.....	.....	81F290	PA5021	6	2	2-5	11.46	10.50	9.88
.....	.....	81F291	PA5023	6	3	2-6	13.56	12.42	11.69
.....	.....	81F292	PA5025	6	6	2-12	21.81	19.98	18.81
.....	.....	81F293	PA5027	8	4	2-6	16.35	14.98	14.10
.....	.....	81F294	PA5029	9	3	2-5	14.60	13.37	12.59
.....	.....	81F295	PA5031	10	2	2-3	12.32	11.29	10.63
.....	.....	81F296	PA5033	10	5	2-6	19.34	17.72	16.68
.....	.....	81F297	PA5035	12	2	2†	11.69	10.71	10.08
.....	.....	81F298	PA5037	12	6	2-6	23.31	21.36	20.10
.....	.....	81F299	PA5039	15	3	2-3	15.85	14.52	13.67

PA2000—CERAMIC ROTARY SWITCHES

Shorting		Non-Short.		Tot.	Tot.	No.			
Stk. No.	Type	Stk. No.	Type	Pol.	Sec.	Pos.	1-24	25-49	50-99
22F600	PA2000	.....	.....	1	1	2-12	7.70	7.05	6.59
.....	.....	22F601	PA2001	1	1	2-12	7.58	6.95	6.49
22F602	PA2002	22F603	PA2003	2	1	2-6	7.75	7.10	6.64
22F604	PA2004	22F605	PA2005	2	2	2-12	12.07	11.06	10.34
22F606	PA2006	.....	.....	3	1	2-5	8.05	7.37	6.89
.....	.....	22F607	PA2007	3	1	2-5	8.10	7.42	6.94
22F608	PA2008	22F609	PA2009	3	3	2-12	16.68	15.28	14.29
22F610	PA2010	22F611	PA2011	4	2	2-6	12.49	11.44	10.70
22F612	PA2012	.....	.....	4	4	2-12	20.88	19.13	17.88
.....	.....	22F613	PA2013	4	4	2-12	21.29	19.51	18.23
.....	.....	22F615	PA2015	5	1	2-3	8.47	7.76	7.25
22F616	PA2016	22F617	PA2017	5	5	2-12	25.90	23.73	22.18
.....	.....	22F619	PA2019	6	1	2†	8.22	7.53	7.04
22F620	PA2020	22F621	PA2021	6	2	2-5	12.91	11.83	11.05
22F622	PA2022	22F623	PA2023	6	3	2-6	17.10	15.67	14.64
22F624	PA2024	22F625	PA2025	6	6	2-12	30.09	27.57	25.77
22F626	PA2026	22F627	PA2027	8	4	2-6	21.29	19.51	18.23
.....	.....	22F629	PA2029	9	3	2-5	17.94	16.43	15.36
.....	.....	22F631	PA2031	10	2	2-3	13.74	12.59	11.77
.....	.....	22F633	PA2033	10	5	2-6	26.74	24.50	22.89
.....	.....	22F635	PA2035	12	2	2†	13.74	12.59	11.77
.....	.....	22F637	PA2037	12	6	2-6	31.36	28.73	26.86
.....	.....	22F639	PA2039	15	3	2-3	19.19	17.58	16.43
22F640	PA2040	.....	.....	18	3	2†	19.19	17.58	16.43
.....	.....	22F641	PA2041	18	3	2†	18.77	17.20	16.07
.....	.....	22F643	PA2043	1	1	2-6	7.11	6.52	6.09
.....	.....	22F645	PA2045	2	2	2-6	11.66	10.68	9.98

*Fixed Tab †Fixed Stop ‡Special Circuit



MINIATURE INDEX ASSEMBLIES (Includes hardware)

Use with PA1000—PA2000 Sections

Stock No.	Type	For Switches	Rear Shaft	1-24	25-49	50-49
22F650	PA-300	1 to 3 sec.	2"	2.92	2.68	2.50
22F651	PA-301	4 to 6 sec.	4"	4.28	3.92	3.66
22F652	PA-302	7 to 9 sec.	6"	6.01	5.51	5.15

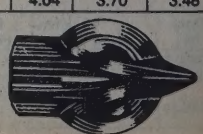
Use with PA5000 Sections

Stock No.	Type	For Switches	Rear Shaft	1-24	25-49	50-99
81F300	PA-550	1 to 3 sec.	2"	3.79	3.47	3.27
81F301	PA-551	4 to 6 sec.	4"	3.94	3.61	3.40
81F302	PA-552	7 to 9 sec.	6"	4.04	3.70	3.48

P-120 KNOB

Pointer knob. Has one setscrew. For ¼" diameter shafts.

Stk. No.	Type	1-24	25-49	50-99
22F646	P-120	.26	.24	.22



Centralab Switches

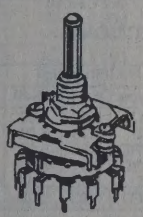
CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

PSA SUB-MINIATURE ROTARY SWITCHES

Bushing ⅜" or Printed Circuit Board (P.C.B.) mounting. Index angle: positive 30°. Index stop strength: 10 inch pounds. Section spacing: 9/32" between front plate and clip surface of first section, 5/32" spacing between sections. Insulation: Diallyl Phthalate with high quality molded thermosetting plastic type SDG per MIL-M-14F. Current carrying capacity: 7 amp. Dielectric strength 750VAC. Resistive load: 0.550 amps at 28 volts VDC; 250mA @ 115VAC. Weight of each switch is less than one ounce. Uses P-120 knob.

Shorting		Non-Short						
Stk. No.	Type	Stk. No.	Type	Poles	Pos.	1-24	25-49	50-99
22F700	PSA-200	22F712	PSA-201	1	2-12	8.48	7.77	7.24
22F701	PSA-202	22F713	PSA-203	2	2-6	8.92	8.17	7.61
.....	.....	22F714	PSA-205	2	2-12	11.71	10.73	10.02
22F703	PSA-206	22F715	PSA-207	3	2-5	9.75	8.94	8.35
.....	.....	22F716	PSA-209	3	2-12	16.98	15.56	14.54
22F705	PSA-210	22F717	PSA-211	4	2-6	12.49	11.44	10.70
.....	.....	22F718	PSA-215	5	2-3	11.36	10.40	9.72
.....	.....	22F719	PSA-221	6	2-5	14.13	12.94	12.10
.....	.....	22F720	PSA-223	6	2-6	17.50	16.03	14.93
.....	.....	22F721	PSA-229	9	2-5	19.12	17.51	16.31
.....	.....	22F722	PSA-231	10	2-3	16.72	15.31	14.27
.....	.....	22F723	PSA-239	15	2-3	24.02	22.00	20.49
		*	PSA-250	1	2-12			

*Special Binary Coded Decimal (BCD) Circuit can also be used as complement.

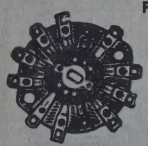


PSA SUB-MINIATURE ROTARY SWITCHES

P.C. MOUNT

Shorting		Non-Short						
Stk. No.	Type	Stk. No.	Type	Poles	Pos.	1-24	25-49	50-99
81F304	PSA-240	81F305	PSA-241	1	2-	9.35	8.57	8.06
81F306	PSA-242	81F307	PSA-243	2	2-	9.49	8.69	8.18
81F308	PSA-244	81F309	PSA-245	3	2-	9.79	8.97	8.44

SEPARATE ASSEMBLY SECTIONS FOR SUB-MINIATURE SWITCHES



These separate sub-miniature assembly sections are for use with shaft and index assemblies listed below. PSA types are adjustable stop. P-501 thru P-510 are fixed stop indexes. These switches carry the same ratings as above switches. Shpg. wt. 2 oz.

SEPARATE DIALLYL PHTHALATE SECTIONS

Shorting		Non-Short						
Stk. No.	Type	Stk. No.	Type	Tot. Pls.	No. Pos.	1-24	25-49	50-99
81F4940	PS-50	81F4942	PS-51	1	2-12	3.47	3.20	2.97
81F4941	PS-52	81F4944	PS-53	2	2-6	3.83	3.54	3.29
		81F4943	PS-55	3	2-5	4.53	4.18	3.89

SEPARATE CERAMIC SECTIONS

22F785	PS-20	22F789	PS-21	1	2-11	5.20	4.80	4.46
22F786	PS-22	22F790	PS-23	2	2-5	5.33	4.92	4.57
22F787	PS-24	22F791	PS-25	3	2-3	5.45	5.03	4.67

¼" DIA. SHAFT INDEX

Stock No.	Type	For Switches	Rear Shaft	1-24	25-49	50-99
81F4945	PSA-512	1 to 2 sec.	.78"	5.25	4.85	4.50
81F4946	PSA-513	3 to 5 sec.	1.42"	7.77	7.17	6.66

⅛" DIA. SHAFT INDEX

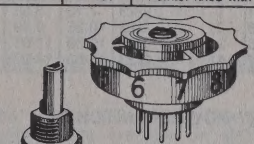
Stock No.	Type	Pos.	1-24	25-49	50-99
22F681	P-501	2			
22F682	P-502	3			
22F684	P-504	5	4.85	4.48	4.16
22F685	P-505	6			
22F686	P-506	7			
22F690	P-510	11			

SUB-MINATURE CERAMIC SWITCHES

Ultra-small ceramic rotary switches ideal for use in transistor circuits, aircraft instruments, etc. Bolt construction with single hole bushing mount: locating lug on 3/8" radius; 1/8" D. shaft, cadmium plated steel, 1¼" long from mounting surface. Index angle positive 30° with index stop strength of 10 in-pounds. 9/32" spacing between front plate and first section, Make, break, resistive load: .550 amps @ 28 VDC; 170 ma at 115 VAC (based on 10,000 cycles). Avg. initial resistance 5 milliohms. Uses P-106 knob opposite. Wt. 2 oz. per section.

Shorting		Non-Short			Total	No.			
Stk. No.	Type	Stk. No.	Type	Sec.	Poles	Pos.	1-24	25-49	50-99
22F761	PS-100	22F773	PS-101	1	1	11	10.56	9.67	9.01
.....	.....	22F774	PS-103	2	2	11	15.82	14.49	13.50
.....	.....	22F775	PS-105	1	2	5	10.76	9.85	9.18
.....	.....	22F776	PS-107	3	3	11	21.04	19.27	17.95
22F765	PS-108	22F777	PS-109	1	3	3	11.06	10.13	9.44
22F766	PS-110	22F778	PS-111	2	4	5	16.06	14.71	13.70
.....	.....	22F780	PS-115	3	6	5	21.52	19.71	18.36
.....	.....	22F781	PS-117	2	6	3	16.58	15.18	14.15
.....	.....	22F782	PS-119	2	8	2	17.32	15.86	14.78
.....	.....	22F783	PS-121	3	9	3	22.50	20.60	19.20

Stock No.	Type	Description	1-24	25-49	50-99
22F648	P-106	Pointer knob with one set screw	.42	.38	.36



2ASA MICROMINIATURE ROTARY SWITCHES

2ASA microminiature switches have fixed stops, 3 to 10 pos., 36° indexing. Contact system: 1 pole center common, non-shorting, rated .5A @ 12VDC, .3A @ 24VDC. Contact resistance less than 20 millionhm. Breakdown 1000VAC. Switches are in screwdriver, thumbwheel and knob-adjust styles. All are printed circuit board mountable, knob type can be bushing mounted. Bushing ¼" diameter.

1 POLE CENTER COMMON—.470" DIAMETER

Stk. No.	Type 2ASA	Adjustment	Cont.	Pos.	1-24	25-49	50-99
81F310	103AAA	Screwdriver	E	3	8.82	7.36	6.31
81F311	103AAB	Screwdriver	S	3	9.04	7.55	6.46
81F312	103AAC	Knob	E	3	9.70	8.10	6.94
81F313	103AAD	Knob	S	3	10.18	8.50	7.28
81F314	103AAE	Thumbwheel	E	3	14.54	12.14	10.40
81F315	103AAF	Thumbwheel	S	3	14.78	12.34	10.57
81F316	104AAA	Screwdriver	E	4	8.82	7.36	6.31
81F317	104AAB	Screwdriver	S	4	9.04	7.55	6.46
81F318	104AAC	Knob	E	4	9.70	8.10	6.94
81F319	104AAD	Knob	S	4	10.18	8.50	7.28
81F320	104AAE	Thumbwheel	E	4	14.54	12.14	10.40
81F321	104AAF	Thumbwheel	S	4	14.78	12.34	10.57
81F322	105AAA	Screwdriver	E	5	8.82	7.36	6.31
81F323	105AAB	Screwdriver	S	5	9.04	7.55	6.46
81F324	105AAC	Knob	E	5	9.70	8.10	6.94
81F325	105AAD	Knob	S	5	10.18	8.50	7.28
81F326	105AAE	Thumbwheel	E	5	14.54	12.14	10.40
81F327	105AAF	Thumbwheel	S	5	14.78	12.34	10.57
81F328	106AAA	Screwdriver	E	6	8.82	7.36	6.31
81F329	106AAB	Screwdriver	S	6	9.04	7.55	6.46
81F330	106AAC	Knob	E	6	9.70	8.10	6.94
81F331	106AAD	Knob	S	6	10.18	8.50	7.28
81F332	106AAE	Thumbwheel	E	6	14.54	12.14	10.40
81F333	106AAF	Thumbwheel	S	6	14.78	12.34	10.57
81F334	108AAA	Screwdriver	E	8	8.82	7.36	6.31
81F335	108AAB	Screwdriver	S	8	9.04	7.55	6.46
81F336	108AAC	Knob	E	8	9.70	8.10	6.94
81F337	108AAD	Knob	S	8	10.18	8.50	7.28
81F338	108AAE	Thumbwheel	E	8	14.54	12.14	10.40
81F339	108AAF	Thumbwheel	S	8	14.78	12.34	10.57
81F340	110AAA	Screwdriver	E	10#	8.82	7.36	6.31
81F341	110AAB	Screwdriver	S	10#	9.04	7.55	6.46
81F342	110AAC	Knob	E	10#	9.70	8.10	6.94
81F343	110AAD	Knob	S	10#	10.18	8.50	7.28
81F344	110AAE	Thumbwheel	E	10#	14.54	12.14	10.40
81F345	110AAF	Thumbwheel	S	10#	14.78	12.34	10.57

#Continuous Rotation

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS company

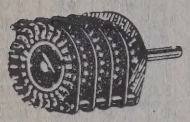
Centralab Switches

PA-3000 SERIES 18 POSITION SWITCH

Phenolic insulation per MIL-1-3115B. Voltage breadown between parts 1000 VAC. Sections 2 9/16" high × 2 11/64" wide. 1/16" thick. Rated 2.25 amps @ 28 VDC: 1.0 amps @ 115 VAC. Adjustable stop or continuous rotation. Uses P-120 Knob. Wt. 4 oz. per section.

Shorting		Non-Short		Tot.	No.				
Stk. No.	Type	Stk. No.	Type	Pol.	Sec.	Pgs.	1-24	25-49	50-99
57F922	PA-3000	**57F923**	PA-3001	1	1	2-17	7.20	6.59	6.16
57F924	PA-3002	**57F925**	PA-3003	2	2	2-17	11.42	10.47	9.78
.....	.....	**57F927**	PA-3005	3	3	2-17	15.41	14.12	13.20
57F928	PA-3006	**57F929**	PA-3007	4	4	2-17	17.40	15.94	14.90

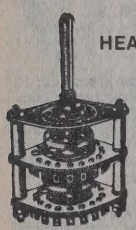
PA-4000 SERIES 24-POSITION PHENOLIC SWITCH



High quality laminated phenolic insulation, meets MIL-P-3115B. Sections: 2 9/16" H, 1 31/32" W, 1/16" thick. Rated 5.5 amps @ 6 VDC; 2.75 amps @ 15 VDC; .230 amps @ 115 VAC. Uses P-120 Knob. Shpg. wt., 4 oz. per section.

Shorting		Non-Short		Tot.	No.				
Stk. No.	Type	Stk. No.	Type	Pol.	Sec.	Pos.	1-24	25-49	50-99
57F930	PA-4000	**57F931**	PA-4001	1	1	2-23	7.13	6.53	6.11
57F932	PA-4002	**57F933**	PA-4003	2	2	2-23	10.35	9.49	8.87
.....	.....	**57F935**	PA-4005	3	3	2-23	12.68	11.61	10.85
57F936	PA-4006	**57F937**	PA-4007	4	4	2-23	15.53	14.23	13.30

HEAVY DUTY ROTARY POWER SWITCHES

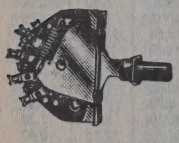


Ceramic insulation; 3/8" bushing mounted; 1/4" D. shaft, double flat steel. 2 1/4" L. from mounting surface. Index angle is 20° with 2 adjustable stops. 1" spacing between front plate and first section. Make and break res. load; 9 amps @ 110 VAC-RMS; 15mA @ 2500 VAC-RMS; 30 amps @ 5 VDC. 20 amps @ 12 VDC; 11 amps @ 28 VDC. Contact resistance 7 milliohms with rotational life 25,000 hz. min. Comes with adjustable stop pin and nut and instruction sheet. Uses P-168 Knob. Shpg. wt., 6 oz.

Shorting		Non-Short		Tot.	No.				
Stk. No.	Type	Stk. No.	Type	Pol.	Sec.	Pos.	1-24	25-49	50-99
22F731	JV9000	**22F746**	JV9001	1	1	2-17	34.30	31.52	29.59
22F732	JV9032	**22F747**	JV9033	2	1	2-8	38.14	35.04	32.90
22F733	JV9004	**22F748**	JV9005	2	2	2-17	58.80	54.02	50.72
.....	.....	**22F749**	JV9003	3	1	2-5	38.93	35.77	33.58
.....	.....	**22F750**	JV9009	3	3	2-17	82.00	75.34	70.73
22F736	JV9034	**22F751**	JV9035	4	2	2-8	65.82	60.48	56.77
.....	.....	**22F752**	JV9013	4	4	2-17	108.08	99.30	93.22
.....	.....	**22F754**	JV9007	6	2	2-5	67.34	61.87	58.08
.....	.....	**22F755**	JV9037	6	3	2-8	94.29	86.63	81.32
.....	.....	**22F756**	JV9021	6	6	2-17	155.39	142.77	134.03
.....	.....	**22F758**	JV9011	9	3	2-5	96.78	88.92	83.48
.....	.....	**22F759**	JV9015	12	4	2-5	124.48	114.37	107.36
.....	.....	**22F760**	JV9019	15	5	2-5	146.82	134.89	126.63

Stock No.	Type	Description	1-24	25-49	50-99
22F649	P-168	Painted knob w/brass insert and 2 set screws	.96	.88	.83

LEVER SWITCHES

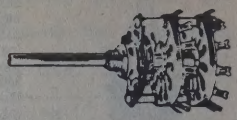


Coil spring index design. Phenolic insulation. Single switch 1 7/8" H × 9/16" W × 1 1/2" D behind panel. 1.5 amps @ 28 VDC. .5A @ 115 volts. AC. 3 oz. uses P-193 knob.

Non-Short								
No.	Type	Poles	Pos.	Index	1-24	25-49	50-99	100-Up
22F555	1454	2	3	Pos.	3.94	3.61	3.37	0.00
22F556	1455	2	3	S.R.	3.96	3.63	3.39	0.00

Stock No.	Type	Description	1-24	25-49	50-99
22F647	P-193	Oval Knob	.26	.24	.22

2500 SERIES HEAVY DUTY SWITCH



Series 2500. Compact, efficient, rotary selector switches. Low loss ceramic wafers: Positive 30° index. Adjustable stop. Bushing 3/8"32thd. 3/8" la. Shaft 1/4" full round. 1 7/8" from bushing. Dia. 1.875" MIL-1-10A. Current carrying capacity: 9 amp. Stop strength 25 in. lb. min. Rated 2.75 amps at 15 VDC. 1.0A at 115 VAC. Breakdown voltage 1500 VAC. Shpg. wt., 4 oz. per section. Uses P-120 knob.

Non-Short		Tot.	Tot.	No.			
Stk. No.	Type	Pis.	Sec.	Pos.	1-24	25-49	50-99
22F411	2501	1	1	2-6	7.58	6.95	6.49
22F412	2503	1	1	2-11	7.98	7.31	6.84
22F413	2505	2	1	2-5	8.20	7.51	7.02
22F414	2507	3	1	2-3	8.38	7.68	7.18
22F415	2511	2	2	2-6	11.67	10.69	10.00
22F416	2513	2	2	2-11	12.89	11.81	11.04
22F417	2515	4	2	2-5	12.89	11.81	11.04
22F418	2517	6	2	2-3	13.31	12.19	11.40
22F419	2521	3	3	2-6	16.15	14.80	13.83
22F420	2523	3	3	2-11	17.77	16.28	15.22
22F421	2525	6	3	2-5	18.17	16.65	15.56

SEPARATE CERAMIC SECTIONS

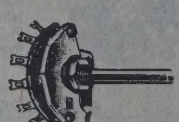
Separate sections. Use with index assemblies P-270, P-271 and P-272, below to assemble switches with special characteristics. Special section FFD, 1 pole. 2-11 pos., all unused-contacts connected and shorted. Weight, 4 oz.

	Non-Shorting			
Stk. No.	Type	1-24	25-49	50-99
22F488	XD	5.28	4.83	4.52
22F489	YD	5.73	5.25	4.90
22F490	RRD	5.83	5.34	4.99
22F491	SSD	6.11	5.60	5.23
22F492	ZD	5.95	5.45	5.09
22F538	FFD	5.83	5.34	4.99

Use with above sections. Pos. 30° index, adjustable stop includes all hardware. Shipping Weight, 3 oz.

Stk. No.	Type	No. Sec.	1-24	25-49	50-99
22F540	P-270	1-3	3.57	3.27	3.06
22F541	P-271	3-5	4.19	3.84	3.59
22F542	P-272	5-10	6.35	5.81	5.43

ROTARY SPRING RETURN SWITCHES

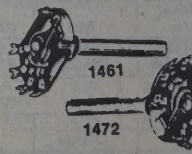


Rated 1.5 amps at 28 VDC: .5A at 115 VAC. Phenolic insulation. Bushing 3/8-32. 3/8" L. Shaft 1 7/8" lg. from bushing. Includes hardware. 4 oz.

Stock No.	Type	Poles	Pos.	Index	1-24	25-49	50-99
22F571	1451	4	2	Spring Return	5.76	5.28	4.93
57F991	1488	6	3	spring Return	7.48	6.85	6.41
57F992	1489	6	3	Positive end Spring Return	7.48	6.85	6.41

GENERAL PURPOSE SWITCHES

Die-cast, one piece frame. Make and break resistive load; 230 mA @ 115 VAC-RMS; 1.5 amps @ 28 VDC. Current carrying capacity. 9 amp. Index stop strength 10 in. lb. min. Pos. indexing 1473 non-shorting type, others shorting. Shpg. wt., 5 oz. Uses P-120 knob.

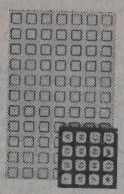


Stk. No.	Type	Poles	Pos.	1-24	25-49	50-99
22F574	1460	1	2	2.96	2.71	2.53
22F575	1461	1	3	3.21	2.94	2.75
22F576	1462	2	2	3.44	3.15	2.95
22F585	1472	2	3	3.64	3.34	3.12
22F586	1473	2	3	3.64	3.34	3.12
22F588	1484	1	3	3.16	2.89	2.70

Centralab

CENTRALAB, INC.
A NORTH AMERICAN PHILIPS COMPANY

MONOPANEL™ TOUCH SWITCHES



MonopanelTM touch switches feature highly reliable touch-sensitive membrane technology. Both prototype panel and keypad versions have momentary, N.O. contacts. Oper. Temp. –40°C to +85°C. Contact Rating: 50mA @ 30VDC. Max. Voltage 50VDC. Max. Current 100mA. Max. Power 1.5W. Contact Resistance: 2 ohms max. @ 4 oz. pressure.

PROTOTYPE PANELS

Prototype panels are ideal for mock-up testing. Available in 3 sizes and 3 switch interconnections. Panels are blank and can be customized with commercially available graphics. Switches can be cut using commercially available shear.

Stock No.	Type MRP	No. Swts.	Inter connection	1-24	25-up
81F346	077EA 1100	77	1 side common, both sides out. X-Y	48.00	39.00
81F347	077EA 1200	77			
81F348	077EA 1300	77			
81F349	154EA 1100	154	1 side common, both sides out. X-Y	85.00	68.00
81F350	154EA 1200	154			
81F351	154EA 1300	154			
81F352	308EA 1100	308	1 side common, both sides out. X-Y	150.00	129.00
81F353	308EA 1200	308			
81F354	308EA 1300	308			

KEY PADS

Keypads are available assembled with graphics or unassembled, blank with no graphics. Two switch interconnections, with or without mtg. flange in 12 or 16 key matrixes are offered. Available in black or white colors. Use standard .025" pin on .100" center terminals.

Stk. No.	Type MRK-	No. Sets	Bezel Color	Mtg. Flge	Nomen-clature	Inter-connect
81F355	012 AB2100	12	Black	No	Alpha-Numeric	1 side con.
81F356	012 AD2100	12	Black	Yes		
81F357	012 AC2100	12	White	No		
81F358	012 AE2100	12	White	Yes		
81F359	012 BB2100	12	Black	No	Blank	1 sice con.
81F360	012 BD2100	12	Black	Yes		
81F361	012 BC2100	12	White	No		
81F361	012 BE2100	12	White	Yes		
81F362	012 BB2300	12	Black	No	Blank	X-Y
81F363	012 BD2300	12	Black	Yes		
81F364	012 BC2300	12	White	No		
81F365	012 BE2300	12	White	Yes		
81F366	012 CB2300	12	Black	No	Telephone Format	X-Y
81F367	012 CD2300	12	Black	Yes		
81F368	012 CC2300	12	White	No		
81F369	012 CE2300	12	White	Yes		
81F370	016 AB2100	16	Black	No	Alpha-Numeric	1 side con.
81F371	016 AD2100	16	Black	Yes		
81F372	016 AC2100	16	White	No		
81F373	016 AE2100	16	White	Yes		
81F374	016 BB2100	16	Black	No	Blank	1 side con.
81F375	016 BD2100	16	Black	Yes		
81F376	016 BC2100	16	White	No		
81F377	016 BE2100	16	White	Yes		
81F378	016 BB2300	16	Black	No	Blank	X-Y
81F379	016 BD2300	16	Black	Yes		
81F380	016 BC2300	16	White	No		
81F381	016 BE2300	16	White	Yes		
81F382	016 CB2300	16	Black	No	Telephone Format	X-Y
81F383	016 CD2300	16	Black	Yes		
81F384	016 CC2300	16	White	No		
81F385	016 CE2300	16	White	Yes		

MRK Series Keypad Price List

No. of Switches	1-24	25-49	50-99	100-up
12	8.90	8.40	7.85	6.55
16	10.75	10.25	9.75	8.20

PUSH BUTTON SWITCHES

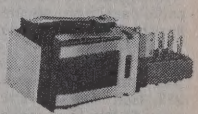
MPS SERIES KEY SWITCHES

MPS series Keyswitch is designed to meet high reliability requirements of digital and analog microprocessor controls. Contact Rating: 5AMP @ 50VDC or VAC, .125AMP @ 120VDC or VAC. Mounting: P.C. board DIP socket or wire wrap. Available with or without bracket. Includes white relegendable Keycap.

Stock No.	Type MPS	Switch Action	Mtg. Bkt.	1-49	50-99	100-400
81F386	1	SPST (N.O.) MOM.	Yes	1.62	1.40	1.12
81F387	2	DPDT MOM.	Yes	2.07	1.68	1.34
81F388	3	DPDT ALT.	Yes	2.36	1.95	1.64
81F389	4	SPDT MOM.	Yes	1.62	1.40	1.12
81F390	5	SPDT ALT.	Yes	2.00	1.73	1.39
81F391	1NB	SPST (N.O.) MOM.	No	1.42	1.23	.99
81F227	2NB	DPDT MOM.	No	1.84	1.59	1.27
81F228	3NB	DPDT ALT.	No	2.18	1.89	1.50
81F229	4NB	SPDT MOM.	No	1.42	1.23	.99
81F230	5NB	SPDT ALT.	No	1.82	1.57	1.25

THE SNAP-IN PANEL KIT SERIES PUSHBUTTON SWITCHES

The snap-in panel mount Kit 21 series switches are available as 4PDT, 1A @ 28VDC, .45A @ 115VAC or DPST L.S., 1A @ 125VDC, 2A @ 250VAC. Line switch is UL and CSA listed. Switch uses T-1-¾ lamp (not inc.) and comes with four 20MM square lenses in red, white, green and orange colors.



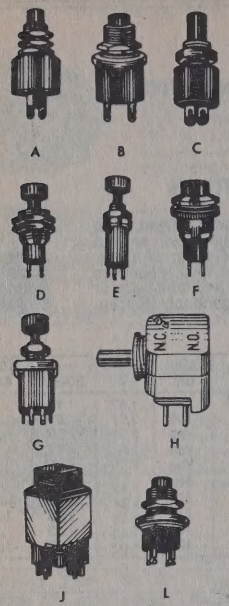
Stock No.	Type KIT	Switch Action	Button Color	1-24	25-49	50-99
81F231	21B4	4 PDT	Black	5.99	5.49	4.93
81F232	21W4		White	5.99	5.49	4.93
81F233	21BLS	2 PST 2A @ 250 VAC/Pole Line SW.	Black	8.19	7.52	6.75
81F234	21WLS		White	8.19	7.52	6.75

THE PBS SERIES

The PBS series switches can be bracket mounted or mounted horizontal to P.C. board. They are available in 2, 4, 6 and 8 pole modules. The self-cleaning, silver contact system is rated 1A @ 28VDC, .45A @ 115VDC. Action is momentary or alternating. Switch includes black buttonmounted horizontally.

Stock No.	Type PBS	Switch Action	1-24	25-49	50-99	100-Up
81F235	2M	2PDT MOM.	1.47	1.35	1.26	.97
81F236	2P	2PDT ALT.	1.47	1.35	1.26	.97
81F237	4M	4PDT MOM.	1.70	1.57	1.46	1.13
81F238	4P	4PDT ALT.	1.70	1.57	1.46	1.13
81F239	6M	6PDT MOM.	1.98	1.83	1.70	1.32
81F240	6P	6PDT ALT.	1.98	1.83	1.70	1.32
81F241	8M	8PDT MOM.	2.63	2.43	2.26	1.76
81F242	8P	8PDT ALT.	2.63	2.43	2.26	1.76
81F243	LS	2PST LINE SW. 2A @ 250VAC/Pole	4.20	3.88	3.60	2.80

PUSHBUTTON SWITCHES



Stock No.	Type	Fig.	Amps, 115 VAC Res.	Contacts	Features	Button	Dimensions, in. Mfg. Hole	Behind Panel	O.A. Ht.	Each 1-49	50-99	100-499	500-999
57F2615	10-9*	B	1	SPST-NO	Silent action	Blk	31/64	.965	1.500	2.05	1.74	1.54	1.31
24F200	2001	A	10	SPST-NO	Snap action	Red	31/64	1.176	1.903	5.60	4.76	4.20	3.58
24F201	2202	A	10	SPST-NO	Snap action	Blk	31/64	1.176	1.903	6.00	5.10	4.50	3.84
24F204	23-1	B	1/4	SPST-NO	Silent action	Red	21/64	.663	1.059	2.00	1.70	1.50	1.28
24F205	30-1*	B	1	SPST-NO	Silent action	Red	17/64	.592	.992	1.47	1.25	1.10	.94
24F206	30-2*	B	1	SPST-NC	Silent action	Blk	17/64	.605	1.005	1.65	1.40	1.24	1.06
57F2616	30-3*	B	1	SPST-NO	Silent action	Blk	17/64	.592	.992	1.47	1.25	1.10	.94
57F2617	30-15	B	1	SPST-NO	Overtravel	Red	17/64	.677	1.077	1.83	1.56	1.37	1.17
57F2618	30-17R	D	1	SPST-NO	Positive feel	Red	31/64	.958	1.350	3.02	2.57	2.27	1.93
57F2627	30-05-01-502-0707(B)	F	1	SPST-NO	.....	Blk	.510 sq.	.932	1.280	4.41	3.52	3.11	2.65
57F2628	30-05-01-502-0303(R)	F	1	SPST-NO	.....	Red	.510 sq.	.932	1.280	4.41	3.52	3.11	2.65
57F2634	30-05-04-502-0303(R)	F	1	SPST-NO	Pos. feel	Red	.510 sq.	1.132	1.480	5.43	4.62	4.07	3.48
24F207	35-1	L	1/2	DPST-NO	Momentary	Red	31/64	.977	1.274	2.92	2.48	2.19	1.87
24F209	39-1	C	1/2	SPST-NO	Silent	Red	11/64	.315	.615	2.21	1.88	1.66	1.41
24F236	39-2	C	1/4	SPST-NC	Silent	Blk	11/64	.490	.780	3.25	2.76	2.44	2.08
57F2635	39-3	C	1/2	SPST-NO	Silent	Blk	11/64	.315	.615	2.21	1.88	1.66	1.41
24F202	4001*	B	1	SPST-NO	Silent	Red	31/64	.965	1.500	2.05	1.74	1.54	1.31
24F203	4002	B	1	SPST-NC	Silent	Blk	31/64	.965	1.500	2.05	1.74	1.54	1.31
24F895	46-101R	B	1/4	SPDT-BBM	Momentary	Red	17/64	.890	1.327	2.15	1.83	1.61	1.38
23F894	46-101B	B	1/4	SPDT-BBM	Momentary	Blk	17/64	.890	1.327	2.15	1.83	1.61	1.38
23F897	46-102R	E	1/4	SPDT-BBM	Momentary	Red	17/64	.890	1.327	2.26	1.93	1.70	1.45
23F896	46-102B	E	1/4	SPDT-BBM	Momentary	Blk	17/64	.890	1.327	2.26	1.93	1.70	1.45
23F918	46-110R	B	1/4	SPDT-MBB	Momentary	Red	17/64	.890	1.327	2.31	1.97	1.74	1.48
23F919	46-110B	B	1/4	SPDT-MBB	Momentary	Blk	17/64	.890	1.327	2.31	1.97	1.74	1.48
23F920	46-111R	E	1/4	SPDT-MBB	Momentary	Red	17/64	.890	1.327	2.42	2.06	1.82	1.55
23F921	46-111B	E	1/4	SPDT-MBB	Momentary	Blk	17/64	.890	1.327	2.42	2.06	1.82	1.55
23F899	46-200R	G	1/4	DPDT-BBM	Momentary	Red	17/64*	.921	1.56	4.57	3.89	3.43	2.93
23F898	46-200B	G	1/4	DPDT-BBM	Momentary	Blk	17/64	.921	1.56	4.57	3.89	3.43	2.93
57F2641	46-01-08-500-0303(R)	J	1/4	DPDT	Momentary	Red	.510 sq.	1.194	1.380	6.17	5.24	4.63	3.95
57F2644	46-05-05-502-0707(B)	F	1/4	SPDT-BBM	Momentary	Blk	.510 sq.	1.179	1.527	3.92	3.33	2.94	2.51
57F2645	46-05-05-502-0303(R)	F	1/4	SPDT-BBM	Momentary	Red	.510 sq.	1.179	1.527	3.92	3.33	2.94	2.51
57F2646	46-05-07-502-0707(B)	F	1/4	SPDT-BBM	Alt. action	Blk	.510 sq.	1.428	1.776	5.79	4.92	4.34	3.71
57F2647	46-05-07-502-0303(R)	F	1/4	SPDT-BBM	Alt. action	Red	.510 sq.	1.428	1.776	5.79	4.92	4.34	3.71
57F2648	46-05-08-502-0707(B)	F	1/4	DPDT-BBM	Momentary	Blk	.510 sq.	1.188	1.536	5.19	4.41	3.89	3.32
57F2649	46-05-08-502-030(R)	F	1/4	DPDT-BBM	Momentary	Red	.510 sq.	1.188	1.536	5.19	4.41	3.89	3.32
57F3790	39-250†	H	1/4	SPDT	Momentary	Red	.....	.....	.....	1.53	1.30	1.15	.98
57F3791	39-250†	H	1/4	SPDT	Momentary	Blk	.....	.....	.....	1.53	1.30	1.15	.98
57F3792	39-251#	H	1/4	SPDT	Momentary	Red	.....	.....	.....	1.28	1.09	.96	.82
57F3793	39-251#	H	1/4	SPDT	Momentary	Blk	.....	.....	.....	1.28	1.09	.96	.82
57F3794	SHH1065 Protective cap only.					Red	.....			.10	.09	.08	.07

* UL listed. (†) w. protective cap assem. (#) w/o protective cap.

Type 10-9: Wiping contact, .800" dia. x .668". **2201 and 2202:** Snap action, momentary; .880" dia. x .796". **23-1:** .468" dia. x .476". **Types 30-1 thru 30-15:** .375" dia. with 1/4-32 thread. **30-17:** Positive feel, 15/32-32 thd. **Series 30-01:** Front panel bezel mtg., square button; 1/2-32 thread. **30-05,** same but round button. **Type 35-1:** .800" dia. x .743". **Types 39-1, -2, -3:** Butt contact, .250" dia. **39-250** Butt contact with protective cap. **39-251.** Butt contact without protective cap. **46-01:** front panel bezel mtg., square button; **46-05,** same but round button. **46-200:** .453 x .625 x .734".

ACCESSORY ITEMS

DECORATIVE MNTG. NUT

.77" dia. .75" across flats. .12" Thk.
57F1514. 7C1040-1. NET 30

7C1040

BUTTON GUARD

.29" dia. by .41" deep.
23F496. 10C1015-1. NET 40

10C1015

BINDING POSTS

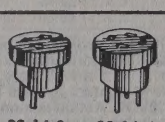
29-1: Standard posts rated 15 amps cont. at 120 VDC. **29-100:** Plunger type, extends only 7/8" above board, rated 20 amps at 120 VDC. Type **29-104** includes insulating washer.

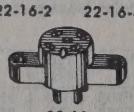
29-1 29-100

Stock No.	Type	Feature	Color	Mfg. Hole	Each 1-99	100-999	1000-1999	2000-2999
28F567	29-1B	Screw type	Black	3/8"	1.54	1.31	1.23	1.16
28F566	29-1R	Screw type	Red	3/8"	1.54	1.31	1.23	1.16
28F418	29-100B	Spring load	Black	11/64"	1.05	.89	.84	.79
28F417	29-100R	Spring load	Red	11/64"	1.05	.89	.84	.79
57F2650	29-110	Spring load	No cap	11/64"	1.00	.85	.80	.75
28F422	29-104B	Spring load	Black	25/64"	1.47	1.25	1.18	1.10
28F421	29-104R	Spring load	Red	25/64"	1.47	1.25	1.18	1.10

TRANSISTOR AND BI-PIN LAMP SOCKETS

Leads fit 100 mil grid for printed circuits. Wraparound contacts, silver plated beryllium copper with gold plate. Type **22-16-2** has hole and term. at position 4 omitted; **22-16-3** has hole and term. at position 3 omitted.

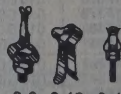

22-16-2 22-16-4


22-11

Stock No.	Type	Transistor Outline	No. Pins	Each 1-499	500-999
57F2654	22-16-2	TO-5, 9, 11, 16, 26, 29, 31 and 39	3	1.02	.87
28F632	22-11	TO-12 & 13	4	1.13	.96
28F633	22-16-3	Same as 22-16-2	3	1.02	.87
57F2655	22-16-4	TO-12 & 33	3	1.07	.91
57F2656	22-3	Bi-Pin Lamp	2	1.24	1.05

TEST CLIPS

For panel mounting on test equipment, to allow rapid connections without manual opening and closing of jaws. Hex nut for tension adjustment. Nickel plated brass metal parts, except steel threaded stud.


2-0 2-60 2-42

Stock No.	Type	Mounting	Overall Ht.	1-1999	2000-4999	5000-9999
28F550	2-0	Thrd. stud	1.59"	.70	.60	.53
28F414	2-20	Thrd. stud	1.16"	.70	.60	.53
57F2651	2-60	Tapped hole	1.14"	.60	.51	.45
28F624	2-41	Thrd. stud	.79"	.70	.60	.53
28F625	2-42	Double Clip	.79"	.75	.64	.56

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Rotary Switches

Grayhill INC.

SELECTING GRAYHILL ROTARY SWITCH

Fixed stop rotary switches are not in inventory, but adjustable rotary switches that follow are in Newark's stock. They provide the exact electrical properties and basic mechanical characteristics you need. You can readily obtain the right number of positions per pole for your application by a simple adjustment of stop washers or stop pins.

Adjustable stop feature available in following rotary switches: **1) 1" dia., multi-deck:** Use series 44D for 30° angle throw, 42D for 36° angle throw, prototyping and where series 5000 or 24 will be used for production. **2) ½" dia., single deck:** Use series 50D for 36, 45, 60° angles; series 51D for 30° angles. **3) ½" dia., multi-deck:** Use series 71D for 30° and 36° angles and for prototypes where series 8 or 9 will be used in production.

SERIES 42D AND 44D ADJUSTABLE STOP

1-AMP ROTARY SWITCHES

- **Make/Break 1 Amp at 115 VAC**
- **Carry 10 Amps at 115 VAC**
- **10 or 12 Positions**
- **1 to 4 Decks, 1 to 4 Poles**

Fully enclosed switches, interchangeable with fixed stop 42A and 44A series. Electrical ratings: make or break 1 amp, carry 10 amps at 115 VAC, resistive. Insulation resistance: 50,000 megohms initially, 10,000 megohms minimum. Non-shorting contacts. Bushing, ⅜-32 NEF. Depth behind panel: 1-deck, 1.025"; 2-deck, 1.371"; 3-deck, 1.717"; 4-deck, 2.063".

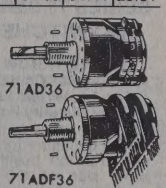
SERIES 42D. 10-position switch with 36° indexing. Diameter, 1.000". Shpg. wt. 1½ oz.

SERIES 44D. 12-position switch with 30° indexing. Diameter, 1.162". Shpg. wt., 1½ oz.

Stock No.	Type No.	Poles	Decks	Positions	1-9	10-24	25-49	50-99
57F1541	42D36-01-1-AJN	1	1	10	19.92	18.33	16.73	12.55
57F1544	42D36-01-2-AJN	2	1	10	20.78	19.12	17.46	13.09
57F1542	42D36-02-1-AJN	1	2	10	25.96	23.88	21.81	16.35
43F812	42D36-02-2-AJN	2	2	10	27.68	25.47	23.25	17.44
57F1545	44D30-01-1-AJN	1	1	12	20.65	19.00	17.35	13.01
57F1548	44D30-01-2-AJN	2	1	12	21.51	19.79	18.07	13.55
57F1546	44D30-02-1-AJN	1	2	12	27.43	25.24	23.04	17.28
43F815	44D30-02-2-AJN	2	2	12	29.15	26.82	24.49	18.36
57F1547	44D30-03-1-AJN	1	3	12	34.20	31.46	28.73	21.55
43F817	44D30-03-2-AJN	2	3	12	36.78	33.84	30.90	23.17
43F819	44D30-04-1-AJN	1	4	12	40.97	37.69	34.41	25.81

SERIES 71 ADJUSTABLE STOP

Behind panel distance approx. ¾" for one deck switch and 1" for two deck. Gold plated contact systems. Adj. stops provided. Adjust by relocating stop pins at front of switch. Stops held in place by mylar sticker. Provide form, fit and function equivalents to their fixed stop counterparts. 8th digit in type number represents the number of decks, 9th digit the number of poles.



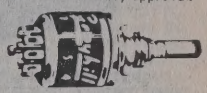
Stock No.	Type No.	Shft. Dia.	Positions	1-9	10-24	25-49	50-99
57F3744	71AD36-01-1-AJN	⅛	10	10.75	9.89	9.03	6.77
57F3745	71AD36-01-2-AJN	⅛	5	11.20	10.30	9.41	7.06
57F3746	71AD36-02-1-AJN	⅛	10	14.15	13.02	11.89	8.91
57F3747	71AD36-02-2-AJN	⅛	5	15.07	13.96	12.66	9.49
57F3748	71AD30-01-1-AJN	⅛	12	10.75	9.89	9.03	6.77
57F3749	71AD30-01-2-AJN	⅛	6	11.20	10.30	9.41	7.06
57F3750	71AD30-02-1-AJN	⅛	12	14.15	13.02	11.89	8.91
57F3751	71AD30-02-2-AJN	⅛	6	15.07	13.86	12.62	9.49
57F3752	71BD36-01-1-AJN	¼	10	10.75	9.89	9.03	6.77
57F3753	71BD36-01-2-AJN	¼	5	11.20	10.30	9.41	7.06
57F3754	71BD36-02-1-AJN	¼	10	14.15	13.02	11.89	8.91
57F3755	71BD36-02-2-AJN	¼	5	15.07	13.86	12.62	9.49
57F3756	71BD30-01-1-AJN	¼	12	10.75	9.89	9.03	6.77
57F3757	71BD30-01-2-AJN	¼	6	11.20	10.30	9.41	7.06
57F3758	71BD30-02-1-AJN	¼	12	14.15	13.02	11.89	8.91
57F3759	71BD30-02-2-AJN	¼	6	15.07	13.86	12.62	9.49
	PRINTED CIRCUIT TERMINALS						
				1-9	10-24	25-49	50-99
57F3760	71ADF36-01-1-AJN	⅛	10	11.83	10.88	9.94	7.45
57F3761	71ADF36-01-2-AJN	⅛	5	12.28	11.30	10.32	7.74
57F3762	71ADF36-02-1-AJN	⅛	10	16.49	15.17	13.85	10.39
57F3763	71ADF36-02-2-AJN	⅛	5	17.40	16.01	14.62	10.96
57F3764	71ADF30-01-1-AJN	⅛	12	11.83	10.88	9.94	7.45
57F3765	71ADF30-01-2-AJN	⅛	6	12.28	11.30	10.32	7.74
57F3766	71ADF30-02-1-AJN	⅛	12	16.49	15.17	13.85	10.39
57F3767	71ADF30-02-2-AJN	⅛	6	17.40	16.01	14.62	10.96
57F3768	71BDF36-01-1-AJN	¼	10	11.83	10.88	9.94	7.45
57F3769	71BDF36-01-2-AJN	¼	5	12.28	11.30	10.32	7.74
57F3770	71BDF36-02-1-AJN	¼	10	16.49	15.17	13.85	10.39
57F3771	71BDF36-02-2-AJN	¼	5	17.40	16.01	14.62	10.96
57F3772	71BDF30-01-1-AJN	¼	12	11.83	10.88	9.94	7.45
57F3773	71BDF30-01-2-AJN	¼	6	12.28	11.30	10.32	7.74

Chart indicates rotary switch series (1st one or two numbers), style (letters), and angle of throw (last two numbers) of fixed-stop and adjustable-stop rotary switches.

Fixed Stop	Adj. Stop	Fixed Stop	Adj. Stop	Fixed Stop	Adj. Stop
8A36	71AD36	50MP36	50MPD36	51S30	51MD30
9A30	71AD30	50P36	50CDP36	51SP30	51MPD30
42A36	42D36	50S36	50MD36	71A30	71AD30
42M36	42D36	50SP36	50MPD36	71A36	71AD36
44A30	44D30	51A30	51CD30	71AF30	71ADF30
44M30	44D30	51C30	51CD30	71AF36	71ADF36
50A36	50CD36	51CP30	51CDP30	71B30	71BD30
50C36	50CD36	51M30	51MD30*	71B36	71BD36
50CP36	50CDP36	51MP30	51MPD30*	71BF30	71BDF30
50M36	50MD36	51P30	51CDP30	71BF36	71BDF36

(*)51MD, 51MDP. Qualified to MIL-S-3786. Other than these, adjustable stop type not qualified and should not be used in equipment submitted for Military approval.

SERIES 50 AND 51 ADJUSTABLE STOP ROTARY TAP SWITCHES



SERIES 50. Single deck, 10-position switch with 36° indexing. "CD" commercial types have no seals, phenolic base. "MD" military types have integral shaft and panel seal, diallyl phthalate base, meet MIL-S-3786 SR20 requirements. Contact resistance, 10 milliohms initially, 50 milliohms max. Non-shorting. ½" dia.; .617" behind panel.

SERIES 51. Similar to above except 12-position (30° indexing). 9/16" diameter. "MD" types meet MIL-S-3786 SR35.

Stock No.	Type No.	Poles	Positions	1-9	10-24	25-49
57F1537	50CD36-01-1-AJN	1	10	14.84	13.65	12.47
57F1538	50CD36-01-2-AJN	2	10	18.92	17.41	15.89
57F1539	50MD36-01-1-AJN	1	10	15.62	14.37	13.12
57F1540	50MD36-01-2-AJN	2	10	19.18	17.65	16.11
43F820	51CD30-01-1-AJN	1	12	15.55	14.31	13.06
43F821	51CD30-01-2-AJN	2	12	19.48	17.92	16.36
57F1592	51MD30-01-1-AJN	1	12	16.40	15.09	13.78
43F822	51MD30-01-2-AJN	2	12	19.79	18.21	16.62
	PRINTED CIRCUIT TERMINALS					
57F3736	50CDP36-01-1-AJN	1	10	15.34	14.11	12.89
57F3737	50CDP36-01-2-AJN	2	5	19.42	17.87	16.31
57F3738	50MDP36-01-1-AJN	1	10	16.19	14.89	13.60
57F3739	50MDP36-01-2-AJN	2	5	19.42	17.87	16.31
57F3740	51CDP30-01-1-AJN	1	12	16.05	14.77	13.48
57F3741	51CDP30-01-2-AJN	2	6	19.98	18.38	16.78
57F3742	51MDP30-01-1-AJN	1	12	16.90	15.55	14.20
57F3743	51MDP30-01-2-AJN	2	6	20.29	18.67	17.04

SERIES 19 POWER ROTARY SWITCHES

U.L. LISTED—15 AMPS

- **2 to 11 Positions—30° Indexing**
- **Life in Excess of 50,000 Cycles**
- **Solder or "Faston" Terminals**

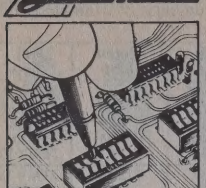
Single pole, single deck rotary tap switches. Non-shorting contacts with 15 amp, 125 VAC resistive rating. Contact resistance, .010 ohm approx. for new switch, measured at 2 VDC and 100 mA. Insulation resistance, approx. 100,000 megohms. Breakdown between mutually insulated parts, 2500 VAC. Contact force, approx. 12 oz. Solder terminals with .125" wire hole, or "Faston" terminals with .080" wire hole. 2 to 11 positions. Wt., 1¾ oz.

Stock No.	Type No.	Taps	Terminals	1-9	10-24	25-49
43F800	19001-2UL	2	Solder	11.75	10.81	9.87
43F801	19001-3UL	3	Solder	12.38	11.39	10.40
43F802	19001-4UL	4	Solder	13.01	11.97	10.93
43F803	19001-5UL	5	Solder	13.64	12.55	11.46
43F804	19001-6UL	6	Solder	14.27	13.13	11.99
43F805	19001-7UL	7	Solder	14.90	13.71	12.52
43F806	19001-8UL	8	Solder	15.53	14.29	13.05
43F807	19001-9UL	9	Solder	16.16	14.87	13.57
43F808	19001-10UL	10	Solder	16.79	15.45	14.10
43F809	19001-11UL	11	Solder	17.42	16.03	14.63
57F1500	19101-2UL	2	Faston	11.75	10.81	9.87
57F1501	19101-3UL	3	Faston	12.38	11.39	10.40
57F1502	19101-4UL	4	Faston	13.01	11.97	10.93
57F1503	19101-5UL	5	Faston	13.64	12.55	11.46
57F1504	19101-6UL	6	Faston	14.27	13.13	11.99
57F1505	19101-7UL	7	Faston	14.90	13.71	12.52
57F1506	19101-8UL	8	Faston	15.53	14.29	13.05
57F1507	19101-9UL	9	Faston	16.16	14.87	13.57
57F1508	19101-10UL	10	Faston	16.79	15.45	14.10
57F1509	19101-11UL	11	Faston	17.42	16.03	14.63

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

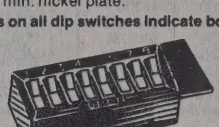
Switches

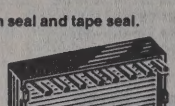
SERIES 76 ROCKER DIP SWITCHES

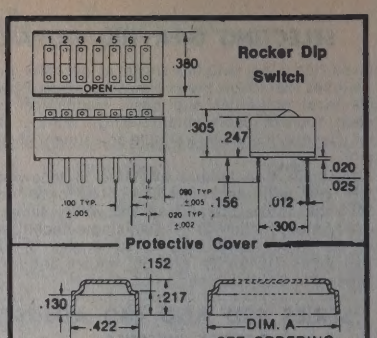


Spring loaded sliding ball contact system for positive positioning and high resistance to shock and vibration. Molded-in terminals protect against contact contamination. Easily mounted to PC board by direct-flow soldering or insertion into standard socket. Even switch independent. Current Rating: 35,000 oper. @ 50 MA 30VDC; 25,000 oper. @ 125 MA 30 VDC. Molded thermoplastic polyester cover, base and base-plate. Brass shorting bar with gold .00001" min. over .00006" min. nickel plate.

Suffixes on all dip switches indicate bottom seal and tape seal.







SPST PIANO DIP SIDE ACTUATED

Stock No.	Type 76-	Rck.	Lgth. (in.)	1-9	10-24	25-49	50-99
47F036	PSB04	4	.48	3.65	3.36	3.07	2.89
47F037	PSB05	5	.58	3.70	3.41	3.11	2.93
47F038	PSB06	6	.68	3.80	3.50	3.20	3.01
47F039	PSB07	8	.78	3.90	3.59	3.28	3.09
47F040	PSB08	8	.88	3.95	3.64	3.32	3.13
47F041	PSB09	9	.98	4.10	3.78	3.45	3.24
47F042	PSB10	10	1.08	4.25	3.91	3.57	3.36

BOTTOM SEAL AND TAPE SEAL SPST RECESSED ROCKER DIP SWITCHES

Stock No.	Type 76-	Lgth. (in.)	Rck.	1-9	10-24	25-49	50-99
55F5016	RSB02S	.28	2	3.10	2.86	2.45	1.86
55F5017	RSB03S	.38	3	3.20	2.95	2.53	1.92
55F5018	RSB04S	.48	4	3.30	3.04	2.61	1.98
55F5019	RSB05S	.58	5	3.40	3.13	2.69	2.04
55F5020	RSB06S	.68	6	3.50	3.22	2.77	2.10
55F5021	RSB07S	.78	7	3.55	3.27	2.81	2.13
55F5022	RSB08S	.88	8	3.65	3.36	2.89	2.19
55F5023	RSB09S	.98	9	3.75	3.45	2.97	2.25
55F5024	RSB10S	1.08	10	3.80	3.50	3.01	2.28

BOTTOM SEAL AND TAPE SEAL SPST RAISED ROCKER DIP SWITCHES

Stock No.	Type 76-	Rck.	Lgth. (in.)	1-9	25-49	50-99	100-499
55F5000	SB02S	2	.28	3.10	2.86	2.45	1.55
55F5001	SB03S	3	.38	3.20	2.95	2.53	1.60
55F5002	SB04S	4	.48	3.30	3.04	3.04	1.65
55F5003	SB05S	5	.58	3.40	3.13	3.13	1.70
55F5004	SB06S	6	.68	3.50	3.22	2.10	1.75
55F5005	SB07S	7	.78	3.55	3.27	2.13	1.78
55F5006	SB08S	8	.88	3.65	3.36	2.19	1.83
55F5007	SB09S	9	.98	3.75	3.45	2.25	1.88
55F5008	SB10S	10	1.08	3.80	3.50	2.28	1.90

SPST RAISED ROCKER DIP SWITCHES

Stock No.	Type 76-	Rck.	Lgth. (in.)	1-9	25-49	50-99	100-499
28F1450	SB02	2	.28	2.90	2.67	1.74	1.45
28F1451	SB03	3	.38	3.00	2.76	1.80	1.50
28F1452	SB04	4	.48	3.10	2.86	1.86	1.55
28F1453	SB05	5	.58	3.20	2.95	1.92	1.60
28F1454	SB06	6	.68	3.30	3.04	1.98	1.65
28F1455	SB07	7	.78	3.35	3.09	2.01	1.68
28F1456	SB08	8	.88	3.45	3.18	2.07	1.73
28F1457	SB09	9	.98	3.55	3.27	2.13	1.78
27F1458	SB10	10	1.08	3.60	3.32	2.16	1.80

SPST PROTECTIVE COVERS

Stock No.	Type 76-	No. of Rkrs.	Lgth. (in.)	1-9	10-24	25-49	50-99
25F780	P02	.332	2				
25F781	P03	.423	3				
25F782	P04	.522	4				
25F783	P05	.622	5				
25F784	P06	.722	6				
25F785	P07	.822	7	.15	.14	.13	.12
25F786	P08	.922	8				
25F787	P09	1.022	9				
25F788	P10	1.122	10				

DRDT Types 76C02 uses 76P03. 76C03 uses 76P05. 76C04 uses 76P07.

SPDT ROCKER DIP SWITCHES

Stock No.	Type 76-	Lgth. (in.)	Rck.	1-9	10-24	25-49	50-99
57F3774	C02	.360	2	3.70	3.41	3.11	2.93
57F3775	C03	.580	3	3.95	3.64	3.32	3.13
57F3776	C04	.780	4	4.25	3.91	3.59	3.36

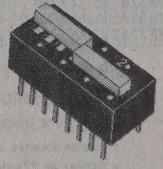
BOTTOM SEAL AND TAPE SEAL SPST-SIDE ACTUATED

Stock No.	Type 76-	Rck.	Lgth. (in.)	1-9	10-24	25-49	50-99
55F5009	PSB04S	4	.48	3.85	3.55	3.24	3.05
55F5010	PSB05S	5	.58	3.90	3.59	3.28	3.09
55F5011	PSB06S	6	.68	4.00	3.68	3.36	3.16
55F5012	PSB07S	7	.78	4.10	3.78	3.45	3.24
55F5013	PSB08S	8	.88	4.15	3.82	3.49	3.28
55F5014	PSB09S	9	.98	4.30	3.96	3.62	3.40
55F5015	PSB10S	10	1.08	4.45	4.10	3.74	3.52

DOUBLE THROW SWITCHES

- **Circuitry and Pinouts Common to the Industry**
- **Tied Adjacent Opposing Circuits for Double Throw Action**

All double throw switches have alternately opposed circuits which are actually 2 completely separate circuit paths. A cap ties the slide actuators of both circuits together thus providing double throw. True double throw circuitry is achieved by tying selected terminals on the PC board for a common. The "ON" position of each circuit is indicated by a dot on the cover.



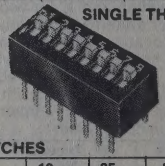
DOUBLE THROW

SERIES 78 SLIDE DIP SWITCHES

SINGLE THROW SWITCHES

- **Sliding Ball Contact System**
- **Top Access and Easy Actuation**
- **Many Circuitry Possibilities**

All single throw switches have an in-line configuration in which the closed on "on" positions are on the same side of the package, as marked on the switch cover.



SINGLE THROW

SPST RAISED SLIDE DIP SWITCHES

Stock No.	Type 78	No. of Act.	Lgth. (in.)	1-9	10-24	25-49	50-99
81F9139	B02	2	.280	2.90	2.67	2.30	1.74
81F9140	B02S	2	.280	3.10	2.86	2.45	1.86
81F9141	B03	3	.380	3.00	2.76	2.37	1.80
81F9142	B03S	3	.380	3.20	2.95	2.53	1.92
81F9143	B04	4	.480	3.10	2.86	2.45	1.86
81F9144	B04S	4	.480	3.30	3.04	2.61	1.98
81F9145	B05	5	.580	3.20	2.95	2.53	1.92
81F9146	B05S	5	.580	3.40	3.13	2.69	2.04
81F9147	B06	6	.680	3.30	3.04	2.61	1.98
81F9148	B06S	6	.680	3.50	3.22	2.77	2.10
81F9149	B07	7	.780	3.35	3.09	2.65	2.01
81F9150	B07S	7	.780	3.55	3.27	2.81	2.13
81F9151	B08	8	.880	3.45	3.18	2.73	2.07
81F9152	B08S	8	.880	3.65	3.36	2.89	2.19
81F9153	B09	9	.980	3.55	3.27	2.81	2.13
81F9154	B09S	9	.980	3.75	3.45	2.97	2.25
81F9155	B10	10	1.080	3.60	3.32	2.85	2.16
81F9156	B10S	10	1.080	3.80	3.50	3.01	2.28

DPST SLIDE DIP SWITCHES

Stock No.	Type 78	No. of Act.	Lgth. (in.)	1-9	10-24	25-49	50-99
81F9157	F01	1	.280	3.95	3.64	3.13	2.37
81F9158	F01S	1	.280	4.15	3.82	3.28	2.49
81F9159	F02	2	.480	4.20	3.87	3.32	2.52
81F9160	F02S	2	.480	4.40	4.05	3.48	2.64
81F9161	F03	3	.680	4.40	4.05	3.48	2.64
81F9162	F03S	3	.680	4.60	4.24	3.64	2.76
81F9163	F04	4	.880	4.65	4.28	3.68	2.79
81F9164	F04S	4	.880	4.85	4.47	3.84	2.91
81F9165	F05	5	1.080	4.85	4.47	3.84	2.91
81F9166	F05S	5	1.080	5.05	4.65	3.99	3.03

3PST SLIDE DIP SWITCHES

Stock No.	Type 78	No. of Act.	Lgth. (in.)	1-9	10-24	25-49	50-99
81F9167	G01	1	.380	4.15	3.92	3.28	2.49
81F9168	G01S	1	.380	4.35	4.01	3.44	2.61
81F9169	G02	2	.680	4.40	4.05	3.48	2.64
81F9170	G02S	2	.680	4.60	4.24	3.64	2.76
81F9171	G03	3	.980	4.70	4.33	3.72	2.82
81F9172	G03S	3	.980	4.90	4.51	3.88	2.94

4PST SLIDE DIP SWITCHES

Stock No.	Type 78	No. of Act.	Lgth. (in.)	1-9	10-24	25-49	50-99
81F9173	H01	1	.480	4.20	3.87	3.32	2.52
81F9174	H01S	1	.480	4.40	4.05	3.48	2.64
81F9175	H02	2	.880	4.65	4.28	3.68	2.79
81F9176	H02S	2	.880	4.85	4.47	3.84	2.91

SPDT SLIDE DIP SWITCHES

Stock No.	Type 78	No. of Act.	Lgth. (in.)	1-9	10-24	25-49	50-99
81F9177	J01	1	.280	4.90	4.51	3.88	2.94
81F9178	J01S	1	.280	5.10	4.70	4.03	3.06
81F9179	J02	2	.480	5.10	4.70	4.03	3.06
81F9180	J02S	2	.480	5.30	4.88	4.19	3.18
81F9181	J03	3	.680	5.35	4.93	4.23	3.21
81F9182	J03S	3	.680	5.55	5.11	4.39	3.07
81F9183	J04	4	.880	5.60	5.16	4.43	3.36
81F9184	J04S	4	.880	5.80	5.34	4.59	3.48
81F9185	J05	5	1.080	7.00	6.44	5.53	4.20
81F9186	J05S	5	1.080	7.20	6.63	5.69	4.32

DPDT SLIDE DIP SWITCHES

Stock No.	Type 78	No. of Act.	Lgth. (in.)	1-9	10-24	25-49	50-99
81F9187	K01	1	.480	7.20	6.63	5.69	4.32
81F9188	K01S	1	.480	7.40	6.81	5.85	4.44
81F9189	K02	2	.880	7.80	7.18	6.17	4.68
81F9190	K02S	2	.880	8.00	7.36	6.32	4.80

Number of activators column indicates positions, not switches.

SWITCHES AND RELAYS

PUSH BUTTON SWITCH MODULES

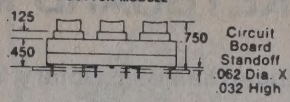
For prototype and small quantity usage. Clear protective cap slotted on one side to allow insertion of clear plastic tab imprinted with legend. Legend sheet has all normally required legends for both vertical and horizontal mounting. Rating @ 5 VDC: 100 milliamps. Contact Resistance: 25 milliohms or less. Voltage Breakdown: 250 VAC between mutually isolated parts. Insulation Resistance: 1,000 megohms min. Life expectancy: 1,500,000 operations.

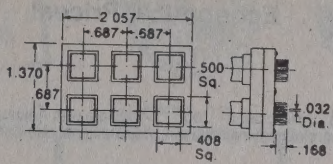
Stock No.	Type 82-	Buttons	Switch	1-49	50-99	100-499	500-999
57F3781	101-71	1	SPST	2.00	1.70	1.50	1.28
57F3782	101-74	1	4PST	2.35	2.00	1.77	1.51
57F3783	201-41	2	SPST	3.30	2.81	2.48	2.12
57F3784	201-44	2	4PST	3.95	3.36	2.97	2.53
57F3785	301-61	3	SPST	4.55	3.87	3.42	2.92
57F3786	301-64	3	4PST	5.55	4.72	4.17	3.56
57F3787	601-81	6	SPST	8.40	7.14	6.30	5.38
57F3788	601-84	6	4PST	10.40	8.84	7.80	6.66

LEGEND SHEET

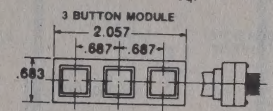
Stk. No.	Type 82	1-49	50-99	100-499	500-999
57F3789	AC2017-1	1.25	1.07	.94	.80

6 BUTTON MODULE

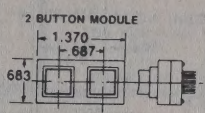




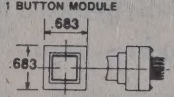
3 BUTTON MODULE



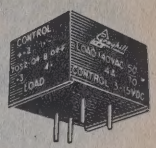
2 BUTTON MODULE



1 BUTTON MODULE



MINI CUBE SOLID STATE RELAYS



- Optically Isolated
- Zero Voltage Turn-On

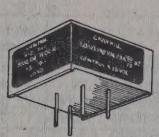
Switches from 0.1 to 4 amps. Rated at 25°C, no derating to actual operating temperature. Measure 1.0" x 1.2" x 0.85"—occupying only 1 cubic inch and ⅓ the board space of old-style relays. Can be used directly with TTL, DTL, CMOS and other logic circuits—no intermediate driver necessary. Control circuit takes less than 5 mA drain with typical 5 volt logic circuit. Optical isolation for coupling the control and power circuits. Theoretically infinite life span. Zero voltage turn on and zero current turn off prevent the 'feedback' of spurious pulses into logic circuit when relay is turned on or off. 3000 volt per microsecond transient protection. Designed for PC board mounting.

Stock No.	Type 70S2-	Volt Range	1-9	10-24	25-49	50-99
57F3777	04-B-04-F	3-15	15.00	12.00	10.80	9.90
57F3778	05-B-04-F	14-30	15.00	12.00	10.80	9.90
57F3779	04-C-04-F	3-15†	16.45	13.16	11.84	10.86
57F3780	05-C-04-F	14-30†	16.45	13.16	11.84	10.86

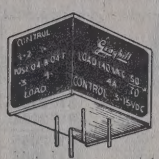
50 to 140 VAC, except (†)100 to 240 VAC

Optically Isolated Miniature Solid State Relays

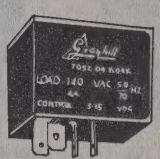
- DC Control of AC Loads to 4 Amps
- Package Requires Minimum of Space
- PC Mount or Plug-In With Integral Heat Sink
- All Units Include Zero Voltage Turn-On and Transient Protection
- Logic Compatible, Responds to Low Level Voltage and Current
- UL Recognized, File No. E58632
- CSA Recognized, File No. LR 38763



Micro Cube Potted Package PC Mount, Style H



Mini Cube Potted Package PC Mount, Style F

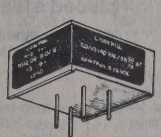


Mini Cube Potted Package Plug-In Style K

Stock No.	Part No. 70S2-	Style	Nom. Load Voltage VAC	Control Voltage Range VDC	1-9	10-24	25-49	50-99	100-249
81F111	04-B-02-H	H	120	3-15	15.25	12.20	10.98	10.07	9.15
81F112	05-B-02-H	H	120	14-30	15.25	12.20	10.98	10.07	9.15
81F113	04-C-02-H	H	220	3-15	16.65	13.32	11.99	10.99	9.99
81F114	05-C-02-H	H	220	14-30	16.65	13.32	11.99	10.99	9.99
81F115	04-D-02-H	H	24	3-15	15.25	12.20	10.98	10.07	9.15
81F116	05-D-02-H	H	24	14-30	15.25	12.20	10.98	10.07	9.15
81F121	04-D-04-F	F	24	3-15	15.00	12.00	10.80	9.90	9.00
81F122	05-D-04-F	F	24	14-30	15.00	12.00	10.80	9.90	9.00
81F123	04-B-04-K	K	120	3-15	15.80	12.64	11.38	9.80	9.48
81F124	05-B-04-K	K	120	14-30	15.80	12.64	11.38	9.80	9.48
81F125	04-C-04-K	K	220	3-15	17.25	13.80	12.42	11.39	10.35
81F126	05-C-04-K	K	220	14-30	17.25	13.80	12.42	11.39	10.35
81F127	04-D-04-K	K	24	3-15	15.80	12-64	11.38	9.80	9.48
81F128	05-D-04-K	K	24	14-30	15.80	12.64	11.38	9.80	9.48

DC to DC Solid State Relay

- Logic Compatible—Sensitive to 3 to 24 VDC Inputs
- 400 MA or 2 Amp Maximum Load Current
- Wide Operating Range, 3 to 50 VDC
- Occupies a Minimum of Space
- DIP Compatible PC Mount or Plug-In Termination
- Optical Isolation Protects Your Logic Circuitry
- Zener Clamped Output Provides Excellent Transient Immunity
- Minimal Turn-On Time



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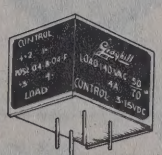

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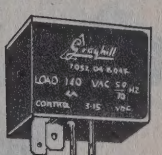


K

Stock No.	Part No. 70S2-	Style	Control Voltage Range VDC	Max. Load Current	1-9	10-24	25-49	50-99	100-249
81F129	01-A-A5-H	H	3-10	400MA	14.65	13.48	12.31	11.58	10.26
81F130	02-A-A5-H	H	10-24	400MA					
81F131	01-A-A5-F	F	3-10	400MA					
81F132	02-A-A5-F	F	10-24	400MA					
81F133	01-A-02-F	F	3-10	2 Amps	16.45	15.14	13.82	13.00	11.52
81F134	02-A-02-F	F	10-24	2 Amps					
81F135	01-A-A5-K	K	3-10	400MA	15.85	14.59	13.32	12.53	11.10
81F136	02-A-A5-K	K	10-24	400MA					
81F137	01-A-02-K	K	3-10	2 Amps	17.60	16.20	14.79	13.91	12.32
81F138	02-A-02-K	K	10-24	2 Amps					

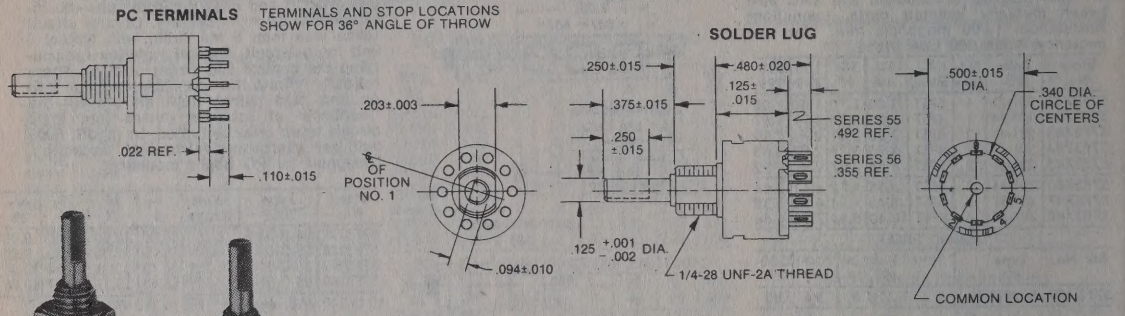
LOW COST ROTARY SWITCHES AND KEYBOARD MODULES

NEW

Quality ½ Inch Diameter Rotary Switches at Economical Prices!

Rated at 200 MA. For 10,000 cycles of operation. End of life criteria—100 milliohms maximum contact resistance, 10,000 megohms minimum insulation resistance and 600 VAC minimum voltage breakdown.

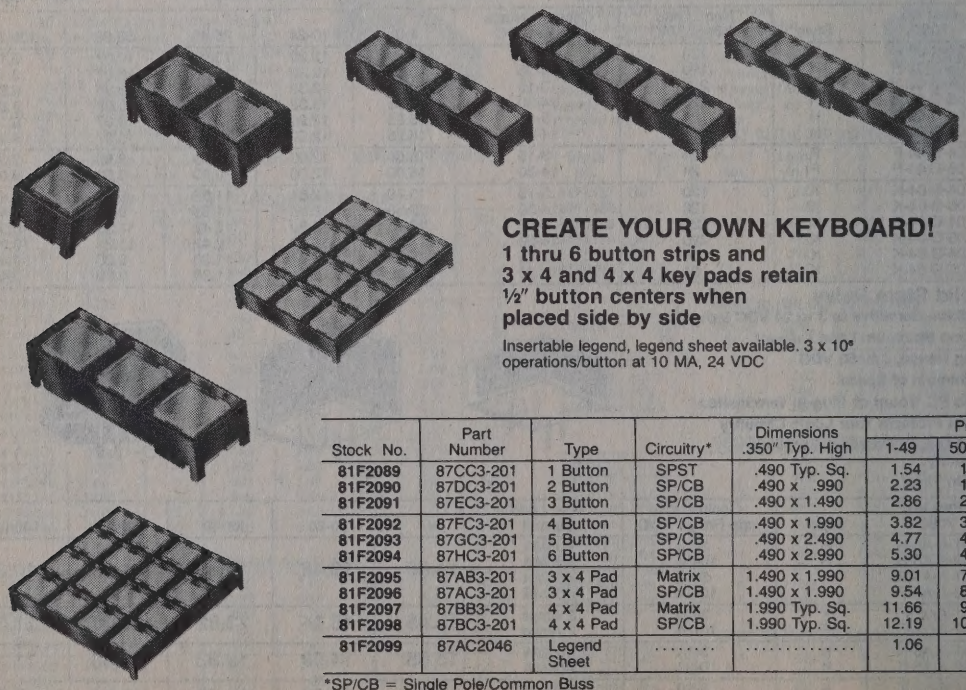
Available with Adjustable Stops, 1 pole, 30° (2 thru 12 positions) or 36° (2 thru 10 positions), Non-shorting Contacts, Solder Lug or PC Terminals



Series 55
0.492" behind panel (excluding terminals)

Series 56
0.355" behind panel (excluding terminals)

Stock No.	Type	Max. Pos. Each Pole	Poles Per Deck	Terminals		Price		
				Solder Lug	PC	1-9	10-24	25-49
81F2081	55D30-01-1-AJN	12	1	X		7.75	7.13	6.51
81F2082	55D36-01-1-AJN	10	1	X		7.50	6.90	6.30
81F2083	55DP30-01-1-AJN	12	1		X	8.00	7.36	6.72
81F2084	55DP36-01-1-AJN	10	1		X	7.75	7.13	6.51
81F2085	56D30-01-1-AJN	12	1	X		7.75	7.13	6.51
81F2086	56D36-01-1-AJN	10	1	X		7.50	6.90	6.30
81F2087	56DP30-01-1-AJN	12	1		X	8.00	7.36	6.72
81F2088	56DP36-01-1-AJN	10	1		X	7.75	7.13	6.51



CREATE YOUR OWN KEYBOARD!

1 thru 6 button strips and 3 x 4 and 4 x 4 key pads retain ½" button centers when placed side by side

Insertable legend, legend sheet available. 3 x 10⁸ operations/button at 10 MA, 24 VDC

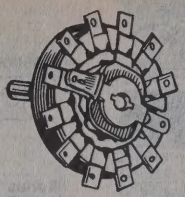
Stock No.	Part Number	Type	Circuitry*	Dimensions .350" Typ. High	Prices 1-49	50-99	100-499
81F2089	87CC3-201	1 Button	SPST	.490 Typ. Sq.	1.54	1.31	1.16
81F2090	87DC3-201	2 Button	SP/CB	.490 x .990	2.23	1.90	1.68
81F2091	87EC3-201	3 Button	SP/CB	.490 x 1.490	2.86	2.44	2.15
81F2092	87FC3-201	4 Button	SP/CB	.490 x 1.990	3.82	3.25	2.87
81F2093	87GC3-201	5 Button	SP/CB	.490 x 2.490	4.77	4.06	3.58
81F2094	87HC3-201	6 Button	SP/CB	.490 x 2.990	5.30	4.51	3.98
81F2095	87AB3-201	3 x 4 Pad	Matrix	1.490 x 1.990	9.01	7.66	6.76
81F2096	87AC3-201	3 x 4 Pad	SP/CB	1.490 x 1.990	9.54	8.11	7.16
81F2097	87BB3-201	4 x 4 Pad	Matrix	1.990 Typ. Sq.	11.66	9.92	8.75
81F2098	87BC3-201	4 x 4 Pad	SP/CB	1.990 Typ. Sq.	12.19	10.37	9.15
81F2099	87AC2046	Legend Sheet	.....	.....	1.06	.91	.80

*SP/CB = Single Pole/Common Buss

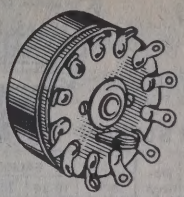
Power Tap Switches

OHMITE

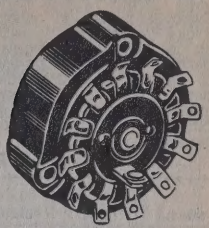
MODEL 711
Smallest Switch for Its Rating
7 Amps, 125 Volts



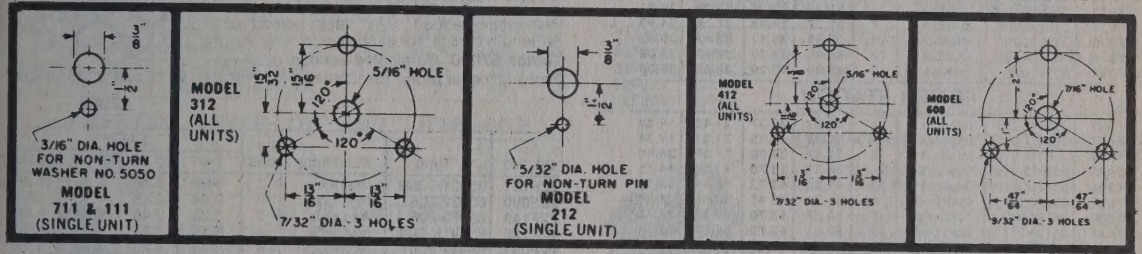
MODEL 111



MODEL 212



MODEL 312



POWER TAP SWITCHES, HI CURRENT, NON-SHORTING TYPE

MODEL 711 — 7 AMPS, 125 VOLTS

Alternating Current Rating **7 Amps. 125 Volts** — Diameter 1-1/8" — Shaft Diameter 1/4" — Standard Mounting: For 1/8" panel maximum, by means of 3/8"-32 threaded bushing and hex. nut. Weight, single unit: .047 lb. approximately. Dual purpose terminals accept 3/16" quick-connectors as well as soldering. Non-turn lug can be positioned at "12, 3, 6, and 9 o'clock."

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1999	3	60°	711-3	11.78	10.02	7.86
28F2000	4	90°	711-4	12.47	10.57	8.33
28F2001	5	120°	711-5	13.13	11.13	8.81
28F2002	6	150°	711-6	13.79	11.74	9.23
28F2003	8	210°	711-8	15.11	12.86	10.12
28F2004	10	270°	711-10	16.42	13.99	11.02
28F2005	11	300°	711-11	17.02	14.48	11.39

MODEL 111 — 15 AMPS, 125 VOLTS

Alternating Current Rating **15 Amps. 125 Volts** — Diameter 1-3/4" — Shaft Diameter 1/4" — Standard Mounting: For 1/4" panel maximum, by means of 3/8"-32 threaded bushing and hex. nut. Weight, single unit: .16 lb. approximately.

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1970	3	60°	111-3	10.40	8.86	6.98
28F1971	4	90°	111-4	10.84	9.22	7.29
28F1972	5	120°	111-5	11.23	9.55	7.51
28F1973	6	150°	111-6	11.74	9.97	7.83
28F1974	7	180°	111-7	12.12	10.31	8.12
28F1975	8	210°	111-8	12.69	10.81	8.52
28F1976	9	240°	111-9	13.21	11.23	8.86
28F1977	10	270°	111-10	13.60	11.56	9.09
28F1978	11	300°	111-11	13.94	11.84	9.33

MODEL 312 — 30 AMPS, 300 VOLTS

Alternating Current Rating **30 Amps. 300 Volts** — 150V A.C. between taps — Diameter 3 5/16" — Shaft Diameter 1/4" — Standard Mounting: For 1/4" panel maximum, three No. 10-32 flat-head machine screws 3/8" long. Weight, single unit: .75 lb. approx.

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1989	3	60°	312-3	26.24	22.30	17.57
28F1990	4	90°	312-4	26.78	22.77	17.94
28F1991	5	120°	312-5	27.22	23.14	18.23
28F1992	6	150°	312-6	28.25	24.02	18.94
28F1993	7	180°	312-7	29.48	25.07	19.75
28F1994	8	210°	312-8	30.51	25.91	20.46
28F1995	9	240°	312-9	31.73	26.96	21.23
28F1996	10	270°	312-10	32.73	27.84	21.95
28F1998	12	330°	312-12	34.78	29.57	23.33

MODEL 212 — 20 AMPS, 150 VOLTS

Alternating Current Rating **20 Amps. 150 Volts** — Diameter 2-1/4" — Shaft Diameter 1/4" — Standard Mounting: For 1/4" panel maximum, by means of 3/8"-32 threaded bushing and hex. nut. Tandem Mounting for 1/4" panel maximum, three No. 10-32 flat-head machine screws 3/8" long. Weight, single unit: .4 lb. approximately.

Stk. No.	No. of Taps	Total Rotation	Type	1-4	5-9	10-Up
28F1979	3	60°	212-3	22.33	18.96	14.95
28F1981	5	120°	212-5	23.55	20.02	15.78
28F1982	6	150°	212-6	24.53	20.84	16.42
28F1986	10	270°	212-10	27.01	22.93	18.09
28F1987	11	300°	212-11	27.28	23.18	18.28
28F1988	12	330°	212-12	27.55	23.46	18.49

MODEL 412 TAP SWITCH

Alternating Current Rating 50 Amps. 300 Volts—150V. A.C. between taps—Diameter 4 3/16"—Shaft Diameter 1/4"—Standard Mounting: For 1/4" panel maximum three No. 10-32 flat-head machine screws 3/8" long
Weight, single unit: 1.4 lbs. approx.

Single Unit 2 1/16"

Stock No.	Type	No. of Taps	Total Rotation	1-4	5-9	10-Up
81F4782	412-3	3	60°	33.21	28.21	22.26
81F4783	412-4	4	90°	35.35	30.05	23.70
81F4784	412-5	5	120°	37.21	31.63	24.94
81F4785	412-6	6	150°	39.34	33.45	26.36
81F4786	412-7	7	180°	41.19	35.01	27.60
81F4787	412-8	8	210°	43.34	36.83	29.03
81F4788	412-9	9	240°	45.20	38.43	30.28
81F4789	412-10	10	270°	47.35	40.23	31.70
81F4790	412-11	11	300°	49.18	41.80	32.96
81F4791	412-12	12	330°	51.14	43.47	34.26

MODEL 608 TAP SWITCH

Alternating Current Rating 100 Amps. 300 Volts—Diameter 6"—Shaft Diameter 3/8"—Standard Mounting: For 1" panel maximum, three flat-head machine screws 1/4"-20 x 1 1/4". Weight, single unit: 5 lbs. approx.

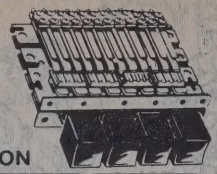
Stock No.	Type	No. of Taps	Total Rotation	1-4	5-Up
81F4792	608-3	3	80°	68.16	57.93
81F4793	608-4	4	120°	72.24	61.42
81F4794	608-5	5	160°	76.40	64.93
81F4795	608-6	6	200°	80.35	68.27
81F4796	608-7	7	240°	84.43	71.78
81F4797	608-8	8	280°	89.83	76.39

NEWARK Your Dependable Source For all Your Electronic Needs

SWITCHCRAFT · Multi-Switches

SERIES 35000 NON-ILLUMINATED

Switches mount on panels up to ⅛" thick. Provides 6PDT switching in .6 sq. in. Narrow rectangular silhouette permits stacking in parallel rows on ¾" centers. Only 2⁵/₁₆" depth behind panel. End brackets have four 6-32 tapped mounting holes. A square black pushbutton is furnished for each station.



2-C PER STATION

Stk. No.	Type	Functions	Sta-tions	EACH 1-9	10-24	25-49	50-99
39F612	35041K-206	Interlock	4	17.97	16.59	15.21	13.83
39F613	35061K-206	Interlock	6	25.19	23.25	21.31	19.38
39F614	35081K-206	Interlock	8	32.37	29.88	27.39	24.90
39F615	35101K-206	Interlock	10	39.55	36.51	33.47	30.43
39F616	35121K-206	Interlock	12	46.90	43.29	39.68	36.08
39F621	35127-206	Push-Lock	12	46.90	43.29	36.68	36.08

4C PER STATION

39F622	35041K-212	Interlock	4	25.32	23.37	21.42	19.48
39F623	35061K-212	Interlock	6	25.19	23.25	21.31	19.38
39F624	35081K-212	Interlock	8	32.37	29.88	27.39	24.90
39F625	35101K-212	Interlock	10	58.18	53.70	49.23	44.75
39F626	35121K-212	Interlock	12	69.03	63.72	58.41	53.10
39F628	35067-212	Push-Lock	6	36.24	33.45	30.66	27.88
39F630	35107-212	Push-Lock	10	58.18	53.70	49.23	44.75
39F631	35127-212	Push-Lock	12	69.03	63.72	58.41	53.10

SERIES 37000 SINGLE LAMP ILLUMINATED

Identical in switching functions and characteristics as Series 35000 but with added feature of illuminated pushbuttons.

Stk. No.	Type	Functions	Sta-tions	EACH 1-9	10-24	25-49	50-99
39F2238	37021K-1206	Interlock	2	17.19	15.87	14.55	13.23
39F2239	37041K-1206	Interlock	4	30.58	28.23	25.88	23.53
39F2240	36061K-1206	Interlock	6	43.91	40.53	37.15	33.78
39F2241	37081K-1206	Interlock	8	57.66	53.22	48.79	44.35
39F2242	37101K-1206	Interlock	10	71.05	65.58	60.12	54.65
39F2243	37121K-1206	Interlock	12	84.57	78.06	71.56	65.05
39F2247	37082-1206	Non-Lock	8	57.66	53.22	48.79	44.35
39F2248	37102-1206	Non-Lock	10	71.05	65.58	60.12	54.65
39F2249	37122-1206	Non-Lock	12	84.57	78.06	71.56	65.05
39F2250	37023-1206	All-Lock	2	17.19	15.87	14.55	13.23
39F2251	37043-1206	All-Lock	4	30.58	28.23	25.88	23.53
39F2254	37103-1206	All-Lock	10	71.05	65.58	60.12	54.65
39F2255	37123-1206	All-Lock	12	84.57	78.06	71.56	65.05
39F2257	37047-1206	Push-Push	4	30.58	28.23	25.88	23.53
39F2259	37087-1206	Push-Push	8	57.66	53.22	48.79	44.35
39F2260	37107-1206	Push-Push	10	71.05	65.58	60.12	54.65

LEV-R SWITCHES SERIES 3000 and 13000

Fine silver contacts rated 3 amps., 300 watts max. AC non-inductive load. Non-locking have spring return. Series 3000 mounts in panels up to 3/32" thick; series 13000 up to ¼" thick. Both ⅝" wide; requires 2¼" behind panel; mount in ½" dia. hole N.O. circuit center position off. ‡"Talk-Listen" switches. 3 position switches have same contact for both sections on each side except 3033 and 13033 and have one form C only. Supplied with lock nut and screw-on black knob. Wt.: 3 oz.

2 POSITION TYPE

Non-Locking Stk. No.	Type	Locking Stk. No.	Type	Cont. Form	1-9	10-24	25-49	50-99
22F300	3001	22F311	3001L	1-A	3.68	2.76	2.53	2.30
22F302	3003	22F313	3003L	1-C	4.20	3.15	2.89	2.63
22F305	3006	22F316	3006L	2-C	5.76	4.32	3.96	3.60
27F043	13001	27F051	13001L	1-A	3.84	2.88	2.64	2.40
27F045	13006	27F053	13006L	2-C	5.84	4.38	4.02	3.65
27F046	13009	27F054	13009L	3-C	7.40	5.55	5.09	4.63

3 POSITION TYPE (+ Each Section)

22F306	3033	22F317	3033L	1-C‡	4.20	3.15	2.89	2.63
22F309	3036	22F320	3036L	+1-C	5.84	4.38	4.02	3.65
22F310	3037	22F321	3037L	+1-C‡	6.00	4.50	4.13	3.75
27F047	13033	27F055	13033L	1-C‡	4.32	3.24	2.97	2.70
27F048	13034	27F056	13034L	+1-A	4.72	3.54	3.25	2.95
27F049	13036	27F057	13036L	+1-C	5.84	4.38	4.02	3.65
27F050	13037	27F058	13037L	+1-C‡	5.84	4.38	4.02	3.65

SERIES 6000 TELEVER SWITCHES

Featuring "T-Beam" construction with Iridites finished steel frame. Palladium contacts rated at 3 A., 120 volts, non-inductive load. Size, 4⁹/₃₂x1⁵/₈x⅞" Wt. 3 oz.

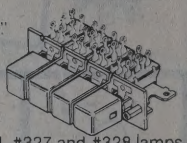
2-POSITION TYPE

Non-Locking Stk. No.	Type	Locking Stk. No.	Type	Cont. Form	1-9	10-24	25-49	50-99
22F325	60012	22F334	60012L	4-C	9.40	7.05	6.46	5.88

3-POSITION TYPE (+ Each Section)

22F330	60324	22F339	60324L	+4-C	14.20	10.65	9.76	8.88
22F340	530	Escutcheon Plate			1.35	1.08	.81	.74
22F399	M-1178-2	Knob			.60	.48	.36	.33

SERIES 65000 AND 67000 FACTORY ASSEMBLED "DW" SERIES "MULTI-SWITCH"

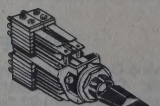


Series 65000. Non-illuminated "Multi-Switch." With DPDT switch module per station. Double-wipe bifurcated silver plated brass contacts rated 3A AC, 0.5A DC; 125 V. non-inductive load. 1¹/₁₆" depth behind panel. ¾" length plus ⅝" for each station. 2⁷/₃₂" height.
Series 67000. Illuminated version of above. Front of panel lamp replacement. Accepts Ind. #327 and #328 lamps.

67000

Stk. No.	Type	Functions	Sta-tions	EACH 1-9	10-24	25-49	50-99
22F137	65021K-206	Interlock	2	3.28	2.46	2.26	1.85
22F090	65022-206	Non-Lock	2	2.84	2.13	1.95	1.60
22F143	65023-206	All-Lock	2	3.28	2.46	2.26	1.85
22F138	65041K-206	Interlock	4	6.56	4.92	4.51	3.69
22F091	65042-206	Non-Lock	4	5.64	4.23	3.88	3.17
22F144	65043-206	All-Lock	4	6.56	4.92	4.51	3.69
22F139	65061K-206	Interlock	6	9.80	7.35	6.74	5.51
22F092	65062-206	Non-Lock	6	8.44	6.33	5.80	4.75
22F145	65063-206	All-Lock	6	9.80	7.35	6.74	5.51
22F140	65081K-206	Interlock	8	13.08	9.81	8.99	7.36
22F141	65101K-206	Interlock	10	16.36	12.27	11.25	9.20
39F581	65121K-206	Interlock	12	19.64	14.73	13.50	11.05
39F583	65041K-212	Interlock	4	10.20	7.65	7.01	5.74
39F584	65061K-212	Interlock	6	15.28	11.46	10.51	8.60
39F585	65081K-212	Interlock	8	20.36	15.27	14.00	11.45
39F586	65101K-212	Interlock	10	25.44	19.08	17.49	14.31
39F587	65121K-212	Interlock	12	30.48	22.86	20.96	17.15
39F588	65043-212	All-Lock	4	10.20	7.65	7.01	5.74
39F589	65063-212	All-Lock	6	15.28	11.46	10.51	8.60
39F590	65083-212	All-Lock	8	20.36	15.27	14.00	11.45
39F593	65047-206	Push-Lock	4	7.32	5.49	5.03	4.12
39F594	65067-206	Push-Lock	6	10.92	8.19	7.51	6.14
39F595	65087-206	Push-Lock	8	14.56	10.92	10.01	8.19
39F2300	67021K-506	Interlock	2	4.76	3.57	3.27	2.68
39F2302	67023-506	All-Lock	2	5.28	3.96	3.63	2.97
39F2303	67041K-506	Interlock	4	9.48	7.11	6.52	5.33
39F2304	67042-506	Non-Lock	4	8.36	6.27	5.75	4.70
39F2306	67061K-506	Interlock	6	14.16	10.62	9.74	7.97
39F2307	67062-506	Non-Lock	6	12.56	9.42	8.64	7.07
39F2309	67081K-506	Interlock	8	18.88	14.16	12.98	10.62
39F2310	67082-506	Non-Lock	8	16.72	12.54	11.50	9.41
39F2312	67101K-506	Interlock	10	23.64	17.73	16.25	13.30
39F2313	67102-506	Non-Lock	10	20.92	15.69	14.38	11.77
39F598	67121K-506	Interlock	12	28.80	21.60	19.80	16.20
39F601	67041K-512	Interlock	4	13.44	10.08	9.24	7.56
39F602	67061K-512	Interlock	6	20.16	15.12	13.86	11.34
39F603	67081K-512	Interlock	8	26.88	20.16	18.48	15.12
39F605	67121K-512	Interlock	12	40.28	30.21	27.69	22.66
39F606	67027-506	Push-Lock	2	5.48	4.11	3.77	3.08
39F607	67047-506	Push-Lock	4	10.92	8.19	7.51	6.14
39F608	67067-506	Push-Lock	6	16.36	12.27	11.25	9.20
39F609	67087-506	Push-Lock	8	21.80	16.35	14.99	12.26
39F610	67107-506	Push-Lock	10	27.24	20.43	18.73	15.32

"LT" SWITCH SERIES 41000



Telever telephone type lever switch. Features unique "U" shaped construction with a "Can't Cheat" detent guide which prevents accidental acutator bypass of a switching position. Welded cross bar palladium contacts rated at 3 amps., 200 watts max., A.C., non-inductive load are standard. Mounts on 23/32" centers, in a 15/32" dia. hole, in panels up to ¼" Frame is steel. With mtg. hdwe.

2-POSITION TYPE

Non-Locking Stk. No.	Type	Locking Stk. No.	Type	Cont. Form	1-9	10-24	25-49	50-99
22F341	41203	22F345	41203L	1-C	6.48	4.86	4.46	3.65
22F342	41206	22F346	41206L	2-C	6.09	5.58	4.57	4.06
22F344	41212	22F348	41212L	4-C	10.96	8.22	7.54	6.17

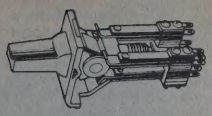
3-POSITION TYPE

22F377	41306	22F381	41306L	1-C	8.12	6.09	5.58	4.57
22F379	41312	22F383	41312L	2-C	10.96	8.22	7.54	6.17
22F380	41324	22F384	41324L	4-C	16.12	12.09	11.08	9.07

7

Switches

"LEVER LITE" SWITCH SERIES 27000



Same as 25000 Series except lever and filters. Mounts on ¾" centers, panels to 3/32" thk., depth 2 3/16". On 2 pos. AMBER in "Neutral"; GREEN in "Down." On 3 pos., RED in "Up"; AMBER in "Neutral"; GREEN in "Down." W/6V lamp. 2 oz.

2 POSITION TYPE

Non-Lock	Type	Lock-ing	Type	Cont. Form	1-9	10-24	25-99	100-249
26F832	27206	26F834	27206L	2-C	11.72	8.79	8.06	6.59

3 POSITION TYPE (+ Each Section)

26F836	27306	26F839	27306L	+1-C	11.72	8.79	8.06	6.59
26F837	27307	26F840	27307L	+1-C	11.92	8.94	8.20	6.71
26F838	27312	26F841	27312L	+2-C	14.32	10.74	9.85	8.06
26F842	532	Escutcheon Plate			.68	.51	.47	.39
26F879	P1864	Light Shield for 532			.28	.21	.20	.16

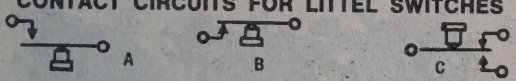
LAMPS FOR "LEVER-LITE" AND "LITTEL-LITE"

Stk. No.	Type	Volt.	Base	Current	10-99	100-Up
26F513	1768	6V	Screw	200 Ma	1.22	1.08
26F508	335	28V	Screw	40 Ma	1.12	.99

LITTEL SWITCHES

These are momentary contact switches, no bigger than a small phone jack. Available in three circuits with red or black, one-piece push-button (non-locking only). All contacts are thoroughly insulated from panel bushing with interlocking phenolic washers. Springs are special nickel-silver alloy. Integral contacts; recommended for low current circuits only. Plastic button and shaft need not be removed for mounting. Mounts in ⅜" dia. hole in panels up to ¼". Complete with locknut and washer. Shpg. wt., 1 oz.

CONTACT CIRCUITS FOR LITTEL SWITCHES



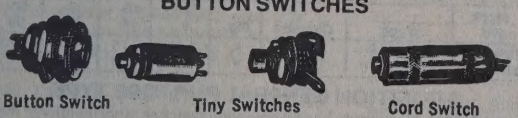
BLACK BUTTON

Stock No.	Type	Circuit Figure	Switch Action	1-9	10-24	25-99	100-249
22F207	201	1-A	SPST NO	1.64	1.23	1.13	.93
22F208	202	1-B	SPST NC	1.64	1.23	1.13	.93
22F209	203	1-C	SPDT	1.96	1.47	1.35	1.10

RED BUTTON

22F210	101	1-A	SPST NO	1.64	1.23	1.13	.93
22F211	102	1-B	SPST NC	1.64	1.23	1.13	1.13
22F212	103	1-C	SPDT	1.96	1.47	1.35	1.10

BUTTON SWITCHES



Non-locking, push button switch. AC, 30 watts max. Size: ½"D × 1"L.

Stk. No.	Type	Description	Contact*	1-9	10-24	25-99	100-249
22F229	903	Red Button	1C	2.04	1.53	1.40	1.15
22F230	903D	Red Button	1D				
22F233	913	Black Button	1C				
22F234	913D	Black Button	1D				
22F231	923	Red Button	1C	2.20	1.65	1.51	1.24
22F232	923D	Red Button	1D				
22F235	933	Black Button	1C				

TINY SWITCHES

Subminiature design. Size ⅞"D × 11/16"L.

22F237	951	Red Button	1A	1.72	1.29	1.18	.97
22F238	952	Red Button	1B				
22F240	961	Black Button	1A				
22F241	962	Black Button	1B				
22F239	953	Red Button	1C	2.08	1.56	1.43	1.17
22F242	963	Black Button	1C				

CORD OR PENDANT SWITCHES

Nickel plated housing. Dia 1 1/16". Approx. length 2 3/16". Wt. 3 oz.

22F243	E903	Red Button	1C	3.12	2.34	2.15	1.76
22F245	E913	Black Button	1C	3.12	2.34	2.15	1.76

SWITCHCRAFT

SERIES 16000 TELEVER SWITCHES

Similar to the 6000 Series. Single hole mounting; mounts in ½" dia. hole for panels up to ¼" thick. Size: 4 7/16 x 1 7/8 x ⅞". Shpg. wt., 3 oz. **May be converted to "locking" by removing stop plate.**

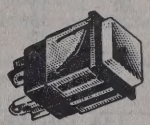
2-POSITION TYPE

Non-locking Stk. No.	Type	Contact Form	1-9	10-24	25-99	100-249
22F215	16006	2-C	8.88	6.66	6.11	5.00
22F217	16008	4-AN.O.	9.96	7.47	6.85	5.60
22F219	160012	4-C	12.00	9.00	8.25	6.75
22F221	160024	8-C	17.68	13.26	12.16	9.95

3-POSITION TYPE (+ Each Section)

22F224	16038	+2-AN.O.	9.96	9.47	6.85	5.60
22F225	160312	+2-C	12.00	9.00	8.25	6.75
22F226	160312D	+2-D	13.28	9.96	9.13	7.47
22F227	160316	+4-A	15.56	11.67	10.70	8.75
22F228	160324	+4-C	17.68	13.26	12.16	9.95

"UNISWITCH" SWITCH LUS SERIES



Low cost, compactly built, momentary action pushbutton, ideal for use on computers, data processing equipment, test & measurement devices, telephone apparatus. Illuminated, only 1 1/16" square, mount in a single panel, requiring only 1¾" to 1 17/64" max. Terminals extruded for use with #5-40 machine screws, contacts rated at 250 ma., 30 watts max., AC non-inductive load. SPST—NO circuit.

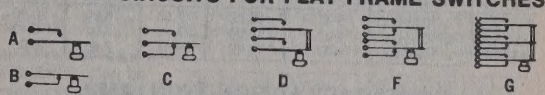
Stock No.	Type No.	Color	1-9	10-24	25-99	100-249
39F1613	LUS-01-1	Red	2.20	1.65	1.51	1.24
39F1614	LUS-04-1	Blue				
39F1615	LUS-03-1	Green				
39F1616	LUS-08-1	Yellow				
39F1617	LUS-05-1	White				

Stock No.	Type	Desc.	Amp.	10-90	100-490	500-Up
27F1030	CM7-7377	6V Bi-Pin Lamp	.075	.76	.68	.59

FLAT FRAME PUSH BUTTON SWITCHES

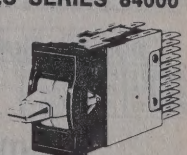
One piece, black plastic, push button, all common circuit model. Fine silver contacts used for minimum resistance. Rated at 3 amps, 300 watts, max. AC non-inductive load. Shaft and button need not be removed for mounting. Mounts in single ⅜" hole, panels up to ¼" thick. Size: 1 29/32" L x ¾" W. Shpg. wt., each 2 oz.

CONTACT CIRCUITS FOR FLAT FRAME SWITCHES



Stock No.	Type	Circuit Figure	Switch Action	1-9	10-24	25-99	100-249
22F200	1001	A	SPST NO	3.08	2.31	2.12	1.73
22F202	1003	C	SPDT	3.32	2.49	2.28	1.87
22D203	1004	D	DPST NO	3.48	2.61	2.39	1.96
22F205	1006	F	DPDT	4.44	3.33	3.05	2.50
22F206	1009	G	3PDT	5.68	4.26	3.91	3.20

"LEVER-LITE" 111 SWITCHES SERIES 84000



2 and 3 position types: locking, non-locking, talk-listen functions. Contacts: rated at 2 amps., 200 watts max. AC, non-inductive load. Level illumination is multi-color. Uses one T-1¾" flange base lamp (not supplied). Maintained from front of panel. Solder lug term. ⅞" x 1½" mounting hole. Size: 1⅜"H x ¾"W x 11 13/16"D. Circuit 2C.

SERIES 84000 NON-LOCKING

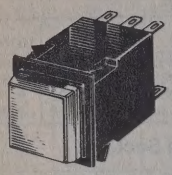
Stock No.	Type	No. Pos.	1-9	10-24	25-99	100-249
27F006	84206	2	10.96	8.22	7.54	6.17
27F007	84312	3	13.52	10.14	9.30	7.61

SERIES 84000 LOCKING

27F008	84206L	2	10.96	8.22	7.54	6.17
27F009	84312L	3	13.52	10.14	9.30	7.61

PUSHBUTTON SWITCHES

"Box Switch" SWITCHES, SERIES BXL

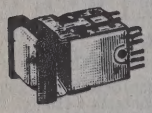


NEW miniature momentary or locking pushbutton switches offer lighted and unlighted options in minimum panel space. 11/16" square switch mounts in panels from 1/32" to 3/32" thick and occupies only 17/32" max behind panel space (17/32" less panel thickness). Molded black plastic housing protects against dust and dirt, prevents bending disfiguring contacts caused by excessive handling. Attractive bezel frames push button and acts as built-in escutcheon. Can be mounted in rows of matrices completely compatible in front-of-panel appearance with Switchcraft Series BXR "Box Switch" switches.

Stock No.	Part No.	Color	1-9	10-24	25-99	100-249
81F511	P-2827	Red	.28	.21	.20	.16
81F514	P-2830	Green	.28	.21	.20	.16
81F515	P-2831	Blue	.28	.21	.20	.16
81F512	P-2828	White	.28	.21	.20	.16
81F516	P-2832	Orange	.28	.21	.20	.16
81F513	P-2829	Yellow	.28	.21	.20	.16

Stock No.	Part No.	Terms	Mechanical Function	Switching	1-9	10-24	25-49	100-249
81F503	BXL-123S	Solder	Momentary	1-C	3.52	2.64	2.42	1.98
81F504	BXL-126S	Lug/		2-C	3.80	2.85	2.61	2.14
81F505	BXL-173S	Quick	Push-Lock/	1-C	3.56	2.67	2.45	2.00
81F506	BXL-176S	Connect	Push-Release	2-C	3.84	2.88	2.64	2.16
81F507	BXL-123P		Momentary	1-C	3.52	2.64	2.42	1.98
81F508	BXL-126P	Printed		2-C	3.80	2.85	2.61	2.14
81F509	BXL-173P	Circuit	Push-Lock/	1-C	3.56	2.67	2.45	2.00
81F510	BXL-176P		Push-Release	2-C	3.84	2.88	2.64	2.16

SERIES PL-PUSHLIGHT SWITCH



Enclosed and lighted, leafspring switching. Available in momentary or PLPR functions; single or twin lamps; with or without barriers; full or split-faced display: 1-C to 4-C switching; black switch housing; white pushbutton. Contacts: rated at 2 amps, 200 watts, max; AC non-inductive load. Mounts with clamp-type brackets. Flange mounting requires 1" x .875" panel cutout. Barrier mounting requires 1 3/16" x .875" panel output. Accepts. std. T-1 3/4" flange base lamps, 6 or 28 volt (not included).

MOMENTARY ACTION-SINGLE LAMP

Stk. No.	Type	Contacts	Each 1-9	10-24	25-49	50-99
39F2202	PL-1032-05	1-C	10.08	7.56	6.93	6.30
39F2203	PL-1062-05	2-C	10.28	7.71	7.07	6.43
39F2204	PL-1122-05	4-C	11.12	8.34	7.65	6.95

MOMENTARY ACTION-TWIN LAMP

39F2205	PL-2032-05	1-C	10.28	7.71	7.07	6.43
39F2206	PL-2062-05	2-C	10.60	7.95	7.29	6.63
39F2207	PL-2122-05	4-C	11.36	8.52	7.81	7.10

PUSH-LOCK/PUSH-RELEASE-SINGLE LAMP

39F2208	PL-1037-05	1-C	10.60	7.95	7.29	6.63
39F2209	PL-1067-05	2-C	10.80	8.10	7.43	6.75
39F2210	PL-1127-05	4-C	11.68	8.76	8.03	7.30

PUSH-LOCK/PUSH-RELEASE-TWIN LAMP

39F2211	PL-2307-05	1-C	11.68	8.76	8.03	7.30
39F2212	PL-2067-05	2-C	11.92	8.94	8.20	7.45
39F2213	PL-2127-05	4-C	11.36	8.52	7.81	7.10

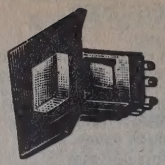
MOUNTING BARRIERS (BLACK)

Stk. No.	Type	Description	Each 1-9	10-24	25-49	50-99
39F2200	PL-102	End Barrier	.16	.12	.11	.10
39F2201	PL-202	Center Barrier	.16	.12	.11	.10

LIGHT DIVIDER

39F2317	PL-551	.....	.16	.12	.11	.10

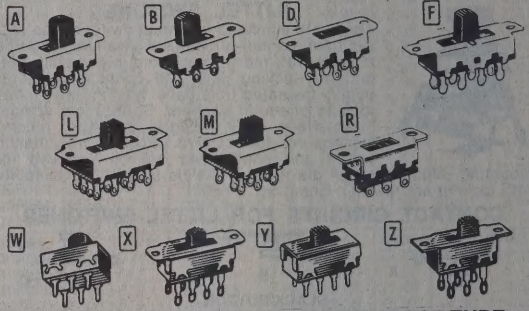
BOX SWITCH



A flush mounted, momentary action pushbutton switch. Offers broad switching capabilities in minimum panel space. For control panel application in computers, data processors, ground support equipment, machine and process controls, test equipment, and telephones. 11/16" square. 4 switching poles; 2 limited to single throw. Solder lug terms. Silver plated, brass integral contacts.

Stock No.	Type	Contact Assembly	Button Color	1-9	10-24	25-49	50-99
22F1000	BXR-01-1	1-A	Red	3.56	2.67	2.45	2.23
22F1001	BXR-01-3	1-C	Red	3.72	2.79	2.56	2.33
22F1004	BXR-02-1	1-A	Black	3.56	2.67	2.45	2.23
22F1005	BXR-02-3	1-C	Black	3.72	2.79	2.56	2.33
22F1006	BXR-02-6	2-C	Black	4.08	3.06	2.81	2.55
22F1007	BXR-02-10	2-C, 2-A	Black	4.68	3.51	3.22	2.93
22F1008	BXR-03-1	1-A	Green	3.56	2.67	2.45	2.23
22F1009	BXR-03-3	1-C	Green	3.72	2.79	2.56	2.33
22F1010	BXR-03-6	2-C	Green	4.08	3.06	2.81	2.55
22F1011	BXR-03-10	2-C, 2-A	Green	4.68	3.51	3.22	2.93
22F1012	BXR-05-1	1-A	White	3.56	2.67	2.45	2.23
22F1013	BXR-05-3	1-C	White	3.72	2.79	2.56	2.33
22F1014	BXR-05-6	2-C	White	4.08	3.06	2.81	2.55

GENERAL PURPOSE SWITCHES



2 AND 3 POSITION GENERAL PURPOSE TYPE

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
26F902	46202LR	SPST Locking	A	.64	.48	.44	.40
26F903	46203LR	SPDT Locking	A	.68	.51	.47	.43
26F906	46206LFR	DPDT Locking	D	1.00	.75	.69	.63
26F905	46206LR	DPDT Locking	A	.76	.57	.52	.48
26F907	46206MR	DPDT Momentary	B	1.12	.84	.77	.70
26F908	46256LFE	DPDT Locking	R	1.08	.81	.74	.68
26F909	46256LFR	DPDT Locking	D	1.00	.75	.69	.63

Stock No.	Type	Circuitry	Fig.	1-9	10-24	25-49	50-99
26F910	46311LDR*	SPTT	F	1.00	.75	.69	.63
26F911	46313LDR*	DPTT	F	1.04	.78	.72	.65

3 POSITION GENERAL PURPOSE TYPE

Series 49000L. Heavy duty 3 and 4 pole slide switches. Knob height 1/2". Mtg. holes 9/64". Non-shorting. U.L. listed as approved.

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
27F010	49309L	3PDT Locking	L	2.16	1.62	1.49	1.35
27F011	49312L	4PDT Locking	L	2.24	1.68	1.54	1.40

2 POSITION GENERAL PURPOSE TYPE

Series 50000L, non-shorting contacts. U.L. listed.

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
26F851	50209L	3PDT Locking	M	1.44	1.08	.99	.90

"TINI" SLIDE SWITCHES

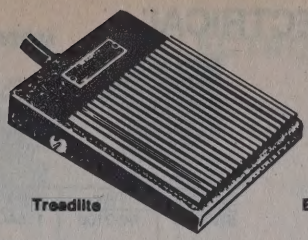
206 Type—Switching: 2-C. **313 Type—Switching:** DPTT. **Both—Contacts:** .5 amps, 125 VAC or DC. **Loaded switch life:** 6000 cycles. **"C"** types are for PC mount, others are combination solder and wire wrap. **L1** has long leads. **L2** has short leads.

Stock No.	Type	Action	Fig.	1-9	10-24	25-49	50-99
39F3670	56206L1	2-C	W	1.16	.87	.80	.73
39F3671	56206L2	2-C	n/s				
39F3672	C56206L1	2-C	n/s				
39F3673	C56206L2	2-C	X				
39F3674	56313L1	DPTT	Y	1.64	1.23	1.13	1.03
39F3675	56313L2	DPTT	n/s				
39F3676	C56313L1	DPTT	n/s				
39F3677	C56313L2	DPTT	Z				

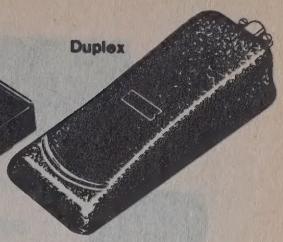
Control Switches

LINEMASTER

Junior


Treadlite

Executive


Duplex

JUNIOR. Momentary SPDT light pressure contact switch. Foot or knee operation. Provided with strain relief clamp for wide variety of cord sizes. Aluminum casting. Black finish. Skid-proof base pad. 20A @ 125-250 VAC. 5 1/2" x 3 1/4" x 1 1/4". Wt. 1 lb.

Stk. No.	Type	1-9	10-19	20-49
24F161	121S	16.00	14.40	12.80

TREADLITE. Designed to give instantaneous and accurate control at low amperage loads. Treadle angle and light pressure contact insure operator comfort and reduce the possibility of fatigue. Formed steel castings with black finish. Actuating treadle has heavy tread and skid proof base pad. Less cord and plug set unless otherwise stated. Rated 7 amps at 125 to 250 VAC. Size: 3 1/2" x 2 5/8" x 1". Shipping weight: 7 ounces.

Model T-51-S. Momentary SPDT contact. Can be used normally open or closed.

Model T-51-SC3. Momentary SPST contact wired normally open. Supplied with 6' 18/3 cord and 3 prong series plug. Green lead grounded.

Model T-51-SC36. Momentary SPST contact wired normally open. Supplied with 6' 18/3 cord without plug. Green lead grounded.

Model 515-M. Replacement interior for T-51-S.

Model T-52-S. Two stage momentary contact. Each stage SPDT.Light pressure activates first switch, added pressure activates second switch.

Stk. No.	Type	1-9	10-19	20-49
24F163	T-51-S	5.85	5.27	4.68
24F156	T-51-SC3	10.95	9.86	8.76
24F180	T-51-SC36	9.40	8.46	7.52
24F175	515-M	2.35	2.12	1.88
24F167	T-52-S	8.80	7.92	7.04

EXECUTIVE. Two switches in one using the teeter-totter principle to operate one circuit at a time. Modern styled die cast cover. Medium gray finish. Full non skid base pad. Internal wire connections. Single cord output. SPDT. 15 A @ 125-250 VAC. 4 5/8" x 4" x 1 1/16". Wt. 1 1/4 lbs.

Stk. No.	Type	1-9	10-19	20-49
24F169	72	14.85	13.37	11.88

DUPLEX. Two SPDT momentary switches in one housing. Center pivot for easy heel-toe operation. Adjustable strain relief for most cord sizes. Black finish. Skid proof base pad. Mechanical interlock prevents both circuits from being operated at same time. Size 8 1/2" x 3 1/2" x 2". Wt. 1 3/4 lbs.

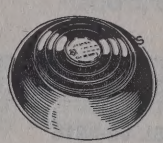
Stk. No.	Type	1-9	10-19	20-49
24F166'	476S	24.40	21.96	19.52

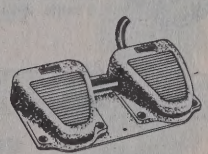
Compact

Clipper

Lektro-Lok

Nautilus


Gem


Twin Clipper

COMPACT. Small, compact, lightweight and long lasting switch. Strong steel housing. Black finish. Skid proof base. Precision made for accurate operation. SPDT and SPST models. Rated 10 amps at 125-250 VAC. Size: 2 7/8" x 2 1/2" by 1 1/8" Weight: 7 ounces.

Model 491-S. Momentary SPDT. 1/2 H P., 125-250 VAC. Minis cord and plug.

Model LSC-229. Replacement interior for model 491-S.

Model 491-SC3. Momentary SPST wired N.O. With 3 prong plug and 8' cord.

Model 491-SC36. As above with 6', 18/3 SJ cord. No plug. Green lead grounded.

Stk. No.	Type	1-9	10-19	20-49
24F165	491-S	6.70	6.03	5.36
24F174	LSC-229	4.70	4.23	3.76
24F154	491-SC3	12.65	11.39	10.12
24F181	491-SC36	10.90	9.81	8.72

NAUTILUS. Aluminum casting. Piston type actuator sealed with "O" rings. Waterproof. Oil-proof. Rustproof. Dustproof. Gray enamel finish. 8" x 4" x 2 1/4" Wt. 2 lbs. 9 oz.

Model WP-541-S. Momentary SPDT. 20 amps at 125-250 VAC.

Model WP-541-D. Maintained SPDT. 12 amps at 125 VAC. 6 amps at 250 VAC.

Stk. No.	Type	1-9	10-19	20-49
10F7451	WP-541-S	85.10	76.59	68.08
10F7452	WP-541-D	85.10	76.59	68.08

LEKTRO-LOK. Both circuits cannot be operated at same time. Each side SPDT. Can be wired normally open or normally closed. Internal wire connections. Stamped metal housing. Rated 10 amps at 125-250 VAC. 5" x 2 1/2" x 1 1/8". 10 oz.

Stk. No.	Type	1-9	10-19	20-49
24F168	L-2-S	10.75	9.68	8.60

CLIPPER. Designed for operation under heavy loads. Cast iron housing. Skid proof base pad. Strain relief connector. Size 4 1/2" x 3 1/2" x 1 1/2". Wt. 2 1/4 lbs.

Model 632-S. Momentary SPDT. Rated 20 amps at 125-250 VAC.

Model 632D. Maintained SPDT. Rated 20 amps at 125-250 VAC. Molded nylon actuating cam mechanism.

Model 632S. The Clipper Twin consists of two SPDT momentary switches mounted on a heavy steel base plate with a skid-proof pad. A tube between the two switches conceals all internal wiring between them. A conduit opening with strain relief connector is provided in the right switch.

Stk. No.	Type	1-9	10-19	20-49
24F170	632S	15.90	14.31	12.72
24F171	632D	20.50	18.45	16.40
81F1170	632S			

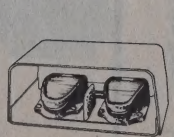
GEM. Round black actuating cap in chrome plated die cast housing. Full non-skid base pad. Size 3 13/16" x 1 7/32". Momentary SPST wired normally open. Gem-3 comes with 6' cord and 3 prong Series plug. Gem-36 has 6' cord, no plug.

Stk. No.	Type	1-9	10-19	20-49
10F7449	GEM-3	13.55	12.20	10.84
10F7171	GEM-36	12.60	11.34	10.08

FULL FOOT SWITCH GUARDS

Model 522-B14. Comes complete with hardware, instructions. Pre-drilled to accept most Clipper, Classic and Compact electric foot switches and AirVals. Size 6" x 6" x 4 1/2". Weight 4 lbs. Full single guard.

Model 522-B12. Comes complete with hardware and instructions. Pre-drilled to accept Clipper Twin. Size 11" x 6" x 4 1/2". Weight 7 lbs. Full twin guard.


Full Twin Guard

Single Guard

- Pre-Drilled
- Alert Orange Color
- Complete with Hardware and Instructions

Stk. No.	Type	1-9	10-19	20-49
10F7453	522-B14	10.30	9.27	8.24
10F7454	522-B12	17.80	12.29	14.24

ELECTRICAL

P2-1106

2-1106

P2-1126

MODEL 110 SERIES

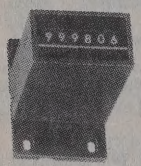
Simplified, inexpensive, 6-figure, reset, general-purpose electromechanical counter which requires no maintenance during its normal life expectancy. Rated at 1,000 counts/minutes AC and 1,200 counts/minute DC with pulse timing of 30 ms "on," 30 ms "off" AC and 25 ms "on," 25 ms "off" DC voltage. Power consumption: 5 watts, available in base-mount, panel-mount, and for the security conscious, a key-reset panel-mount version.

Stk. No.	Type	Volt	Reset	Mount	1-4	5-9	10-24	25-49
57F1918	2-1106	115AC	Knob	Base	41.20	39.14	37.08	35.02
57F1907	P2-1106	115AC	Thumb Wheel	Panel	44.85	42.60	40.36	38.12
57F3522	P2-1126	115AC	Key	Panel	59.55	56.57	53.59	50.61

MODEL 1284

4-figure, knob-reset, general-purpose, base-mount counter. For applications where space is limited and reliability and accuracy needed. Rated at 1,000 counts/minute.Power: 5 watts. 2⅜"L x 2¼"W x 2½" H.

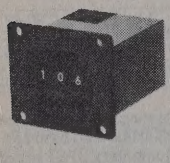
Stk. No.	Type	Volt	Reset	Mount	1-4	5-9	10-24	25-49
57F1910	2-1284	115AC	Knob	Base	34.95	33.20	31.45	29.70



MODEL V2-4816

6-figure electromechanical counter. Replacing ENM, Tamura, and Veeder-Root units on coin-operated equipment. Plastic frame. Trim one-piece cover discourages tampering. Pulse timing of 30 ms "on," 30 ms "off" AC and 25 ms "on," 25 ms "off" DC. Operating life 10 million counts. Power: 1.8 watts. 2¼"L x 1⅞"W x 2½"D.

Stk. No.	Type	Volt	Reset	Mount	1-4	5-9	10-24	25-49
81F465	V2-4815	115AC	None	Base	22.35	21.23	20.11	18.99



MODEL P-1063 SERIES

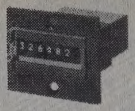
3-figure, non-repeating, subtractive, electromechanical predetermining counter with thumb wheel preset. Subtracts one count for each pulse from preset number to 000, then SPDT switch is actuated. Remains until new cycle is started. Rated at 600 counts/minute. Power: 5 watts. Switch 3A @ 250AC. 2½" L x 2⅜" W x 2½" D.

Stk. No.	Type	Volt	Reset	Mount	1-4	5-9
57F1912	P2-1063	115AC	None	Panel	58.50	55.57
57F1913	P8-1063	24DC	None	Panel	55.50	52.72

MODEL 5804

4-figure predetermining counter with either manual or electromechanical reset. Pulse timing 50 ms "on," 50 ms "off." Rated at 600 counts/minute. Operating life 100 million counts. Interchangeable with HECON and IVO. Power: counting coil, 5.5VA; reset coil, 20VA. 2⅜" L x 2⅜" W x 3 15/16" D.

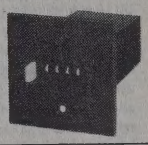
Stk. No.	Type	Volt	Reset	Mount	1-4	5-9
81F467	2-5804	115AC	Push Button	Panel	85.00	80.75



MODEL R300 SERIES

6-figure, push button reset, "dual" behind the panel/panel-mount. Fits 25 x 50 mm international mtg. dimensions. Rated 1,000 counts/minute AC & 1,500 DC. Operating life excess of 200 million counts. Power: 2.75 watts. 2⅜" L x 2" W x 2⅞" D.

Stk. No.	Type	Volt	Reset	Mount	1-4	5-9
57F3505	R2-3106	115AC	Push button	Dual	52.15	49.54
57F3506	R8-3206	24DC	Push button	Dual	45.85	43.55



MODEL PR-3704

4-figure, sub-miniature, push button, reset, panel-mount counter rated at 1,000 counts/minute AC & 1,200 DC. For limited space panel applications where frequent resetting is required. Power: 3 watts. 2¼" L x 2¼" W x 2½" D.

Stock No.	PR Type	Volt	Reset	Mount	1-4	5-9
57F1908	PR2-3704	115AC	Push button	Panel	25.95	24.65
57F1909	PR8-3704	24DC	Push button	Panel	24.35	23.13

MODEL P2-1284

- Unique Panel Plate
- Rugged Die Cast Cover
- Long Operating Life

4-figure, panel-mount, general-purpose, reset counter rated at 1,000 counts/minute. Die-cast cover and frame. Needs no lubrication or maintenance. Power: 5 watts. 2⅞" L x 2 9/16" W x 2 7/16" D.

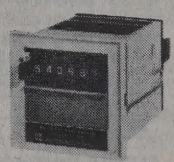
Stk. No.	Type	Volt	Reset	Mount	1-4	5-9	10-24	25-49
57F3510	P2-1284	115AC	ThWheel	Panel	32.95	31.30	29.65	28.00

MODEL V2-4817

7-figure electromechanical counter. Replacing ENM, Tamura, and Veeder-Root units on coin-operated equipment. Plastic frame. Trim one-piece cover. Pulse timing of 30 ms "on," 30 ms "off" AC and 25 ms "on," 25 ms "off" DC. Operating life 10 million counts. Power: 1.8 watts. 2¼" L x 1⅞" W x 2½" D.

Stk. No.	Type	Volt	Reset	Mount	1-4	5-9	10-24	25-49
81F466	V2-4817	115AC	None	Base	25.35	24.08	22.81	21.54

PRE-DETERMINING



MODEL 5806

6-figure predetermining counter with either manual or electromechanical reset. Pulse timing 50 ms "on," 50 ms "off." Rated at 600 counts/minute. Operating life 100 million counts. Interchangeable with HECON and IVO. Power: counting coil 5.5VA; reset coil 20VA. 2⅜" L x 2⅜" W x 3 15/16" D

Stk. No.	Type	Volt	Reset	Mount	1-4	5-9
81F468	2-5806	115AC	Push Button	Panel	99.00	94.0

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REDINGTON COUNTERS INC.

ELECTRONIC

SERIES 9415 TOTALIZERS

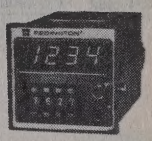
6-figure, battery powered, push button or key-reset, silent operation totalizers. Easy to read LCD display and durable cast zinc housing are standard. Rated at 2,400 counts/minute with sensor input, 1,200 counts/minute with switch input. Pulse timing of 25 ms "on," 25 ms "off" sensor input, 12.5 ms "on," 12.5 ms "off" switch input. Power consumption: 1.1VA. Available in base-mount and panel-mount; interchangeable with electronic or electrical counters.

Stk. No.	Type	Volt	Reset	Mount	1-4	5-9	10-24	25-49
81F473	9415-001		Push Button	Base	119.00	113.05	107.10	101.15
81F474	9415-003	6-240V	Push Button	Panel	129.00	122.55	116.10	109.65
81F475	9415-005	AC or DC	Lock & Key	Panel	139.00	132.05	125.10	118.15

Predetermining

SERIES 9300

4-figure, high-speed, high-performance counter with push button preset controls. Choice of operating modes permits setting for automatic recycling or remote reset. Rated at 1,200 counts/minute with switch input and 60,000 counts/minute with pulse input. CMOS logic-flexible printed circuit boards, high-brightness red LED's, 40-day memory circuit all standard. Power: 4.0VA. Fits in 2 1/16" square panel opening.



Stk. No.	Type	Volt	Reset	Mount	1-10	11-24	25-49
81F472	9300-001	4.5-27 VDC	Electric	Panel	199.00	179.00	159.00

7

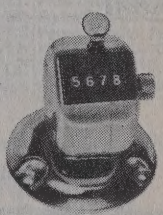
HAND-OPERATED

MODEL 2-1804

Rugged 4-figure reset counter with push button actuator and handy thumb ring for easy operation. Chrome-plated steel case resists damage from perspiration. 1¾"W x 1¾" in diameter.

Stock No.	Type	Reset	1-4	5-9
81F470	2-1804	Knob	15.00	14.25

MODEL 3-1804



Rugged 4-figure reset counter with special mounting base for desk, bench, or clipboard mounting. Heavy-gauge steel case and base are chrome-plated to resist corrosion. 1⅜" x 1¾" in diameter (base 2¼" diameter).

Stock No.	Type	Reset	Mount	1-4	5-9
81F469	3-1804	Knob	Base	18.00	17.10

MECHANICAL

MODEL 20

Medium duty, 5-figure counter. Built-in return spring. Features pre-travel and over-travel. Rated at 1,000 counts/minute. Operating life in excess of 50 million counts. 2⅝" L x 1½" W x 1 13/32" H.

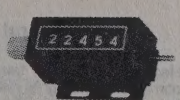
Stk. No.	Type	Reset	Arm	Action	Shaft Extension	1-4	5-9
57F1916	1-2035	Knob	Top	Coming	Right Side	22.95	21.80

MODEL 4635

5-figure reset, general-purpose stroke counter. Rated at 1,000 counts/minute. Operating life excess of 10 million counts. Interchangeable with Veeder-Root Series 1122 and 7272. 2½"L x 1½"W x 1 9/32"H.

Stock No.	Type	Reset	Arm	Action	Shaft Extension	1-4	5-9
57F3516	4635	Knob	Rt. Hand	Top Coming	Right Side	26.65	25.31

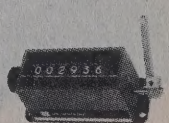
MODEL 22



5-figure, reset, direct-drive rotary counter for limited space applications. Rated at 1,000 rpm, indicates 10 counts/revolution. Operating life excess of 50 million revolutions. 2⅝"L x 1½"W x 1 13/32"H.

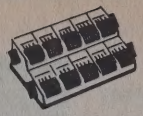
Stock No.	Type	Reset	Arm	Action	Shaft Extension	1-4	5-9
81F471	1-2235	Knob	None	Coming	Right Side	22.95	21.80

MODEL 2936



6-figure, heavy-duty industrial counter for high production and continuous operation. Rated at 1,000 counts/minute. Operating life 100 million counts. Interchangeable with Durant "H" series and Veeder-Root Series 1667. 5 9/16"L x 1 13/16"W x 2 1/16"H.

Stock No.	Type	Reset	Arm	Action	Shaft Extension	1-4	5-9
57F1917	1-2936	Knob	Rt. Hand	Top Coming	Right Side	43.00	40.85

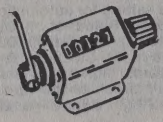


Vary Tally* Mechanical Counter

Series 1490

Manually operated. Single to combinations counters. Individual identification panels. Large pushbutton, positive action, corrosion resistant, hardened steel parts. Accumulated count continuously visible. Manual reset. Case is 1 7/16" wide, 2 3/8" high, 1 1/2" deep.

Stk. No.	Type	Units Wide	Tiers High	Feet Point	Net
81F2980	149000-101	1	1	Out	28.30
81F2981	149000-103	3	1	In	63.50
81F2982	149000-106	6	1	In	115.15

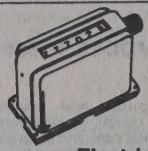


Small Reset Mechanical Counter

Series 7272

Rugged, durable for inside/outside installations. Speeds to 1000 cpm harmonic or at least 30 milliseconds to advance lever 45° for impact. Case is 1 3/16" wide, 15/16" high, 1 1/4" deep. Ratchet drive, 5 figure knob reset.

Stk. No.	Type	Net
81F2971	727215-001	27.65
81F2972	727225-001	
81F2973	727235-001	
81F2974	727245-001	

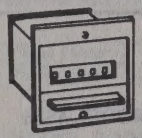


General Purpose Electric Counter

Series 1205

Unusually versatile. Great tolerance to environmental variations. Has an AC coil. Speeds to 1000 cpm. Minimum pulse timing in 30ms on-time and off-time. 115 VAC. Case of base mount model is 3 1/4" wide, 1 5/8" high, 2 1/2" deep.

Stk. No.	Type	Description	Net
81F2987	120506-010	Base mount, rotary reset	69.20
81F2988	120506-100	Panel mount, rotary reset	74.15
81F2999	120506-397	Panel mount, lock and key reset	100.50



Low Cost Electric Counter

Series 7437, 7438

Nonreset and wide bar reset versions. Acetal resin for dimensional and functional stability. Count coil wound directly on one-piece frame. Tamper resistant case. Speeds to 600 cpm. Minimum pulse timing is 50ms on-time and off-time. 115 VAC, 5 figures. Case is 1 7/8" wide, 1 5/16" high, 2 3/8" deep.

Stk. No.	Type	Description	Net
81F2990	743785-001	Base mount, nonreset, UL/CSA	15.45
81F2991	743895-011	Base mount, reset, UL	25.65
81F2992	743895-211	Panel mount, 115v-ac, reset, UL	29.60

Hand Tally Counter

Series 1023

Hand held, highly accurate. Thumb or finger actuated ratchet. Polymerin lacquer finish, perspiration resistant. Rugged construction. Reset knob and counting wheels are precision molded in acetal resin. Case is 1 3/4" diameter.

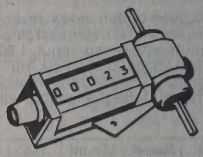
Stk. No.	Type	Description	Net
81F2979	102304-001	Knob reset, 4 figures	32.20

Visicounter* Mechanical Counter

Series 1667

Large white on black 0.345" figures. Heavy duty construction, corrosion resistant materials. No lubrication required. Knob reset. Speeds to 500 cpm. Case is 4 3/8" wide, 2 5/16" high, 1 7/8" deep.

Stk. No.	Type	Ratchet Drive Arc	Net
81F2975	166716-006	26° to 45°	45.25
81F2976	166726-006	42° to 67°	
81F2977	166736-006	26° to 45°	
81F2978	166746-006	42° to 67°	



Worm Drive Mechanical Counter

Series 7434

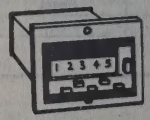
Right angle shaft accepts 1-foot circumference wheels for linear measuring of moving materials. Also used with couplings or plain shaft. Standard gear ratios for yards, meters, feet. Speed to 2000 rpm or cpm with maximum torque of only 2 oz-in. Figures 0.270" high. Body is 5 3/8" wide, 1 5/16" high, 1 3/4" deep.

Stk. No.	Type	Geared Drive	Net
81F2983	743415-003	1:1 ratio	96.55
81F2985	743415-005	1:1 ratio	
81F2984	743425-003	3:1 ratio	
81F2986	743425-005	3:1 ratio	

ACCESSORIES

Bore: 0.251" (6.38mm). 1 Foot circumference measuring.

Stk. No.	Type	Surface	Face Width	Net
81F2995	15537-070	Rubber	1/2" (12.7 mm)	20.85
81F2996	15537-530	Rubber	1" (25.4 mm)	
81F2997	15537-095	Smooth	1/2" (12.7 mm)	11.35
81F2998	15537-525	Smooth	1" (25.4 mm)	
81F2999	15537-510	Knurled	1/2" (12.7 mm)	14.35
81F3000	15537-535	Knurled	1" (25.4 mm)	
81F3001	15537-187	Grooved	1/2" (12.7 mm)	17.40

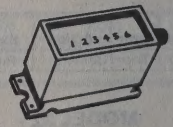


High Performance Predetermining Electric Counter

Series 7441

Patented reset system assures reliability. Individual preset buttons. Preset and reset interlock for security. Count coil voltage 115 VAC. Resistance 1500 ohms. Speeds to 1200 cpm. Case is 2" wide, 1" high, 4" deep. Manual reset, panel mount.

Stk. No.	Type	Electric Reset Coil Voltage	Electric Reset Coil Resistance	Electric Reset	Net
81F2993	744195-211	NO	NO	NO	134.85
81F2994	744195-221	115VAC	716Ω	Yes	143.75



General Purpose Electric Counter

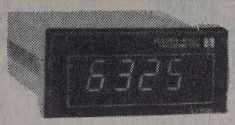
Series 7443

Heavy duty die-cast frame and case support internal parts. Clean styling combined with highly readable figures. Interchangeable with existing counters. UL recognized, CSA certified. Speeds to 600 cpm. Minimum pulse timing is 50ms on-time and off-time. 115 VAC, 6 figures. Case is 3 1/4" wide, 1 3/8" high, 2 1/2" deep.

Stk. No.	Type	Description	Net
59F385	744396-011	Base mount, knob reset	27.24
59F370	744396-211	Panel mount, thumbwheel reset	29.01
59F373	744396-241	Panel mount, lock and key reset	37.35

Totalizers, Tachometers, and Indicators

Digital Tachometer
Series 7972



Highly accurate digital speed indicator with 0.7" LED display. No calibration necessary. Installation requires only connection of 115v-ac and two wires from accessory sensor. Teeth on 60-tooth gear fixed to rotating shaft may be sensed to read revolutions per minute. Measures speeds from 50 to 10,000 rpm.

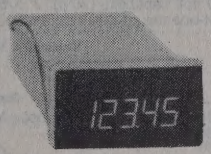
Standard Model

81F2961 (NIDA-SIDA 60152) 797204-001 Net 185.00

Accessories

Stock No.	Description	Form Number	Net
81F2942	Plastic probe, bracket and cable	714300-001	28.00
81F2943	Stainless steel probe and cable	714300-002	54.00

Minicounter Elapsed Time Indicator
Series 7971



Calibrated in seconds, seconds and 1/10, or seconds and 1/100. Display is 0.375" high LED.
Separate start, stop and reset commands are accepted via the rear connector. Operating power required is 12 to 15v-dc. Panel mounts in 1" x 2" cutout.

Standard Models

Stock No.	Form Number	Resolution	Decades	Capacity	Net
59F379	797105-027	1.0 sec	5	99999 sec	165.00
59F380	797115-027	0.1 sec	5	9999.9 sec	165.00
59F381	797125-027	0.01 sec	5	999.99 sec	165.00

Power Supply: P/N 614786-001 Provides +14VDC at 500mA.

LX Totalizer
Series 7997

A direct replacement for electromechanical counters. The 7997 has long-life internal power source, LCD, and die cast housing. Standard models are suited for base mounting. Four models are available which differ only in respect to their input circuits and method of reset. The 799716-020 (799716-021 Remote Reset) accepts isolated switch input and is reset by a button on the side of the case. The 799716-010 (799716-011 Remote Reset) is impulsed by any voltage within the range of 6 to 250 volts . . . AC or DC. Accessory panel mounting kits feature reset by lock and key or remote pushbutton.

Panel Mounting Kit

Standard Base Mounting

Standard Models

Stock No.	Form Number	Count Input	Panel Mount Kit: Lock and Key Reset V-R Form	Panel Mount Kit: Front Panel Button V-R Form	Net
	Side Button Reset				
81F2968	799716-010	AC/DC	616361-001		114.00
81F2969	799716-020	Switch	616361-001		104.00
	Remote Reset				
81F2970	799716-011	AC/DC		616362-001	114.00
81F2971	799716-021	Switch		616362-001	104.00

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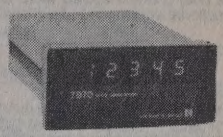
Rate Indicator
Series 7970



Rate indicator/tachometer displays fpm, rpm, gpm, inches/second, strokes/minute, etc. Measures rotary or linear speed. Three modes: continuous rate, single sample rate, or ratio of two speeds. 5 decades. Field programmable gate time, decimal point and display hold time. Speeds to 5k Hz. 9.53mm (⅜") LED display. Case is 3.785" wide, clamp-mounts in 50 x 100mm cutout. Splash/dust resistant front. 115v-ac, 50/60 Hz.

Standard Models

Stock No.	Power	Form Number	Net
81F2957	105 to 120v-ac, 50/60 Hz	797005-001	355.00

Mini-LX Totalizer
Series 7998

Plug-in model directly replaces the most common high-speed electro-mechanical counters without wiring or mounting changes. Panel mount version offers long-life performance in new applications. Self-contained power source. Fits 25 mm x 50 mm panel openings. Pushbutton and/or remote reset. Always-on .200" LCD. Choice of input −6 to 250 volt, AC or DC; or switch closure. 3000 cpm AC, 3600 cpm DC.

Standard Models

Stock No.	Form Number	Decades	Mounting	Input	Reset	Net
81F2951	799806-211	6	Plug-in	AC/DC	Panel/Remote	78.00
81F2952	799806-221	6	Plug-in	Switch	Panel/Remote	70.00
81F2953	799806-212	6	Panel	AC/DC	Panel/Remote	78.00
81F2954	799806-222	6	Panel	Switch	Panel/Remote	70.00
81F2955	799808-312	8	Panel	AC/DC	Remote	99.00
81F2956	799808-322	8	Panel	Switch	Remote	92.00

ACCESSORIES

RECEPTACLE: P/N 616353-001. Allows plug-in mounting of suitable models.
81F2957. Net 4.25

Countroller® Predetermining Counter
Series 7907

Five decade one or two level predetermining counter with ⅜" LED display fits into 50 x 100mm panel cutout. Operates from 115v-ac. Provides SPDT relay contact closure rated at 115v-ac, 5 amp. Accepts count from isolated switch contact, open collector transistor or pulse sources. User programmable to count in unidirectional or bidirectional modes. Has self-contained power supply for 5, 6 or 12 volt sensors.

Standard Models

Stock No.	Preset Rows	Form Number	Net
81F2958	1	790705-141	355.00
81F2959	2	790705-241	405.00

Accessories

Bench Mount Case: P/N 616015-001 Aluminum bench mount case for use when no panel available.
81F2960. Net 42.00

®Trademark of Veeder-Root

Countroller Predetermining Counter
Series 7994

Single level digital control with 3 decades. Thumbwheel switches read preset values. Manual and automatic reset for fast recycling operation. Count input signals may be supplied from isolated switch contacts or an open collector transistor. Operates on 115v-ac and provides a SPDT, 5 amp, non-inductive relay contact to control output.

Standard Models

Stock No.	Form Number	Decades	Display	Voltage	Net
59F375	799403-141	3	None	115v-ac	185.00

Sensors and Proximity Switches

Rotary Pulse Generators

Series 7132, 7133

Convert rotary motion to signal pulses. Sealed aluminum 2-¼" case, 0.25" dia. shaft. Face or base mounted. Shaft speeds to 10,000 rpm. Minimum 100,000 hour lamp life. Precision ball bearings. Double-ended shaft is optional. Series 7132 has square wave output or open collector. Series 7133 has dual channel square wave pulse output in 90° (nominal) quadrature for directional sensing in bidirectional counting. Resolution is 600 ppr.

Standard Models

Stock No.	Resolution	Voltage	Output	Form Number	Price
81F2938	120ppr	6VDC	Pulse	713200-120	201.00
81F2939	120ppr	12 or 24VDC	Open Collector	713230-120	214.00
81F2940	660ppr	12-15VDC	Open Collector	713330-600	259.00

Accessory Cables: 10 ft. long with mating connector and bare leads.

81F2948	P/N 614758-000 used with 713200-120, or 713230-120 in 12VDC operation	35.00
81F2949	P/N 614760-001 used with 713230-120 in 24VDC operation	35.00
81F2950	P/N 614942-001 used with 713330-600	35.00

Magnetic Sensor Model 6144

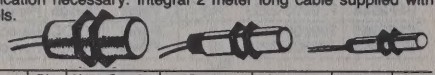
Noncontact sensor converts mechanical motion to electrical impulses. Senses presence of ferrous metal objects. Ideal input device for tachometers, totalizers or predetermining counters. Minimum surface speed of object passing sensor is 10" per second with 16 pitch gear at 0.005" clearance. Power supply +5 to 15 v-dc (15ma typical).

Standard Models

Stock No.	Description	Form Number	Price
81F2941	with 10 foot cable and spade lugs	614401-001	82.00

Inductive Proximity Switches Series 7785
Nominal Sensing Spans from 1 mm (0.04") to 10 mm (0.39")

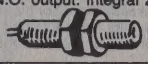
Series 7785 are totally self-contained proximity switches having encapsulated electronics in high density threaded tubular packages. Standard outside diameters are 12 mm, 18 mm and 30 mm. Shielded tubular design allows units to be flush-mounted in metal without affecting target range sensitivity. Meets NEMA 3, 4, 12, 13 and IP67 environmental requirements. Logic output interfaces directly with microprocessors, counters, controllers, relays, etc. No external amplification necessary. Integral 2 meter long cable supplied with standard models.



Stock Number	Form Number	Dia. (mm)	Nom. Sensing Span	Output Function	Operating Voltage	Indicator LED	Price
81F2929	778512-111	12	2mm (0.08")	N.O.	93-265 VAC	No	66.00
81F2930	778512-511	12	2mm (0.08")	N.O. (Sinking)	10-30 VDC	No	52.00
81F2931	778513-111	18	5mm (0.20")	N.O.	85-265 VAC	No	70.00
81F2932	778513-511	18	5mm (0.20")	N.O. (Sinking)	10-30 VDC	No	60.00
81F2933	778514-112	30	10mm (0.39")	N.O.	85-265 VAC	Yes	75.00
81F2934	778514-512	30	10mm (0.39")	N.O. (Sinking)	10-30 VDC	Yes	60.00

Inductive Proximity Switches Series 7786 (8 mm Diameter)
Nominal Sensing Span 1.5 mm (.06")

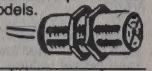
The Series 7786 is a totally self-contained proximity switch with encapsulated electronics in a high density threaded 8 mm tubular package of glass-filled polyamide. Meets NEMA 3, 4, 12, 13 & IP67 environmental requirements. Available as DC current sinking model with N.O. output. Integral 2 m (6.6') long cable supplied with standard models.



Stock Number	Form Number	Nom. Sensing Span	Indicator LED	Output Function	Operating Voltage Limits	Price
81F2935	778611-711	1.5 mm	no	N.O.	10-30 VDC	60.00

Motion Detector Series 77853
(30 mm Diameter) Nominal Sensing Span 10 mm (.39")

The Series 77853 is a totally self-contained motion detector with encapsulated electronics in a 30 mm high density threaded tubular package. It is designed to be a cut-off switch for underspeed conditions, can detect linear as well as rotary motion, and requires no additional control modules, timers, counters or tachometers. Two models are available with speed ranges from 6 to 150 rpm and 120 to 3000 rpm. RPM trip point is adjustable with a rear-mounted set point screw. Meets NEMA 3, 4, 12, 13 and IP67 environmental requirements. Integral 2 m (6.6') long cable supplied with standard models.



Standard Models

Stock Number	Form Number	Nom. Sensing Span	Output FUnction	Operating Voltage	Indicator LED	Frequency Range	Price
81F2936	778534-611	10 mm (0.39")	N.O.	93-132Vac	Yes	6-150 rpm (0.1-2.5 Hz)	180.00
81F2937	778534-612	10 mm (0.39")	N.O.	93-132Vac	Yes	120-3000 rpm (2-50 Hz)	180.00

Photoelectronic Sensors Series 7190

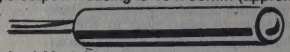
Self-contained, modulated infrared LED sensors. Logic output interfaces directly with microprocessors, counters, controllers, relays, etc. No external amplification necessary. Zinc die-cast housing with epoxy finish and NEMA enclosure codes 1, 3, 4, 12 and 13. Limit switch dimensions with large, easy to reach terminals.

Standard Models

Stock No.	Retroreflective	Distance	Input Voltage	Form Number	Price
81F2918	Complementary Current Sinking	6m (20')	12 to 26 DC	719010-100	99.00
81F2919	Light Operate SCR	2m (6.5')	90 to 130 AC	719010-200	110.00
81F2920	Dark Operate SCR	2m (6.5')	90 to 130 AC	719010-202	110.00

Miniature Photoelectronic Sensors Series 7192

All operational features of the 7191 in the world's smallest self-contained photoelectronic sensing package. Thru-scan device in anodized aluminum housing. Offers current sinking logic output. Housing is 10 x 50mm (approximately ⅜" x 2"). Scans to 10 feet.



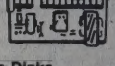
Standard Models

Stock No.	Description	Maximum Distance Meters (Feet)	Cable Length Meters (Feet)	Form Number	Price
THRU-SCAN:—Emitter and Receiver: 12 to 26v-dc					
81F2921	Emitter	3m (9.8')	1m (3.3')	719230-100	55.00
81F2922	Receiver, Current sinking, Light operate	3m (9.8')	1m (3.3')	719240-100	75.00
81F2923	Receiver, Current sinking, Dark operate	3m (9.8')	1m (3.3')	719240-150	75.00

12 VDC Power supply

Used with Series 7190, 7192 Photoelectronic Sensors. Converts 120 or 220v-ac to regulated 12 v-dc. Replaceable DPDT output relay with 10 amp, 250 volt capability (¼hp). 3" x 6", easily fits control panels. Slide switch for light-operate or dark-operate selection.

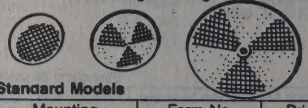
Standard Model
616168-001



(NIDA-SIDA 61061)

Reflective Disks

Reflects light back to sensor from a wide range of angles. Three sizes. Reflectance factor: 3000x.



Standard Models

Stock No.	Size	Mounting	Form No.	Price
81F2945	3" dia.	Screw hole	612248-001	4.00
81F2946	1¼" dia.	Adhesive tape	612248-002	2.50
81F2947	⅝" dia.	Adhesive tape	612248-003	1.50

Inductive Proximity Switches Series 7781
Nominal Sensing Span 15 mm (0.59")

Totally self-contained proximity switch. Direct replacement for mechanical limit switches (JIC & DIN configuration). Meets NEMA 3, 4, 12, 13 and 1P67 environmental requirements. Logic output interfaces directly with microprocessors, counters, controllers, relays, etc. No external amplification necessary.

Standard Models

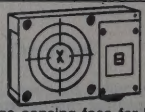
Stock Number	Form Number	Sensing Span	Sensing Face	Output Function	Operating Voltage	Price
81F2924	778111-111	15 mm (0.59")	Top	N.O.	85-265 VAC	80.00
81F2925	778112-111	15 mm (0.59")	Front	N.O.	85-265 VAC	80.00

Inductive Proximity Switches Series 7783
Nominal Sensing Span 25 mm (1.0")

Totally self-contained proximity switch with modular plug-in design and extended sensing range. Simple two-wire connections. Extended sensing range detects larger targets with larger tracking path variances. Meets NEMA 3, 4, 12, 13 and 1P67 environmental requirements.

Standard Models

Stock Number	Form Number	Output Function	Operating Voltage	Indicator LED	Price
81F2926	778311-111	N.O.	93-265 VAC	Yes	105.00
81F2927	778311-121	N.C.	93-265 VAC	Yes	105.00



Inductive Proximity Switches Series 7784
Nominal Sensing Span 40 mm (1.5")
Adjustable Sensing Span 30-60 mm (1.2"-2.3")

Totally self-contained proximity switch. Includes large sensing face for long range detection. Adjustment permits "fine tuning" to targets. Series 7784 meets NEMA 3, 4, 12, 13 and IP67 environmental requirements. Built-in line fuse to protect output switch. Interfaces directly with microprocessors, counters, controllers, relays, etc. No external amplification necessary.

Standard Models

Stock No.	Form Number	Output Function	Operating Voltage	Price
81F2928	778412-151	N.O. or N.C.	85-265 VAC	190.00

Timers and Time Delays

635 AND 636 ELAPSED TIME INDICATORS

Type 635. Compact, non-resettable indicators with 1" diameter number wheels for excellent readability. Quick stop and start induction motor. Six-digit register. Type 636. Similar to 635, but has unique pushbutton reset with no danger of overshoot; 5-digit register. For 115 VAC, 60 Hz. Case Styles: E has 3⅛" round bezel; S has 3½" square bezel; G is utility type with 2½" round bezel; X is 2½" round bezel; Y, 2½" square bezel; K, utility type with 2½" square bezel. 3½" units mount in 2.82" dia. panel cutout; 2½" units mount in 2.22" cutout.

TYPE 635 SIX-DIGIT

Stock No.	Type	Case Style	Total Count	1-24	25-49	50-99	100-Up
55F4397	10053	E	99,999.9 minutes	30.10	27.09	24.08	22.57
55F4399	10055	E	99,999.9 hours				
55F3141	10061	S	99,999.9 minutes				
55F3143	10063	S	99,999.9 hours				
55F3146	10069	G	99,999.9 minutes	24.65	22.18	19.72	18.49
55F3148	10071	G	99,999.9 hours				
35F3803	10184	K	99,999.9 minutes				
35F3805	10186	K	99,999.9 hours				

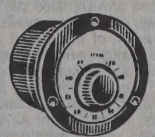
TYPE 636 FIVE-DIGIT

Stock No.	Type	Case Style	Total Count	1-24	25-49	50-99	100-249
55F4444	10072	X	9,999.9 seconds	50.60	45.54	40.48	37.95
55F4447	10074	X	9,999.9 minutes				
55F4450	10075	X	9,999.9 hours				
55F4460	10076	E	9,999.9 seconds				
55F4463	10078	E	9,999.9 minutes				
55F4466	10079	E	9,999.9 hours				
55F4452	10080	Y	9,999.9 seconds				
55F4455	10082	Y	9,999.9 minutes				
55F4458	10083	Y	9,999.9 hours				
55F4468	10084	S	9,999.9 seconds				
55F4471	10086	S	9,999.9 minutes				
55F4474	10087	S	9,999.9 hours				

RESET AND CYCLE TIMERS

402

472



561

SERIES 402 PLUG-IN RESET TIMER WITH PILOT LIGHT

Accurate, adjustable interval or timing delay between operation of a control circuit and closing of load circuits. Repeat accuracy: ±0.4%. Motor voltage: 115 VAC, 60 Hz. Power input: motor 3.0 watts, clutch 5 watts. Snap-action SPDT switches rated 10 amps res. Size, 3⅞" sq. x 4$^{5}/_{32}$" deep.

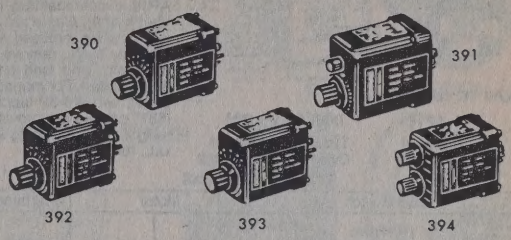
Stock No.	Type	Time Range	1-24	25-49	50-99	100-249
35F3806	10006	6 seconds	123.20	110.88	104.72	98.56
35F3807	20002	15 seconds				
35F3808	10007	30 seconds				
35F3809	10008	60 seconds				
35F3810	10009	5 minutes				
35F3811	10010	60 minutes				
35F3812	10011	5 hours				

SERIES 472 BRACKET MOUNT RESET TIMERS

External clutch reset timers provide interval or delay timing with choice of momentary or sustained contact control. SPDT load switches rated 10 A resistive at 125/250 VAC. Dimensions: 3$^{21}/_{32}$" wide, 2⅞" deep, 3$^{27}/_{32}$" high. UL rec.

Stock No.	Type	Time Range	1-24	25-49	50-99	100-249
20F896	10018	15 sec.	74.05	66.64	62.94	59.24
20F897	10019	30 sec.				
20F898	10020	60 sec.				
20F899	10021	5 min.				
20F900	10022	15 min.				
20F901	10023	30 min.				
20F903	10025	5 hrs.				
20F904	10026	24 hrs.				

SOLID STATE PLUG-IN TIMERS



Solid state timers with adjustment of delay, interval or cycle times. Compact cases are 2⅜" by 1¾" by 2$^{13}/_{16}$" high (exclusive of knobs). Isolated DPDT relay contact output, rated 10A resistive @ 120 VAC. For 120 volts, 50-60 Hz.

390 Series, "On" Delay models. Repeatability ±2%.

Stock No.	Type	Time Range	1-24	25-49	50-99	100-249
55F3118	20003	.05-10 sec	41.15	37.03	34.98	32.92
55F3119	20004	.1-10 sec				
55F3120	20005	.3-30 sec				
55F3121	20006	.6-60 sec				
55F3122	20007	3-300 sec	43.40	39.06	36.89	34.72
55F3123	20008	6-600 sec	48.50	43.65	41.22	38.80

391 Series, extended "On" delay with indicator light.

55F3124	20009	180-1800 sec	70.50	63.45	59.92	56.40
55F3125	20010	300-3600 sec				

392 Series, "Off" Delay model.

55F3126	2011	.1-10 sec	43.95	39.55	37.36	35.16
55F3127	20012	.3-30 sec	43.95	39.55	37.36	35.16
55F3129	20014	3-300 sec	49.45	44.50	42.03	39.56

393 Series, Interval timer.

55F3130	20015	.05-5 sec	43.95	39.55	37.36	35.16
55F3131	20016	.1-10 sec				
55F3132	20017	.3-30 sec				
55F3133	20018	.6-60 sec				
55F3134	20019	3-300 sec	49.45	44.50	42.03	39.56

394 Series, Repeat cycle timer.

55F3135	20020	.05-5 sec	65.70	59.13	55.84	52.56
55F3136	20021	.1-10 sec				
55F3137	20022	.3-30 sec				
55F3138	20023	.6-60 sec				

SERIES 561 PERCENTAGE CYCLE TIMER

Fully adjustable, continuous repeating. On or off time may be set at any portion of total cycle between 4% and 96%. Repeat accuracy within 1%. Load switch rated 20 amps at 115/220 VAC, resistive, 50/60 Hz. 3.750" dia. x 3.093" behind panel.

Stk. No.	Type	Time Range	1-24	25-49	50-99	100-249
35F3818	10180	30 seconds	68.15	61.33	57.93	54.52
35F3819	10181	60 seconds				
35F3820	10182	5 minutes				

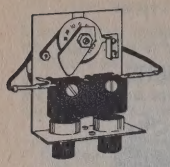
TYPE 241 AUTOMATIC RESET INTERVAL TIMER

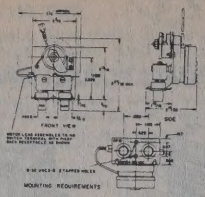
- **High Visibility 300° Dial**
- **Silver-Cadmium Load Contacts**
- **Repeat Accuracy: ±0.25%**

Start button integral with setting knob turns on load and starts timer. SPDT contacts rated 15 amps at 115 VAC, 60 Hz; 10 amps at 250V, non-inductive. Repeat accuracy: ±0.25% except 15 second time range ±0.5%. Three-hole mounting on 1.687" radius. Silver-cadmium oxide snap-action load contacts. High visibility dial with 300° scale. 115 VAC.

Stk. No.	Type	Time Range	Calibration	1-24	25-49	50-99	100-249
55F351	10000	60 seconds	1 second	79.10	71.19	67.23	63.28
35F3800	10001	5 minutes	5 seconds				
55F352	10002	15 minutes	15 seconds				
55F378	20001	30 minutes	30 seconds				
55F353	10003	60 minutes	1 minute				
35F3801	10004	5 hours	5 minutes				
55F4476	10005	24 hours	30 minutes				

TIMERS





INTERVAL TIMERS

SERIES AP 16
PUSH BUTTON TIMER

Series AP16 timers are similar to the AP18, except that they have a black start button, plus a red stop button, which when pressed will interrupt the time cycle, remove power from the motor and load and reset the timer to start. For mounting behind a panel, two #8-32 tapped holes on .687" centers are provided. Unit net weight 14 oz. Shipping weight 1¼ lb. U.L. recognized.

HOW TO ORDER:

AP16	005	006
Model Number	Time Code	Voltage Frequency

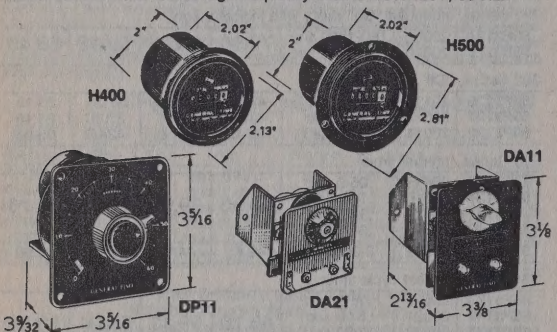
SPECIFICATIONS

Load Switch			Motor		Terminals
125 or 250 or 480 VAC	Resistive 15 Amps	SPST N.O.	24 120 or 240 VAC 60 or 50 Hz	5 watts max.	Motor* S.W.—¼" Spade
125 VDC	0.40 Amps				
250 VDC	0.20 Amps				

Motor leads 6" ±¼" with one amp #41772 type "A" and one amp #4271-1 type "E" quick connect receptacles. Receptacles mate with switch tabs.

Stock No.	Type	Timing Code	Time Range	Max. Reset Time	Each
81F742	AP16	002	3 to 52 sec.	1.5 sec.	36.85
81F743	AP16	003	.5 to 4.3 min.	5 sec.	
81F744	AP16	004	.5 to 8.6 min.	120 sec.	
81F745	AP16	005	6 to 104 sec.	2.5 sec.	

All of the above have a voltage frequency code of 003. 120V, 60 Hz.



SERIES DA11 AND DA21 RESET TIMERS

Type DA11. For use where delay, interval, or repeat cycle time functions are required for adjustable time periods. Repeat cycle requires two units. Resets to start when power removed. Manual knob adjustment. Rear mounted. SPDT switch. 20 Amps. Solder lug terminals. 5 watt motor. Repeat Acc: ±¾%. Min. Time Setting: 0 sec. UL recognized. CSA listed. 3⅛x3½x2 13/16". Shpg. wt.: 1 lb. DA21. Same as DA11 exc. locknut adjustment. UL recognized, CSA listed. Use with external relay.

120 VOLTS AC

DA11 Stk. No.	Type	DA21 Stk. No.	Type	Max. Setting	Reset	1-4	5-9	10-24	25-49
54F000	DA11-036	.....	.....	5.7 Sec.	.25 Sec.	34.05	32.35	30.80	28.95
54F001	DA11-031	**54F006**	DA21-001	14 Sec.	1.0 Sec.				
54F002	DA11-032	**54F007**	DA21-002	57 Sec.	1.5 Sec.				
54F004	DA11-033	**54F009**	DA21-003	4.5 Min.	15.0 Sec.				
54F005	DA11-034	**54F010**	DA21-004	9.5 Min.	120.0 Sec.				

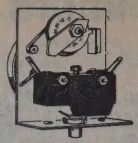
240 VOLTS AC

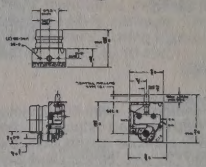
54F076	DA11-032	.....	.....	57 Sec.	1.5 Sec.	35.75	34.00	32.35	30.40
54F078	DA11-033	.....	.....	4.5 Min.	15.0 Sec.				
54F079	DA11-034	.....	.....	9.5 Min.	120.0 Sec.				

SERIES DP11 PANEL MOUNT RESET TIMERS

Apply wherever delay, interval, or repeat cycle timing (requires two timers) are needed. Simple pointer knob for timing adjustment. Reset to start position when power is removed. Time elapse readout in center of adjustment knob. SPDT switch, 10 amps, 5 watt timing motor, 120 VAC 60 Hz. Repeat accuracy ±1% of total time. Screw term. Size: 3⅜ sq. x 3 9/32" depth. Requires 3⅛" dia. mounting hole. Use with external relay.

Stk. No.	Type DP11-	Time Setting Max	Time Setting Min.	Maximum Reset Time	Dial Grads. Maj.	Dial Grads. Min.	1-4	5-9	10-24	25-49
54F072	007	6 Sec.	0.3 Sec.	.5 Sec.	1 Sec.	1.0 Sec.	40.35	38.35	36.50	34.30
54F011	001	15 Sec.	0.8 Sec.	1.0 Sec.	1 Sec.	0.2 Sec.				
54F012	006	30 Sec.	1.5 Sec.	1.5 Sec.	5 Sec.	0.5 Sec.				
54F013	002	60 Sec.	3.0 Sec.	1.5 Sec.	10 Sec.	1.0 Sec.				
54F015	003	5 Min.	0.2 Sec.	15.0 Sec.	1 Min.	0.1 Min.				
54F016	004	10 Min.	0.4 Sec.	120.0 Sec.	1 Min.	0.2 Min.				





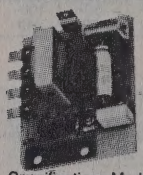
Series AP18 Push Button Timer. Designed primarily for automatic merchandising machines, amusement devices, coffee making equipment and copying machines. Can be used wherever manual push button control of a set time interval is desired. Repeat accuracy is ±¾% of total time range.
Designed for mounting directly behind a panel. The timer will operate mounted in any position. Push buttons are bushing supported to withstand rugged use. U.L. recognized.

SPECIFICATIONS

Load Switch			Motor	Terminals
15 amps ¾ H.P. 1½ H.P.	125-250 VAC 125 VAC 250 VAC	SPDT	24, 120 or 240 VAC 50 or 60 Hz 5 watts max.	Comb.-Quick Connect and Solder S.W.-Comb. 0.250 x .032 TAB 6" stripped ½"

Stock No.	Type	Timing Code	Time Range	Max. Reset Time	Each
81F746	AP18	012	3 to 52 sec.	1.5 sec.	34.00
81F747	AP18	013	.5 to 4.3 min.	5 sec.	
81F748	AP18	014	.5 to 8.6 min.	120 sec.	
81F749	AP18	015	6 to 104 sec.	2.5 sec.	

All of the above have a Voltage frequency code of 003. 120V, 60Hz. For factory set timing specify AP17 and the time the unit is to be set for (from 1 second to 8.6 minutes).

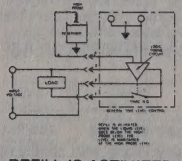


LEVEL CONTROLLER FOR LIQUIDS AND OTHER CONDUCTIVE MATERIALS

Specifications Model 9989-003. Input Voltage: 105-129 VAC, 50/60 Hz. Other input voltages available. Probe @ MA Circuit Voltage: 24 VAC (nominal) Operating Temperature Range (Ambient): 25°C to 78°C. (77°F to 172°F). Sensitivity: This controller, used for water and aqueous solutions, is set to show a "full" condition when the impedance between the probe and the material being controlled is 75 kilohms or less and to react to a "low" condition when impedance reaches 375 kilohms. The electrical gap between these values prevent false starts from high moisture conditions and frothing liquids. Other sensitivities available. Delay period: A built-in delay device prevents actuation of the output circuit until the control circuit has been open for a continuous period exceeding 5.2 seconds (nominal). Delays to 15 minutes optionally available. Sensing Probe: Contact probe suppliers directly. Mounting: The controller may be mounted by the .220 inch 5.6 mm diameter holes provided on the PC board. It can also be mounted to a non-chassis reference point. Construction: All components mounted on G-10 fiberglass board and sealed with a moisture resistant coating. Output: Output circuit current is controlled by a Triac switch conservatively derated @ 78°C ambient temperature to 40 VA (1/3 ampere) for 117 VAC; 50/60 Hz resistive or inductive loads of 50% to 100% power factor. Contact form is SPST normally open. U.L. file number: E48126.

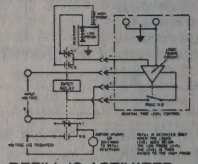
81F750 NET 38.25

TYPICAL APPLICATION #1. AUTOMATIC HIGH LEVEL RESERVOIR REFILL



REFILL IS ACTIVATED WHEN THE LIQUID LEVEL GOES BELOW THE HIGH PROBE LEVEL. THE LEVEL IS MAINTAINED AT THE HIGH PROBE LEVEL.

TYPICAL APPLICATION #2. AUTOMATIC LOW LEVEL RESERVOIR REFILL



REFILL IS ACTIVATED **ONLY** WHEN THE LIQUID LEVEL GOES BELOW THE LOW PROBE LEVEL. THE LEVEL IS THEN RAISED TO THE HIGH PROBE.

Dimensions: width = 3", length = 3½", height = 1½".

4-40 VDC SERIES H-DC HOUR METERS

5 Digits. Non-resettable, 4 to 40 VDC meters with permanently sealed, high impact, heavy-duty cases. Standard SAE mounting required; 2" (nom.) dia. panel cutout. Jeweled bearings, accurate within 1% @ −20°C−+185°C. Auto-Recycle after 9999.9 hrs. With oper. indicator. MIL-3971-C.

Stk. No.	Type	Mount	1-99	100-Up
54F058	H400	Screw	12.60	11.95
54F059	H500	Bracket		

GENERAL TIME
A TALLEY INDUSTRIES COMPANY
INDUSTRIAL CONTROLS DIVISION

EF47 AND EF37 ELAPSED TIME INDICATORS

Non-resettable, running time verifications for leasing, maintenance and warranty. Operating temp: —12°C to +55°C. Models with square or round face operate on 120 VAC or 240 VAC @ 60 Hz, tinned leads.

Stock No.	Type	Time Range	Input	1-4	5-24	25-49	50-99
54F295	EF37	99999 min.	120V/60Hz.	12.75	11.95	11.50	10.85
54F296	EF37	99999.9 hr.	120V/60Hz	12.85	12.10	11.60	10.95
54F299	EF37	99999 min.	240V/60Hz.	12.95	12.20	11.70	11.05
54F300	EF37	99999.9 hr.	240V/60Hz.	13.50	12.35	11.90	11.25
54F293	EF47	99999 min.	120V/60Hz.	13.50	12.35	11.50	11.25
54F294	EF47	99999.9 hr.	120V/60Hz	13.50	12.35	11.90	11.25
54F297	EF47	99999 min.	240V/60Hz.	13.75	12.55	12.10	11.45
54F298	EF47	99999.9 hr.	240V/60Hz.	13.75	12.55	12.10	11.45

EF47

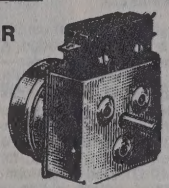
EF37

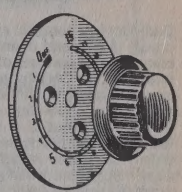
SERIES AB51 HAND SET INTERVAL TIMER

Type AB51. Rotation energizes load and timing motor. On release motor drives timer to zero; motor and load then de-energized. Setting changeable during cycle without damage. Mount behind panel. Has 3 mounting holes. Setting shaft ¼" diameter. Flatted to .156 for ½". Flat is located 180° from "0" time. SPDT switch rated 25 amps. 125/250 VAC resistive. Spade terminals. Motor 120 VAC, 60 Hz. Size: 2¼"x3³⁄₁₆"x3". Weight: 1 lb. UL recognized. CSA listed.

Stock No.	Type	Time Range	1-4	5-9	10-24	25-49
54F145	AB51-001	1 Min.	18.05	17.15	16.35	15.35
54F146	AB51-002	6 Min.				
54F147	AB51-003	15 Min.				
54F148	AB51-004	30 Min.				
54F149	AB51-005	60 Min.				
54F150	AB51-006	2 Hrs.				
54F151	AB51-007	6 Hrs.				
54F152	AB51-008	8 Hrs.				
54F153	AB51-010	12 Hrs.				
54F154	AB51-016	24 Hrs.				

54F090. Knob type 55121 for Series AB Timers. NET 90





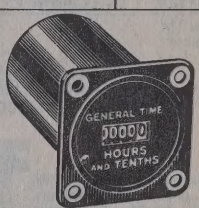
Stock No.	AB51 Type	AT5- Dial Face	55121 Net Each
54F159	AT5-1020-901	3 Hrs.	2.20
54F155	AT5-1021-901	1 Min. or 1 Hr.	
54F157	AT5-1022-901	15 Min.	
54F164	AT5-1140-901	24 Hrs.	
54F161	AT5-1141-901	6 Min. or 6 Hrs.	
54F162	AT5-1142-901	8 Hrs.	
54F163	AT5-1143-901	12 Hrs.	
54F158	AT5-1147-901	30 Min.	
54F160	AT5-1148-901	2 Hrs.	

ELAPSED TIME INDICATORS

Series 7010. Non-resettable, lightweight, panel mount, hermetically sealed, tamperproof. Panel cut-out is 1.670" diameter. 115 volt operation. Operating temperature range: —55°C to +85°C. Bezel: 1¾", Depth: 2²⁷⁄₆₄".

Series ED. Non-resettable, commercial unit equipped with special miniature synchronous motor. Panel mount, with four mounting holes. Panel cutout: 1.670" diameter. UL recognized. ED71 also CSA listed. Operating temperature range: —12°C to +55°C. ED71 has 11¼" wire leads. ED72 has glass fused terminals.

Stock No.	Type	Time Range	Input Watts	1-4	5-9	10-24	25-49
54F060	7010-004	9999.9 Hrs.	2.5 @ 115V, 400 Hz	68.05	64.65	61.60	57.85
54F100	7010-010	9999.9 Hrs.	2.5 @ 115V, 60 Hz	68.05	64.65	61.60	57.85
54F063	ED7112	9999.9 Hrs.	2.5 @ 60 Hz, 2.2 @ 50 Hz.	42.40	40.25	38.40	36.05
54F073	ED7212	9999.9 Hrs.	2.5 @ 60 Hz, 2.2 @ 50 Hz.	45.95	43.65	41.60	39.05



Series 7010
Series ED

RG21 REPEAT CYCLE TIMERS

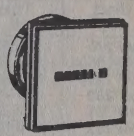
Cam actuated, single switch for rear mounting. Continuous run. Cam adjustable from 7° min. to 160° max. (±3%). SPDT switch. 20 A. 3.7 W. motor. 120 VAC. 60 Hz. 2⁵⁄₁₆x3⅛x 2½". UL recognized.

Stock No.	Type RG21	Time Range	1-4	5-9	10-24	25-49
54F017	–090	7 1/2 Sec.	26.05	24.75	23.60	22.15
54F018	–091	15 Sec.				
54F019	–092	30 Sec.				
54F020	–093	1 Min.				
54F021	–094	5 Min.				
54F022	–095	10 Min.				
54F023	–096	15 Min.				
54F024	–097	30 Min.				
54F025	–098	60 Min.				

ELAPSED TIME INDICATORS

Time measurement and readout. Non-resettable, synchronous motor driven units. White numerals on black. 125 VAC or (*) 240 VAC. Power input at 60 Hz: EF27, 5 watts; EF13, 2.5 watts. Operating Temperature range: —12°C to +55°C. Mounts in 2⅛" dia. panel cutout. 6" wire leads. EF13: 2.88" dia. bezel mounted with #6 screws. EF27: 2⅜" sq. bezel with mounting studs. UL recognized. CSA listed.

EF13


EF27

Stock No.	Type	Time Range	1-4	5-9	10-24	25-49
54F061	EF1333-003	99999.9 M	19.20	18.25	17.40	16.35
54F062	EF1335-003	99999.9 H	19.20	18.25	17.40	16.35
54F168	EF2733-003	99999.9 M	22.55	21.95	20.40	19.20
54F170	EF2735-003	99999.9 H	22.55	21.95	20.40	19.20
54F091	EF1335-005	99999.9 H	20.20	19.20	18.25	17.15

NOTE: M—minutes; H—hours.

- **Highly accurate**
- **—12°C *to* +55°C**
- **125 or 240 VAC**

SERIES RE REPEAT CYCLE MULTI-CAM TIMERS

2 to 6 switches may be actuated during cycle. Adjustable friction loaded cams. Complete unit requires one switch stack and one drive motor. Size: 2⁵⁄₁₆"H x 3³⁄₃₂"W x 3⁹⁄₁₆"D. Add 1¹⁄₁₆" to depth for each additional switch. UL recognized.

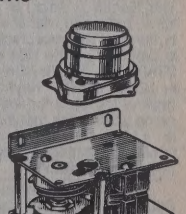
SWITCH STACKS

Stock No.	Type	Switch	1-4	5-9	10-24	25-49
54F027	RE62-091	2	24.20	23.00	21.90	20.55
54F028	RE63-092	3	32.35	30.65	29.15	27.40
54F029	RE64-093	4	38.80	36.85	35.10	32.95
54F030	RE65-094	5	49.40	46.90	44.70	42.00
54F031	RE66-095	6	57.40	54.55	52.00	48.80

DRIVE MOTORS

Order with switch stack for complete unit

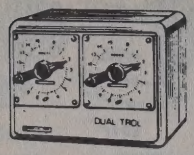
Stock No.	Type	Time Range		Actual RPM	1-4	5-9	10-24	25-49
54F032	MP10-390-003	7½	S	16	13.85	13.20	12.55	11.70
54F115	MP10-400-003	10	S	12				
54F033	MP10-391-003	15	S	8				
54F034	MP10-392-003	30	S	4				
54F035	MP10-393-003	1	M	2				
54F036	MP10-394-003	5	M	2.5				
54F037	MP10-395-003	10	M	1.5				
54F038	MP10-396-003	15	M	2.15				
54F039	MP10-397-003	30	M	1.15				
54F040	MP10-398-003	1	H	1.30				


RE-
MP10-

Industrial Timer Controls

itc
Industrial Timer Company

SERIES "DUAL TROL" RECYCLING TIMERS



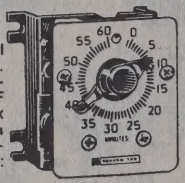
Dual-Trol is a compact recycling timer that continuously closes and opens a SPDT load switch. A complete unit consists of two TM timer modules—one to set the ON interval. Second to set the OFF interval—and a control cabinet. Any two modules from listing below may be used to achieve the desired combination of time cycles. TM modules are complete timing mechanisms with 4-prong plugs that match receptacles within cabinet, for easy installation. Isolated SPDT load switch connects to terminal strip within cabinet; switch is rated 10A non-inductive at 120 VAC. 120 VAC/60 hz. 5⅛x5⅜x7½" Wt. 2 lbs.

TIMING ELEMENTS (2 REQUIRED)

Stock No.	Type	Max. Time	Min. Time
24F1861	TM-15S	15 sec	¼ sec.
24F1863	TM-60S	60 sec.	1 sec.
24F1865	TM-5M	5 min.	5 sec.
24F1868	TM-60M	60 min.	1 min.
24F1869	TM-3H	3 hours	3 min.
24F1870	DTH Cabinet	.....	.....

Type TM . . . . . Each 63.50
Cabinet . . . . . Each 78.50

AUTOMATIC RESET SERIES SF AND CSF

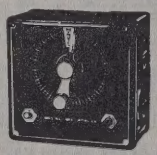


Designed for back of panel or chassis installation. 115V. 60 Hz. UL recognized C.S.A. approved. SF dimensions: 2¾ x 3⅛ x 2⅝". CSF dimensions: 2¾ x 3⅛ x 2²⁹⁄₃₂". SF accuracy: ±1%; CSF accuracy: ±1% of full scale.

Stock No.	Type No.	Time Cycle	Calibration
24F279	SF-6S	6 sec.	⅒ sec.
24F1853	SF-15S	15 sec.	¼ sec.
24F1854	SF-30S	30 sec.	½ sec.
24F280	CSF-1M	60 sec.	1 sec.
24F281	CSF-3M	3 min.	3 sec.
24F282	CSF-5M	5 min.	5 sec.

Type SF. . . . . Each 42.00
Type CSF. . . . . Each 48.50

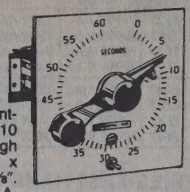
Series P



The Series P timer is a multi-purpose interval timer, equipped with line cord, manual start push button and two receptacles. The BLUE receptacle is provided on the side of the case for REMOTE STARTING. The BLACK receptacle receives plug-in LOAD circuits. Keyholes are provided in the back of the case for wall mounting. Load contact rating is 15 amps. noninductive. Repeat accuracy is ±.25% of full scale. Reset is ½ second at maximum setting. Voltage of 120, 240/50 or 60 cycles are available.

Stk. No.	Model	Maximum Time Cycle	Dial Division	
81F029	P-4R	15 seconds	1/4 second	
81F030	P-2R	30 seconds	1/2 second	
81F031	P-1M	60 seconds	1 second	93.50
81F032	P-3M	3 minutes	3 seconds	
81F033	P-5M	5 minutes	5 seconds	

AUTOMATIC RESET H AND CH SERIES

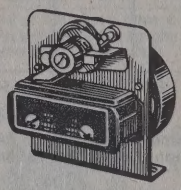


Designed for panel mounting. Load circuit rated @ 10 A. 115V/60Hz through SPDT contacts. 3¹¹⁄₁₆" x 3⅞" x (*) 3¹¹⁄₁₆", (†) 3⅞". U.L. recognized. C.S.A. app. Shpg wt. 1½ lbs.

Stk. No.	Type	Time Cy	Calibration
24F1855	H-6S*	6 sec.	⅒ sec.
24F296	H-15S*	15 sec.	¼ sec.
24F1856	H-30S*	30 sec.	½ sec.

Type H. . . . . Each 44.75
Type CH . . . . . Each 54.50

SERIES 90 DELAY TIMERS

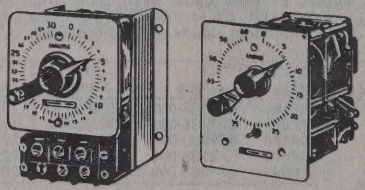


Requires little field adjustments. Dial not included. Starts from sustained switch closure thru L1 & L2; at end of cycle, load contacts are operated, until power is removed. Contacts: rated @ 10A, 115V/60Hz. Dim. 2⅝ x 2¼ x 2¼". UL & CSA app. Wt. 1 lb.

Stk. No.	Type	Time Cycle	Calibration
24F1843	90-6S	6 sec.	½ sec.
24F1844	90-15S	15 sec.	1½ sec.
24F1845	90-30S	30 sec.	3 sec.
24F1846	90-60S	60 sec.	6 sec.
24F1847	90-90S	90 sec.	9 sec.

Series 90 . . . . . Each 31.00

AUTOMATIC RESET TIME DELAY SERIES TDAB AND TDAF TDAB TDAF



Features external clutch for accuracy, and an automatic reset which allows complete timing/switching movement to reset in less than ½ sec. at max. setting. SPDT contacts rated @ 10A, 115V/60Hz. TDAF, panel mount. TDAB, behind panel mount. Shpg. wt. 4 lbs. TDAB is U.L. app.

BACK MOUNT

Stk. No.	Type
24F1812	TDAB-15M
24F304	TDAB-60M

Type TDAB . . . . . Each 80.00
Type K. . . . . Each 6.50

PANEL MOUNT

Stk. No.	Type	Time Cy.	Calibration
24F1808	TDAF-15M	15 min.	15 sec.

Type TDAF. . . . . Each 80.00

AUTOMATIC RESET TIME DELAY TIMER MTD.

Provides predetermined time delay between closing of one load circuit and subsequent operation of isolated load switch. Operates from 115V, 60Hz. SPDT contacts rated at 10A/115V. U.L. recognized. 3" panel hole.

Stock No.	Model No.	Max. Setting	Min. Setting
62F2036	MTD-15S	15 sec.	¼ sec.
62F2037	MTD-60S	60 sec.	1 sec.
62F2039	MTD-60M	60 min.	1 min.

Type MTD . . . . . Each 69.75

AUTOMATIC RESET INTERVAL TIMER PANEL MOUNT SERIES MPB

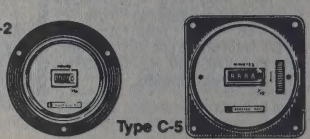
The Series MPB is an automatic reset, push-button operated interval timer. The MPB features an attractive bezel framed dial with time selector ring and start button combined into a single assembly.
Time interval indication is viewed by a moving white pointer located within the selector ring. Repeat accuracy is ±½ of 1% of full scale with a reset time of ½ second at maximum dial setting. Mounting: Mounted through a 3½" diameter hole and is secured to the panel with four screws. Electrical Specifications: Load switch rating: SPDT snap action, 15 amp. noninductive at 125/250 VAC. Motor Voltage: 120 v, 60 Hz. Terminations: ¼" push-on terminals. Dimensions: 4"L x 2¹⁵⁄₃₂"D x 4⅜"H. Shipping Weight 3 lbs.

TIME CYCLES AND PRICES

Stk. No.	Model	Min. Setting	Max. Setting	Key
24F1756	MPB-60S	1 sec.	60 sec.	A
24F1757	MPB-5M	5 sec.	5 min.	B
24F1758	MPB-15M	15 sec.	15 min.	B
24F1759	MPB-60M	1 min.	60 min.	B

Key A . . . . . Each 36.60
Key B . . . . . Each 36.60

Elapsed Time Meter



Provides record of AC device oper. hours. Self-lubricating motor connected to counters. Series C-2A non-resetting meter enclosed in bakelite case. Requires 2⅞" hole for mounting. Series C-5 is rest time totalized. Has ¾" square flange and requires 2¾" mounting. Series C-4 non-resettable open type has 2½" round flange and needs 2" dia. mounting. 120V. Shpg. wt. 1 lb.

Stok. No.	Type	Max. Hrs.	Calib.	Each
55F670	C-2	10,000	⅒ hr.	39.50
55F680	C-5	10,000	⅒ hr.	66.75

SIGNALLING TIMER— Automatic Reset Series SAR

Audible signal at end of preset cycle. Receptacles allow load to operate during or after cycle. Toggle switch front end of unit. SPDT switching action. Contacts rated at 10 amps. ±.5% repeat accuracy. 115 V 60 Hz. 3 lb.

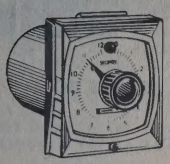
Stock No.	Type	Time Cycle	Calibration	Each
24F345	SAR-15M	15 min.	15 sec.	80.00
24F347	SAR-1H	1 hr.	1 min.	

7

Industrial Timer Controls

itc Industrial Timer Company

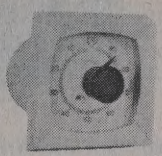
Automatic Reset Delay/Internal Timer with Spider Clutch



- Incorporates mechanical and infinite engagement for high accuracy.
- Completely interchangeable.

GP2 is an automatic reset, synchronous motor driven plug-in timer control completely interchangeable with all popular plug-in timers. Provides two delayed sets of contacts and two sets of instantaneous contacts. Rating of 5 amps at 250VAC. Patented Spider Clutch incorporates the high accuracy of infinite engagement clutches with mechanical integrity of toothed clutches. Accuracy ¼ of 1%. Reset time—less than ½ sec. for full scale. For 120 VAC 60 Hz. Wt. 2 lb. 7 oz.

Stock No.	Type	Max. Time Cycle	Dial Cal.	EACH
62F1991	GP2-15S	15 sec.	¼ sec.	85.00
62F1993	GP2-60S	60 sec.	1 sec.	
62F1995	GP2-5M	5 min.	5 sec.	
62F1996	GP2-15M	15 min.	15 sec.	
62F1998	GP2-60M	60 min.	60 sec.	



GPC SERIES

The GPC Series, identical in operation to the PC Series, is calibrated in percentages and designed to close an electrical circuit for an adjustable part of a given time cycle. "ON" time can be set from 3% to 97% of the total time cycle. The GPC Series can also be set at 100% which provides constant circuit closure. The GPC is a companion to the GP-2 and is completely enclosed in a dustproof case. SPNO load contacts are rated at 20 amps, non-inductive. Operating voltages of 120 or 240VAC, 50 or 60 Hz are available.

Stock No.	Type	Time	Each
81F024	GPC-15S	15 Sec.	58.80
81F025	GPC-30S	30 sec.	
81F026	GPC-60S	60 sec.	
81F027	GPC-15M	15 min.	
81F028	GPC-60M	60 min.	

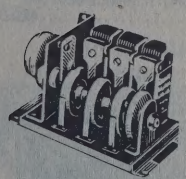
To order, specify model number, cycle time and voltage.

7

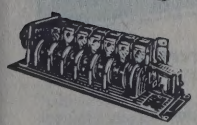
HOW TO ORDER CAM TIMERS

Locate desired time cycle duration in "Gear Assemblies" chart below, order gear-and-rack assembly listed in left-hand column. Appropriate foundation (motor-switch) units appear at top of "Time Cycle" columns. Example: 4 circuits are to be controlled, with a 30-second time cycle, recycling. Order gear-and-rack assembly. A12, stk. no. 24F315, and note that foundation unit MC2 is required. At bottom of page, locate MC2 under heading "4 SWITCH CHASSIS". Order stk. no. 62F2010. U/L & CSA approved.

CM



MC



RC

GEAR ASSEMBLIES—TOTAL TIME CYCLE*

Stock No.	Mfrs. Type	CMO	MC1 CM1 RC1	CM2 MC2 RC2	CM3 MC3 RC3	CM4 MC4 RC4	CM5 RC5 MC5	CM6 MC6 RC6	CM7 MC7 RC7	CM8 MC8 RC8	CM9 MC9 RC9	CM10 MC10 RC10	CM12 MC12 RC12	NET
24306	E12	40c	4S	10S	20S	40S	2M	3M20S	10M	20M	40M	2H	8H	5.50
24308	C12	1S	6S	15S	30S	60S	3M	5M	15M	30M	60M	3H	12H	
24F309	C14	70c	7S	17.5S	35S	70S	3M30S	5M50S	17M30S	35M	70M	3H30M	14H	
24F310	C15	75c	7.5S	18.75S	37.5S	75S	3M45S	6M15S	18M45S	37M30S	75M	3H45M	15H	
24F311	B12	80c	8S	20S	40S	80S	4M	6M40S	20M	40M	80M	4H	16H	
24F312	C18	90c	9S	22.5S	45S	90S	4M30S	7M30S	22M30S	45M	90M	4H30M	18H	
24F313	B15	100c	10S	25S	50S	100S	5M	8M20S	25M	50M	100M	5H	20H	
24F315	A12	2S	12S	30S	60S	2M	6M	10M	30M	60M	2H	6H	24H	
24F317	A14	2S20c	14S	35S	70S	140S	7M	11M40S	35M	70M	2H20M	7H	28H	
24F318	A15	2S30c	15S	37.5S	75S	150S	12M30S	12M30S	37M30S	75M	2H30M	7H30M	30H	
24F319	A16	2S40c	16S	40S	80S	160S	8M	13M20S	40M	80M	2H40M	8H	32H	
24F321	A18	3S	18S	45S	90S	3M	9M	15M	45M	90M	3H	9H	36H	
24F322	A20	3S20c	20S	50S	100S	200S	10M	16M40S	50M	100M	3H20M	10H	40H	
24F323	A22	3S40c	22S	55S	110S	220S	11M	18M20S	55M	110M	3H40M	11H	44H	
24F324	A24	4S	24S	60S	2M	4M	12M	20M	60M	2H	4H	12H	48H	
24F325	A26	4S20c	26S	65S	130S	260S	13M	21M40S	65M	2H10M	4H20M	13H	52H	
24F326	A28	4S40c	28S	70S	140S	280S	14M	23M20S	70M	2H20M	4H40M	14H	56H	
24F327	A30	5S	30S	75S	150S	5M	15M	25M	75M	2H30M	5H	15H	60H	
24F330	A36	6S	36S	90S	3M	6M	18M	30M	90M	3H	6H	18H	72H	

*c = cycles (refers to 60 cps current; e.g. 50 c = 5/6 sec), S = seconds, M = minutes. H = hours.

SERIES CM SINGLE-CAM RECYCLING TIMER

Snap action totally-enclosed, dustproof SPDT switch. Rated 10A-115V, 10A-220V, non-inductive AC. Cam and gear train interchangeable for longer or shorter time cycle, attach to motor chassis by single 6-32 screw. Can be set so switch is actuated from 2% to 98% of total time cycle; each cycle automatically repeats until power is turned off. 3-1/16x2-13/16x2¼". 115 volts 60 Hz operation. Order motor switch chassis covering required time range, and gear assemblies for specific time cycles. Wt., 1 lb.

Stock No.	Type	Stock No.	Type	Each
24F1827	CM0	**24F1829**	CM3	32.75
24F1828	CM1	**24F250**	CM4	
24F268	CM2	**24F251**	CM5	

Stock No.	Type	Stock No.	Type	Each
24F252	CM6	**24F1820**	CM9	32.75
2451819	CM7	**24F254**	CM10	
24F253	CM8	**24F255**	CM12	

SERIES RC SINGLE CYCLE MULTI-CAM TIMER

Similar to MC series, except operates one cycle only. See "How to Order," above. For 115VAC, 60 HZ.

2 SWITCH CHASSIS

Stk. No.	Type	Each
62F2002	MC2	53.50
62F2051	MC3	
62F2005	MC4	
62F2006	MC5	
62F2054	MC8	

4 SWITCH CHASSIS

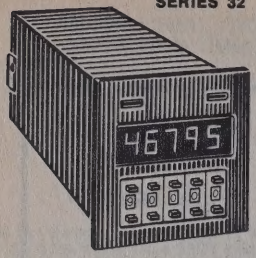
Stk. No.	Type	Each
62F2066	MC1	77.50
62F2010	MC2	
62F2067	MC3	
62F2013	MC4	
62F2014	MC5	

6 SWITCH CHASSIS

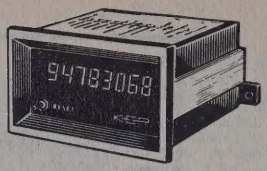
Stk. No.	Type	Each
62F2022	MC5	101.50

Kessler-Ellis Counters and Timers

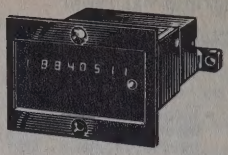
SERIES 32

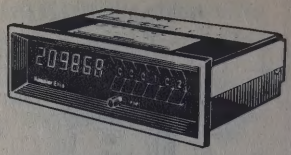


SERIES 8100



SERIES K





SERIES SCPS

Series 32

- 2″ square package.
- LED Display
- Built in 110/220-50/60 Hz supply
- Battery Standby circuitry built in. Battery not included.
- 5 digit—preset and display

Series 32 counter only 2″ square with 3, 4 or 5 red LED .250″ digits of electronic preset and control. Has built in 110 VAC 60 Hz power supply and logic that counts up or down from preset number. All units add and subtract. 220VAC 50 Hz available on special order. For control, the 32 offers a 4 amp form C relay which latches until reset. Logic level outputs are also available. 100 cps count speed.

Type 3241H5D3AEX. 4 digit counter.
10F7445 NET **515.00**
Type 3251H5D3AEX. 5 digit counter.
10F7746 NET **550.00**
Type 3251H1D3AEX. 12VDC 5 digit.
10F7447 NET **550.00**
Type 3251H2D3AEX. 24VDC 5 digit.
10F7448 NET **550.00**

Series K

Series K. Totalizer add/subtract electronic counter. Registers simultaneous and overlapping pulses. Optically isolated. 5-40 VDC, 50 Hz, Max. 250 csp count speed. 24VDC regulated power supply. 50 Hz, 10 cps to 1 MHz input. Panel or remote reset. Built in battery for power failures. Batt. not included. C/MOS L.S.I. circuitry. 4 digit counters have open collector logic level zero output option. .17″ LED. 1″ x2″ case.

Series 8100

- Counts overlapping pulses.
- Freeze display, output w/o affecting logic.
- Built in standby circuitry.
- C/MOS L.S.I. low power circuitry.

Series 8100. 8 digit add/subtract panel mount counter. Designed for simultaneous and overlapping pulses, quadrature pulses, AC and DC pulses, line driven and switch closure pulses. Low C/MOS insures accurate count in noisy industrial environments. Powered by 110VAC 60 Hz supply which also generates 100 milliamps of regulated 5 or 12V to peripherals. Built-in self charging battery to hold count up to 3 weeks. Batt. not incl. Aluminum case. .4″ orange LED's. Parallel BDC and logic level zero output options. Edge connector termination supplied.
13F3385 8150 3-12 PE3EX NET **255.00**

K1823SP12B2A50HZ. 8 digit spring clip.
13F3390. NET **220.00**

K1423SP12B2A50HZ. 4 digit spring clip.
13F3391. NET **220.00**

K1813SP12B2A50HZ. 8 digit panel mount.
13F3392. NET **220.00**

K1413SP12B2A50HZ. 4 digit panel mount.
13F3393. NET **220.00**

Series SCPS

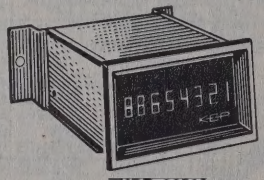
- .430 brilliant orange LED display
- 2 preset points, 8 amps each.
- Counts between two numbers.
- Crystal controlled timer modes.

Series SCPS. 6 digit AC powered single or dual preset panel mount counter timer. Can count up to the preset number or between the preset numbers. Built in 110 VAC 60 Hz power supply generates 100 milliamp of 12V to power input devices. Output features 8 amp relays, 3 amp triacs and open collector logic level outputs. Both panel and remote resets. 12 volt high impedance pulse input to count/time. 1 standard variable preset. Controlled by two form C relays in 10 millisecond auto recycling. 100 cps count speed. Battery standby circuitry with 25 milliamps/8 volts current consumption built in to secure data in power outage. Battery not included. Changing preset number does not affect count. —32 to 140°F operating temperature range. 1.9″ x 5.6″ aluminum case with aluminum bezel.
SCPS16P3H125U1Z. Preset Counter.
13F3388. NET **392.00**
SPCT16P3H125U1B2EX. Preset Timer.
13F3396. NET **422.00**
SCPTHM S 16P3C125N1. hr./min./sec.
13F3389. NET **422.00**

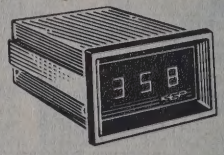
Series 8000

- AC/DC pulses or switch closure to count.
- One megahertz count speed.
- Freeze display, output w/o affecting total.
- Reset both remote and panel.
- For noisy electrical environments.

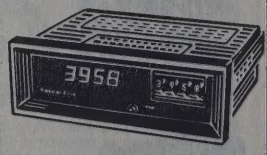
Series 8000. Panel mount 8 digit electronic totalizing counter replaces electromechanical counters without changes to circuitry. Feature built in 110VDC 60 Hz power supply which both powers the counter and provides 100 milliamps of regulated 5 or 12VDC to power photoelectrics and proximity sensors. Accepts 12V high impedance pulse and switch closure inputs at speed up to one megahertz in noisey industrial environments. Built in self charging nicad battery protects the count for 3 weeks in power failures. Battery not included. Option—BCD output is ideal for interfacing with printers and other data processing equipment. No moving parts. Offers remote or panel pushbutton resets. Printed circuit board edge connector supplied. Operating temperature of —32 to 130°F. 100 cps count speed. Mount on aluminum bracket provided. 4.0″ x 3.5″ x 1.89″.
Type 80503-12PE3EX. Totalizing counter.
13F3395. NET **220.00**



TYPE 80503



TYPE 85503



TYPE 86503

Series 8500 and 8600

- .375″ brilliant orange LED displays.
- Crystal oscillator controlled.
- 110/220/-50/60 Hz power supply.
- Rocker switch field programmable.
- Frequency display updates-programmable.
- BCD output.
- Rugged cast aluminum case.
- Presettable.

Series 8500 and 8600 crystal controlled rate meter/frequency counters designed for controlling event per minute. The 8500 indicates rpm's and update at precise one second intervals. The 8600 als updates each second and features four digits of preset and 8 amp control relays. Both rate meters are designed for use with sensors that generate 60 pulses per revolution. As frequency counters, both meters will tract 3-30VDC signals at speeds up to one megahertz refreshing the display at precise one second intervals. This family is powered by a built in 110/120-50/60 Hz power supply. These supplies generate 100 milliamps of 5 or 12 volts for powering photoelectrics and shaft encoders. Counters accept up to 12 volt high impedance pulses. Operating temperature of 32 to 130°F.

Type 85503-110PE. Rate/frequency meter.
13F3394. NET **385.50**

Type 86503-110PE. 2 Form C relays 8 amp relays available for control. When preset rate is reached, relays either transfer or remain tansferred, transfer for an adjustable time period or latch until the rate falls below the preset point at which time relays will open once again. Open collector output also available, 400 milliamp switching capacity.
10F7444. NET **466.00**

PRICES SUBJECT TO CHANGE. SEE PAGE 4.

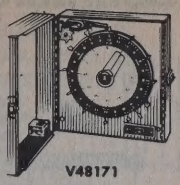
Timers and Photo Controls

INTERMATIC®

SCHEDULER AND SUPERVISOR TIMERS

V47000 Series—Ideal for control of background music, industrial process operations, heating systems. Periods of operation can be varied in multiples of 5 minutes. V48000 Series—Provides 1 to 288 short interval operations per day. Operates for periods of from 2 to 60 seconds duration at 5 minute intervals. Both units repeat program every 24 hours and skip days desired. Includes toggle switches for testing and cutting off automatic operations. Gray steel case 10⅞"x7⅜"x3⅝". 125 V. 60 Hz AC. Weight 8½ lbs.

Model V48171. 1 Circuit, 24 hour
43F042 EACH 173.90
Model V49177. 2 Circuit, 24 hour
43F043 EACH 184.08
24F1893 Model V47171. 1 Circuit 163.57
24F1894 Model V47177. 2 Circuit 173.88

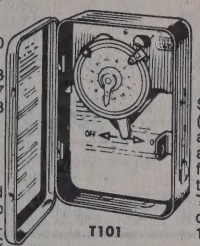


V48171

GENERAL PURPOSE TIMERS

Model T101. Turns device on and off for any period over 1 hour . . . once every 24 hours. May be set up for more operations with additional tripper sets (below). Can be manually operated without upsetting automatic sequence. SPST switch. U-Beam blades, high-power switching mechanism, and tungsten rating of 40 amps to carry incandescent lighting loads. Size, 7¾"x5"x3". For 125 V. 60 Hz AC. 3 lbs.
24F978. EACH 26.07

Model T103. Same as above, but DPST.
24F977. EACH 28.93
24F982. Set of extra trippers 156T1978A 55

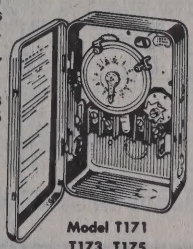


T101

"SKIPPER" TIME SWITCHES

Model T171, T173, T175. Provides a program of operations for most commercial or industrial needs. For use where it is desired to skip operations on weekends or other selected days. Has 24-hour time dial and 7-day skipper dial. Small skipping screws are merely inserted into respective day holes for skipping operation. Contacts rated up to 40 amps per pole. 3 skipping screws, one cutout, one off tripper included. 125 VAC, 60 Hz. Drawn steel case, gray finish. 7¾"x5"x3". 3 lbs.

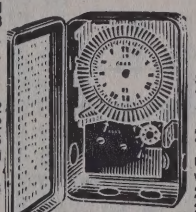
Model T173. DPST.
24F1890. Model T173 DPST. EACH 39.62
24F1891. Model T175 SPDT. EACH 39.62
24F1892. Model T171 SPST. EACH 36.86
Model .P171-30 SPST portable unit with plug-in cord set. Rated 15 amps, 125 VAC.
24F1899 EACH 38.58



Model T171
T173, T175

PROGRAM TIME SWITCH

Type T1975. Provides up to 96 on and off operations in 15-minute steps every 24 hours! Ideal for devices requiring frequent control. Permanently attached trippers are spotted every 15 minutes around the dial . . . slide easily and can't get lost. 20-amp. contacts can be set up for SPST normally open or closed, or SPDT. Knockout box, 7¾"x5"x3". For 125v, 60 Hz. AC. 4 lbs. With "skipper" feature.
24F980. EACH 62.99



T1975

MASTER CONTROL

Type D811. Automatic Program Timer. Features 24 separate tabs for multiple daily programming. Easy to set. Slide out one tab for each hour of "ON" time desired. Has manual ON/OFF switch to permit use without disturbing auto. oper. Max. capacity: 125V, 60hz, 1875 Watts, ¼ HP, Max. ON time: 23 hrs. Min. ON time: 1 hr. (*) Not CSA listed.
13F062. NET. 10.47

D811

Model D111. Turns lights, radio, and TV on. Durable compact construction. Easy to read dial. Precision easy to set color coded trippers with 24 hour on/off timing and special manual control. UL listed. One year Warranty. 15 amps, 1875 watts. Cordless Plug-in.
24F263 NET. 7.67

D111

PHOTO CONTROL ON STEM

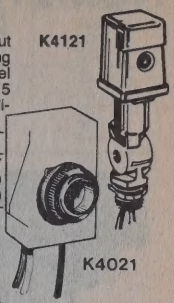
Series K1100. Adjustable stem permits mounting at almost any angle up to 80° (mount lens in northerly direction for best results). Relay type; CSA Listed. For 105-130 VAC. 50/60 Hz. Activation: 1-3 FC ON; 3-7 FC OFF. Three 8" color-coded leads. White epoxy. Size: 2½"Wx5¾"H. Wt. ½ lb.
24F2419. Model K1121. 1500 watts 16.51

K1121

THERMAL PHOTO CONTROLS

Features sonic welded Lexan case and lens. Seals out moisture. Eliminates possibility of leaks by avoiding uses of gaskets, rivets, etc. Equipped with light level adj. slide. ½"-14 thread stem mounting. Rated: 15 Amp., 125V., 1800 Watts. UL listed for outdoor applications. (*) Not CSA listed.

Stk. No.	Type	Description	Each
13F060	K4121	Stationary 120 Volt	9.17
13F061	K4221	Swivel Type 120 Volt	10.60
81F017	K4021	. . . . . 120 Volt	9.10



K4121

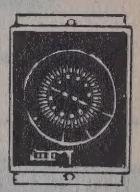
K4021

IN-WALL TIME SWITCH

Series E1000. Built in wall switch and outlet box timers. (Fits boxes 3"x2"x2½".) May be used for timing lights and appliances up to 1 H.P. Multiple Program Dial accommodates 12 "ON" and 12 "OFF" trippers (2 furnished). Rated: 15 A. 12 A full load, 1440 watts tungsten, 120 VAC @ 60 Hz.

Type E1020. w/o outlets. Pearl wht. housing w/twilight charcoal panel.
13F059. NET. 15.48

Type E1022. w/dual outlets. Pearl wht. housing w/ woodgrain panel.
24F2425. NET. 16.92



E1022

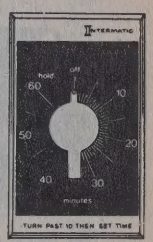
MULTIPLE PROGRAM TIMER MODEL ED 811

MASTER CONTROL II. A top-of-the-line automatic program table top timer. Easy to set via 24 individual tabs. Capacity: 125 volts, 60 Hz., 1875 watts, 15 amps., 1250 watts tungsten, ¼ H.P. Maximum "ON" time: 23 hours, minimum "ON" time: 1 hour.
81F015 . . . . . 12.57

ED811

ENERGY SAVER SPRING WOUND SWITCH

Single plate. Switch, single pole, single throw (SPST) "OFF" type-breaks circuit at end of timing cycle. Rated 1 H.P. at 125 V AC, 20 amps. 125V AC, 10 amps, 250V AC. Switch is open in "Off" position and closed in "Hold" or timing cycle positions. Ambient temperature range 40°F-120°F. UL and SCA Listed. Dimensions: width: 2¾", height: 4½", maximum depth 1¹¹⁄₁₆".
24F248. F60MH. 0-60 Min. w/hold. NET 10.63
24F249. F5M. 0-5 Min. NET. 9.39
24F258. F15M. 0-15 Min. NET. 9.39
24F259. F30M. 0-30 Min. NET 9.39
24F260. F60M. 0-60 Min. NET 9.39
24F261. F12H. 0-12 Hrs. NET 12.09



FM60H

The "LITTLE GRAY BOX"® Electric Water Heater Timer

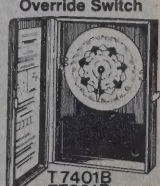
Program your hot water heater operation . . . automatically. The "Little Gray Box" electric water heater timer lets you save up to 33% on your electric water heating bill at the same time by controlling the times your hot water heater operates. Program your water heater's operation so that the quantity and temperature of your hot water are reduced—automatically. Schedule your water heater's operation to coincide with lowest time-of-day rates—conveniently. Regulate your water heater's operation so that you are not draining unneeded energy while your utility has least power to spare—easily. WH-40 U.L. Listed DPST-250V., 10,000 watts, 40 amps., 60 Hz.
81F016 WH-40 . . . . . 28.78

WH40

SEVEN DAY PROGRAMMERS

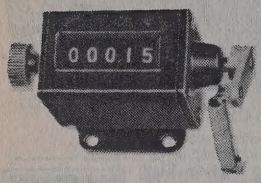
Model T7401B. Provides different programs for every day of the week. Up to 4 operations per day, with minimum of 3 hours between operations. 40 amp tungsten rated contacts. For 120 VAC, 60 Hz. Gray steel case, 10⅞"x7⅜"x3⅝". Shpg. wt. 6¼ lbs.
24F1897. 4PST switch 60.91
Model T7801B. Same as above, but with DPDT switch. Shpg. wt. 6½ lbs.
24F1898 . . . . . 60.91

External Override Switch

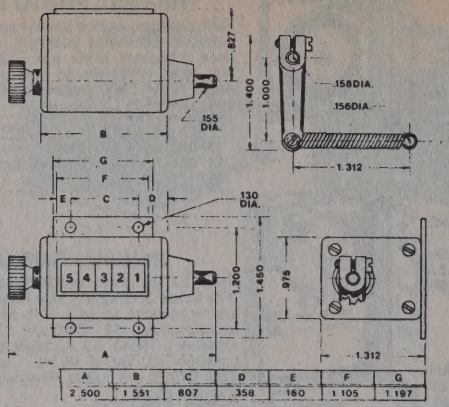


T7401B
T7801B

NUMERON™ brand Counters



5MC



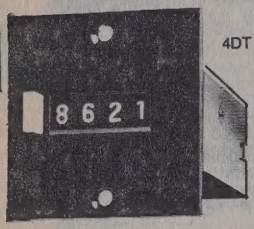
A	B	C	D	E	F	G
2.500	1.551	.807	.358	.160	1.105	1.197

MODEL 5MC SERIES

MECHANICAL STROKE COUNTER

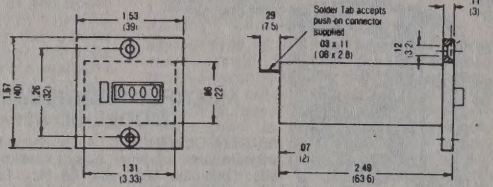
5MC series counters provide long, trouble free operation even in harsh and dusty atmospheres. The counters are supplied with a removable lever and spring combination used in most reciprocating applications. Reset knob. Dimensions: Length overall 2.50″

Stock No.	Type	Arm Action	Shaft Ext	1-9	10-24
81N4962	5MC-TC	Top Coming	Right	19.95	17.95



4DT

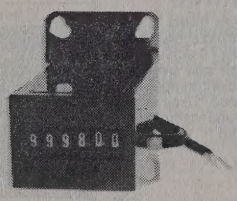
UL recognized



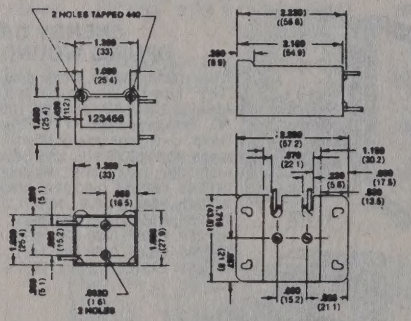
MODEL 4DT SERIES TOTALIZING COUNTER

4 digit with manual reset. Similiar to the 6DT. This unit is designed to provide the same high reliability yet conserve panel space. Rectifiers are built in for AC applications. All units are supplied with push on quick connectors and solder terminals. Digit size is .160″ high.

Stk. No.	Type 4DT-	Volt	Mount	1-9	10-24
81N4965	115AP	115AC	Panel	25.95	23.35
81N4966	024DP	24DC	Panel	24.35	21.91
81N4967	115AB	115AC	Base	29.95	26.95



6NR



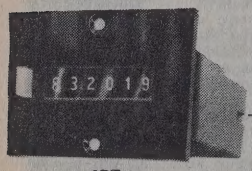
MODEL 6NR SERIES

UL recognized CSA certified

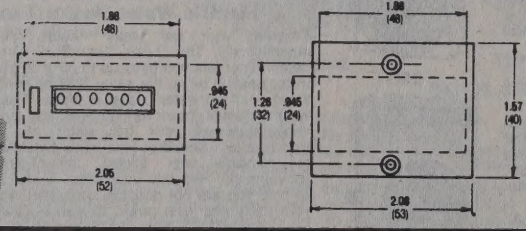
The 6NR incorporates the latest manufacturing technology together with a patented basic design to achieve high performance and unbelievably low pricing. This counter is specifically designed for vending, dispensing, gaming and office equipment applications, but due to it's high performance and low price, the 6NR can be used in many varied applications 6 big digits in a rugged plastic case. Count speed: 10 CPS, standard. 50/50 ratio on/off. Base mount dimensions: L. 1.715″ W. 2.25″ Height from base mount to face: 2.35″

Dual Mount: can be front or base plate mounted.

Stk. No.	Type 6NR-	Volt	Mount	1-9	10-24
81N4968	115AN	115AC	Dual	13.50	12.15
81N4969	024AN	24AC	Dual	13.50	12.15
81N4959	024DN	24DC	Dual	13.50	12.15



6DT



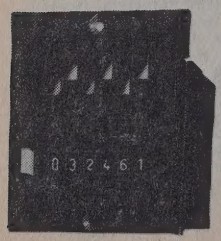
MODEL 6DT SERIES

ELECTRO-MECHANICAL

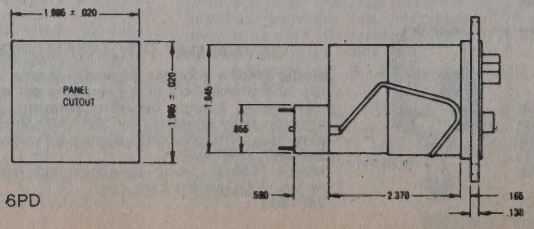
UL recognized

6 digit with manual reset. A very high reliability impulse counter designed for long life, (250 million) ruggedness, and low (2 watt) power consumption. Capable of count speeds to 50 per sec. Mounts in 1.89″ × .95″ panel cutout. 2.8″ behind panel.

81N4963	6DT115AP	115AC	Panel	52.15	46.93
81N4964	6DT024DP	24DC	Panel	45.85	41.26



6PD



MODEL 6PD SERIES PREDETERMINATING ELAPSED TIME INDICATOR

The 6PD predeterminating counter features large staggered push buttons for easy fast presetting. To operate use the push buttons to index each number wheel to it's preset number while holding down the white reset button. The counter will then count down to zero and actuate a SPDT built in 5-AMP switch. Reset back to the original preset number is done manually. Counter mounts in 1.97″ square panel cut out; extends 2.8″ behind panel.

81N4960	6PD-115A	115AC		132.50	119.25
81N4961	6PD-024D	24DC		132.50	119.25

RELAYS

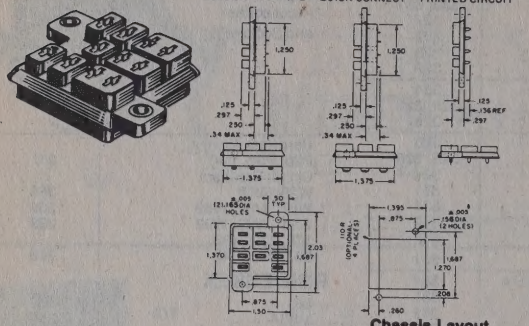
Manufacturer's Type	Page
AGASTAT	
BCSA, SCA, SSC, 7012, 7022, SCB, SCC	363
Accessories	363
AMPERITE	
6.3V NO, 26V NO, 115V NO 115 NC	367
ALCO	
FR, FRE, FRP	230
ALLIED CONTROL	
BOT, MH, MPC, MPCS, PO, SA6, WKJ	355
DR, T-154	354
SR	354
T-163	354
T-351, T-362, TF-154	354
TS-154	354
Accessories	354, 355
AMPHENOL	
315, 318, 321, 323	367
C. P. CLARE/GEN. INSTR.	
CG	352
HGJM, HGSM	350
HGSR	350
HGRM	350
HGW	351
HRM	351
LB, LM	352
MRB	352
PRMA	351
PRB	352
851	351
922	352
GORDOS/GRIGSBY BARTON	
AD, DA	356
G	356
GDB, GPS	356
IA, OA, ID, OD	356
M, HG, GA, GB	357
MR, WR	357
651A, 651C, 652A	357
741A, 761A	357
831A, 831C, 832A	357
15000	357
GUARDIAN	
LT	348
MC, MER	345
MET	346
PC, PER	345
T, TP	348
TDO	349
2, 4	349
11, 12, 14, 16, 18	349
22, 24, 28	349
34	349
200	347
220	344
640	347
660	345
705	345
840, 845	345
900	347
905	347
1200/1200	347
1210, 1215, 1220P, 1225P	344
1240, 1245	347
1310, 1315, 1310P, 1315P	344
1330, 1335, 1330P, 1335P	344
1345	346
1360PC, 1365PC	344
1380, 1385, 1390, 1395	346
1475	345
1495	345
1565, 1575	346
1625, 1675	349
2600, 2700	347
HAMLIN	
HE321A, HE421A HE421C, HE461A, HE721A, HE721C, HE821A, HE821C, HE831A	266
HEINEMANN	
AJ1, AJ2, AJ3	370
KD	370
AM1, AM2, AM3, TX	371
MACROMATIC	
556, 8, 23, 78, 80, 81	353
MAGNECRAFT	
W3	333
WM35, WM60	334
W62	331
W64	329
W63, W65	329
W67	330, 331
W76	327
W78	332
W88	328
W88K	329
W97	334
W101	325, 326
W102	326
W103	326
W104	325, 326
W107, W117, W118	324
W120	331
W128	331
W131, W134	325
W155	329
W158	331
W171, W172, W173, W174	324
W199	331
W211	332
W214	331
W250	329
W388	328, 331
W389	327
W6100, W6200, W6400	333
Accessories	327, 328, 329, 330
MIDLAND ROSS/MIDTEX	
48	360
156	361
158, 159	360, 361
157, 187	360
159, 160	362
189, 190	362
301, 302, 310	361
612, 613, 614, 615	362
Accessories	360, 361
POTTER & BRUMFIELD	
AB, ABC	313
AP	322
BU	320
CD, CG, CH, CJ, CK, CL, CR	314, 315
CSL, CSJ	317
CU	314, 315
CW	320
EBT	317
EAX, ECM, ECT, EOM, EOT	311
FC, FL	321
GA	303
GM	322
HC, HCM	321
HP, HPS	303
1AC, 1DC	323
JM, JML, JMF	318
JR, JRE, JRM, JDT, JWD	319
K10	316
KA, KAP	302
KB, KBP	322
KCP	320
KHS, KHU	303
KM	321
KNP	306
KR, KRP	304
KRPA	305
KT	320
KUA	317
KUL	322
KUP, KUMP	307
KUR	317
LB, LM	320
MB	312
MR, MS	312
OAC, ODC	323
P25, P30, P40	317
PM	306
PRD	313
PW	320
QC08, QL08, QR08, QS08	312
RS	320
R10-E1, R10-E2	308
R10-E6	300
R10L, R10S	309
R12, R14, R15, R16, R52	316
R40, R50	310
S3, S4, S11, S22, S28, S34	323
SC, SL	321
SS5D	320
S87R	313
S89R	320
T10	310
Accessories and Sockets	302, 303, 304, 305, 306, 307, 308, 309, 310, 312, 316, 320
Hardware for P20, P30, P40 Circuit Breakers	317
W28, W58	368
W67, W68, W69	369
W91, W92, W93	369
109, 112, 436, 507, 548, 842	368
RBM/ESSEX	
MC	359
MS64	359
60	359
70	358
75	359
84, 91	358
93, 124	359
129, 143	358
150	359
154	358
184	358
192	358
SIGMA	
5	342
8L, 8P, 8A, 8R	343
41, 42	342
48	342
49	341
50	340
60	341
67	341
68	340
70	339
76	340
78	339
183, 186, 198	336
181, 182, 184, 185, 187	337
191, 195	338
196, 193	338
226	342
221, 223, 230, 231	343
301	343
Accessories	339, 340, 341
SINGER	
801, 812, 813, 821	367
SPC	
SPC sockets	300, 301
STRUTHERS-DUNN	
A42, 45	366
A275	364
A283	366
A575	364
A311	365
A314	366
B11, B1	364
B255	365
C85	364
C281	366
CX3671, CX3672	365
MRR	365
RSX	365
219	365
229	364
236, 237	365
285	366
286	366
292	362
326	366
415, 425	364
Accessories	365, 366
T-BAR ELECTRONICS CONTROLS	
801, 901, 907, Accessories	335

VOLTREX® brand Relay Sockets

- **High quality sockets for maximum relay retention and electrical conductivity.**
- **Nickel-plated screw type terminals on break-resistant barrier-type terminal block for fast, easy connection.**

3PDT CHASSIS MOUNT

CMS-11-BLD SOLDER TERMINAL **CMS-11-QDC** QUICK-CONNECT **CMS-11-PCB** PRINTED CIRCUIT

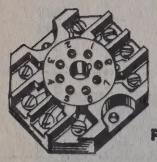


Chassis Layout

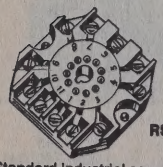
Rated 10 amperes; molded of UL grade nylon. For use with all Magnecraft class 388 relays. CMS-11-PCB: P.C. Board terminals. CMS-11-SLD: solder terminals, solder plate 60/40. CMS-11-QDC: quick disconnect terminals.

Stk. No.	Type	Terminal	1-24	25-50	51-99	100-249
23N3608	CMS-11-PCB	P.C. Board	1.58	1.50	1.42	1.19
23N3606	CMS-11-SLD	Solder	1.33	1.26	1.20	1.00
23N3607	CMS-11-QDC	Quick Disconnect	2.10	2.00	1.89	1.58

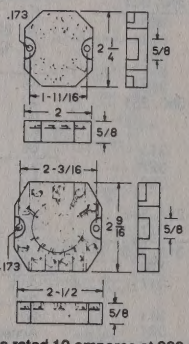
8 AND 11-PIN SCREW TERMINAL



RS-8B



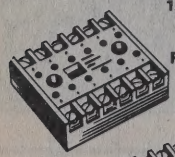
RS-11B



Standard industrial screw terminal sockets rated 10 amperes at 300 volts. For use with Magnecraft 8 and 11-pin industrial relays. RS-11B. 11-pin octal, screw terminal, RS-8B: 8-pin octal, screw terminal.

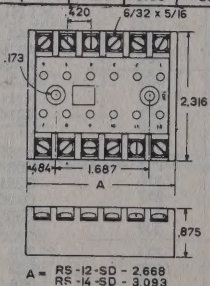
Stk. No.	Type	Description	1-9	10-49	50-99	100-249
23N3600	RS-8B	8-pin/screw term.	4.06	3.71	3.10	2.68
23N3601	RS-11B	11-pin/screw term.	8.72	7.96	6.65	5.78

12 AND 14-PIN



RS-12-SD

RS-14-SD



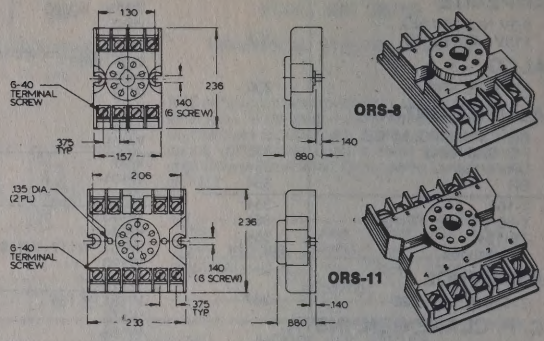
A = RS-12-SD - 2.668
RS-14-SD - 3.093

Screw terminals and clamp plates for #14 wire. Rated 10 amperes at 300 volts. RS-12-SD is designed for use with Struthers and Dunn 12-pin relay types: CX3671, CX672, S.S.96 solid state, RSX1440, A255, 236, 237, 219. RS-14-SD is designed for use with Struther and Dunn 14-pin, 4PDT and 6 pole type 219 relays.

Stk. No.	Type	Description	1-9	10-24	25-49	50-99
23N3602	RS-12-SD	12-pin	7.10	6.04	5.68	5.32
23N3603	RS-14-SD	14-pin	8.04	6.84	6.43	6.03

- **Unitized, thermoplastic sockets with closed-back design which eliminates panel insulation and resists breakage.**
- **Permanent numbered terminals for easy identification.**

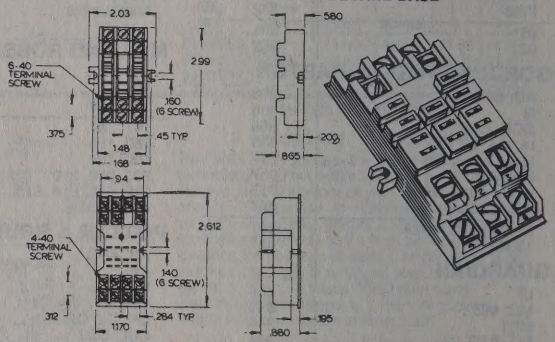
8 & 11-PIN UNITIZED OCTAL



Rated 10 amperes at 300 volts. Screw terminals #6-32. Screws with captivated traveling nut. For use with Potter & Brumfield type KRP, KRP3-H, KAP, KBP, KCP, EBT, EBA relays; CD-21, CD-38, CH, CK and CR time delays; and CS sensor.

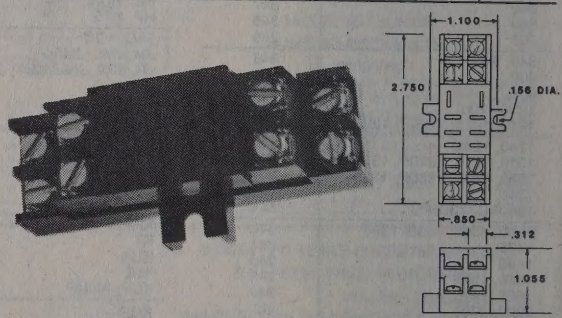
Stk. No.	Type	Description	1-24	25-50	51-99	100-249
22N3609	ORS-8	8-pin/2PDT	4.20	3.99	3.78	3.15
23N3610	ORS-11	11-pin/3PDT	6.29	5.98	5.66	4.72

11 AND 14-PIN UNITIZED SQUARE-BASE



Screw terminals #6-32 screws with captivated travelling nut. RS-11-SQ is an 11-pin socket for 3PDT square-base barrier type plug-in relays. Rated 15 amps at 250 volts. For use with P & B type: KUP-KUMP, KUA, KUL, KUR, CU and CL series relays. RM-14-SQ is a 4PDT square-base socket rated 5 amps for P & B type: KHU, KHS and CD-31 series relays.

Stk. No.	Type	Description	1-24	25-50	51-99	100-249
23N3611	RS-11-SQ	11-pin/3PDT	6.66	6.33	5.99	4.66
23N3766	RM-14-SQ	14-pin/4PDT	10.19	9.68	9.17	7.64



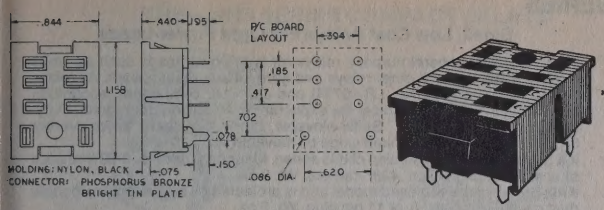
2PDT-8 PIN MINIATURE FOR MIDGET POWER RELAYS

Resilient thermoplastic body molded in closed back design. One piece hardware construction having no solder connections. Space saving size is 30-40% less space than conventional square base sockets. Make it ideal for control equipment. High power capacity rated 300 volt, 10 amp. Special designed pressure clamp assembly for screw terminals. Low profile and barriers between all contacts.

Stock No.	Type	Description	1-24	25-50	51-99	100-249
81N1450	RM-8-SQ	2PDT, 8 pin screw terminal	5.16	4.90	4.64	3.87

Relay Sockets

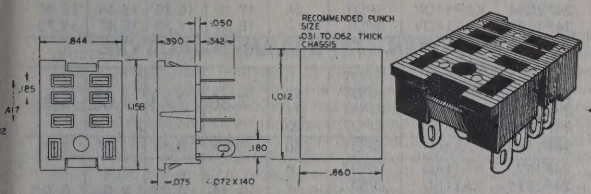
VOLTREX® brand



2PDT MINIATURE STYLE

Rated 300 volts, 10 amps. Molded of UL grade black nylon. Terminals are phosphor bronze with bright tin plating PCB standoffs included.

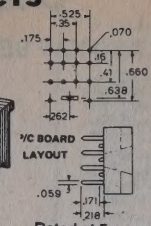
Stock No.	Type	Description	1-24	25-50	51-99	100-249
81N1452	MRS-8PCB	2PDT, 8 pin PCB	1.41	1.34	1.27	1.06

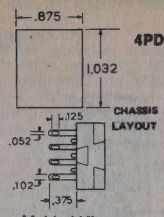


2PDT-8 PIN MINIATURE CHASSIS MOUNT (SOLDER STYLE)

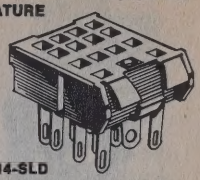
Rated 300 volts, 10 amps. Molded of UL grade nylon black. Terminals phosphor bronze with bright tin plate. Snaps into chassis from front, eliminating mounting screws or retainer springs.

Stock No.	Type	Description	1-24	25-50	51-99	100-249
81N1451	MRS-8-SLD	2PDT, 8 pin solder	1.34	1.27	1.21	1.01





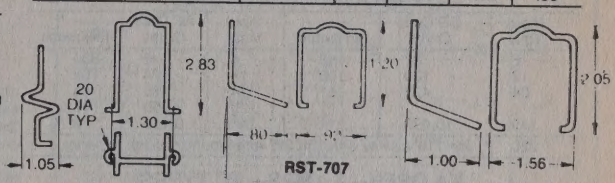
4PDT MINIATURE



MRS-14-SLD

Rated at 5 amperes. Molded UL grade nylon. MRS-14-SLD: Solder terminals. Can be chassis from front or reverse side, this allows pre-wiring of socket prior to installing in chassis or panel. MRS-14-PCB; PC Board terminals. For use with Struthers and Dunn type C281 and 282 relays.

Stk. No.	Type	Terminal	1-24	25-49	50-99	100-up
23N3604	MRS-14-SLD	Solder	1.26	1.10	.99	.84
23N3605	MRS-14-PCB	PC Board	1.29	1.13	1.02	.86

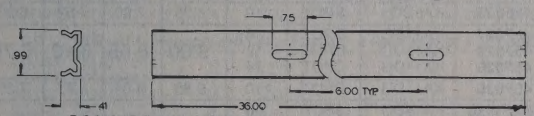


RST-614 RST-707 RST-706

WIRE RETAINING SPRINGS

Stock No.	Type	For use with socket	1-24	25-49	50-99	100-249
81N1171	RST-614	ORS-8, ORS, 11	1.69	1.39	1.23	1.03
81N1172	RST-706	RS-11-SQ	1.36	1.16	1.02	.85
81N1173	RST-707	RM-14-SQ	1.04	.88	.78	.65
81N1454	BAIL-4	MRS-8-PCB, MRS-8-SLD	.22	.21	.20	.17
81N1453	BAIL-6	RM-8-SQ	.22	.21	.20	.17

Relay Sockets, TRACK MOUNTING ACCESSORIES FOR UNITIZED RELAY SOCKETS



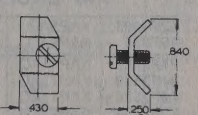
SOCKET TRACK RST-601

Track is available in 3' lengths and has slotted mounting holes for #8 screws on 6 inch centers.
16N1676 NET 3.89

TWIST-IN CLIP

Type RST-609. For track mounting types ORS-8, ORS-11, RM-14-SQ sockets. Two required for each socket or one at each end of row if quick-mounts are used.
16N1677 NET 25

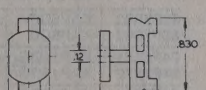
Type RST-709. For tract mounting type RM-11-SQ socket. One required for every two sockets with one at each end of row.
16N1678 NET 25



RST-609. RST-709.

QUICK-MOUNT CLIP

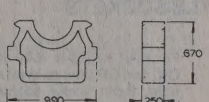
Type RST-506. for track mounting types ORS-8, ORS-11, and RM-14-SQ sockets. Quick-mounts fasten adjoining sockets without the use of screws. Use RST-609, twist-in clips, for each end of row.
16N1679 NET 25



RST-506.

QUICK-MOUNT CLIP

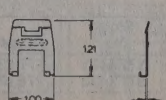
Type RST-704. For track mounting type RM-11-SQ socket. Quick-mounts fasten adjoining sockets without the use of screws. Use RST-709, twist-in clips, for each end of row.
16N1680 NET 25



RST-704.

SPRING LOCK

Type RST-705. For use with RM-11-SQ sockets. Spring-locks hold relays with side slots securely to socket.
16N1681 NET 18



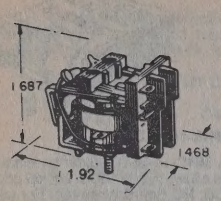
RST-705.

VOLTREX® RELAY SOCKET NO.	RELAY BRAND	RELAY SERIES NO
ORS-8; RS-8B	Agastat	SCBRX012, SSC12
	Cramer	3800
	Essex Stancor	93P-908, 93P-920
	Guardian	1330, 1335, MET, 2C-120-A, 1210-2C
	Macromatic	SS-231, SS-62, SS-782, SS856
	Magnecraft	211CP, 214CP, 501QCP, W88DCPX, W88DHPX, W88CP, 88HP, 588, 211CP, W88CPX, W250ACPX
	Midtex	615-21
	Potter & Brumfield	KAP, KRP, KRP2ZN, CD, CU, CR, CJH, CKB, KCP, KBP, EBT, CS, EBA, CGS-38, CHB-38
	Sigma	50, 41, 42, 500
	Struthers & Dunn	A-314, 292, 293, A-45, 326
ORS-11; RS-11B	Agastat	SCBRX0, SSC22A
	Essex Stancor	93P-909
	Guardian	3C-120-A, 1210-3C, 1215-3C, MET-R
	Macromatic	SS-805, SS-816
	Magnecraft	W88ACPX, W211ACPS, W211 CPSRX, W250ACPX, 588
	Midtex	155-93, 615-22
	Potter &n Brumfield	CDB, CDD, CHB, CHD, KAP, KCP, KRP
	Sigma	50R03, 504R03, 41R, 420, 42RD, 550, 50J, A-314, 326XCX, 392XCX
RS-11SQ, CMS-11SLD, CMS11-QDC, CMS-11PCB	Aromat	HP-33
	C.P. Clare	GP2R231, CP3R231
	Cornel Dubilier	203A10, 223A10
	Detrol	20302, 20305, 20308, 20311, 20547, 20553, 20579, 20582
	Eagle	30E3CA, 30E3CD, 30HCA, 30HCL,
	Fujitsu	FRL-251A, FRL251D, FRL253A, FRL254A, FRL254D
	Guardian	1510P, 1515P, 15103C, 15153C
	IDEC	RR3B
	Magnecraft	388CPX
	Midtex	157-13, 157-23, 157-33, 157-22, 613, 614
	North American Phillips	12A23, 12A63, 12A13, 12B13
	Omron	MJ3P, MJ3-UA, MJ3P-UA, M53C
	Potter & Brumfield	KUP14A, KUP14D, KU14A, KU14D, KUMP, CUA, CUB, CUC, CLB
	Sigma	68R34, 68RE3, 68F3, 68R3
	Struchers Dunn	A283XC, 286, 287
MRS-14SLD, MRS-14PCB, RM-14SQ	C.P. Clare	345A
	Guardian	13104C, 13154C
	Magnecraft	W-78ACSX, W-78CSX
	Midtex	156-14, 158-11, 158-12
	Potter & Brumfield	KHU, KHS, CDF31
	Sigma	67R4, 67RJ4, 67RV4
	Struthers Dunn	C21, 282
RS12-SD	Struthers Dunn	219, A311, 236, 237, A255, RSX1440, SS96, CX3671, CX3672
RS14-SD	Struthers Dunn	219 (14 Pin 4PDT & 6 Pole Styles)

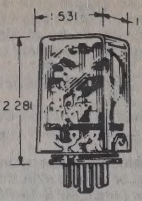
8

Potter & Brumfield General Purpose Relays

KA AND KAP SERIES



KA Series



KAP Series

KAP5

KAP14

KAP11

Small, Low Cost Relays For Light Power Loads

Highly efficient general purpose relays for light power loads such as small motors, solenoids and other relays and general automation work. All relays bear CSA listing (File No. LR-15734) and carry UL component recognition (File No. E22575). Mechanical life expectancy: 10 million operations. Duty-continuous. Contacts: "Y" Suffix-Movable, Silver; stationary, Silver overlay, 5A. "G" Suffix silver-cadmium oxide on movable rated 10 amps.

KA Series is the open version of this series. Mounting: one No. 6-32 threaded stud and locating tab on .438" centers. Wt. 2 oz.

KAP Series is the enclosed model and is protected by a clear polycarbonate dust cover. Terminals: 8 or 11 pin plug. Wt. 3 oz.

COIL DATA—KA SERIES

Input Volts	DC Coils Ohms	Milliamps	Input Volts	AC Coils Ohms	Milliamps
6	32	188	6	6	335
12	120	100	12	24	168
24	472	51	24	85	84
...	.....	...	120	2,250	17.5
110	10,000	11	240	9,110	8.75
220	Use 110 v. relay with 10K 5W wire-wound resistor in series				

KA OPEN—5 AMPS—AC TYPES

Stock No.	Type	Action	Input Volts	1-24	25-50	51-99	100-249
24F545	KA5AY	SPDT	6	7.25	6.89	6.53	5.44
24F1308	KA5AY	SPDT	12				
24F593	KA5AY	SPDT	24				
24F515	KA5AY	SPDT	120				
45F022	KA5AY	SPDT	240	8.80	8.36	7.92	6.60
24F547	KA11AY	DPDT	6	8.75	8.31	7.88	6.56
24F1309	KA11AY	DPDT	12				
24F594	KA11AY	DPDT	24				
24F517	KA11AY	DPDT	120				
24F1310	KA11AY	DPDT	240	10.05	9.55	9.05	7.54
24F549	KA14AY	3PDT	6	10.70	10.17	9.63	8.03
24F1213	KA14AY	3PDT	12				
24F595	KA14AY	3PDT	24				
24F519	KA14AY	3PDT	120				
62F3089	KA14AY	3DPT	240	11.80	11.21	10.62	8.85

KA OPEN—5 AMPS—DC TYPE

24F552	KA5DY	SPDT	6	7.20	6.84	6.48	5.40
24F1214	KA5DY	SPDT	12				
24F596	KA5DY	SPDT	24				
24F596	KA5DY	SPDT	24				
24F1311	KA5DY	SPDT	110	8.30	7.89	7.47	6.23
24F553	KA11DY	DPDT	6	8.50	8.08	7.65	6.38
24F1215	KA11DY	DPDT	12				
24F597	KA11DY	DPDT	24				
67F1069	KA11DY	DPDT	48	9.25	8.79	8.33	6.94
24F554	KA11DY	DPDT	110	9.45	8.98	8.51	7.09
24F523	KA14DY	3PDT	6	10.80	10.26	9.72	8.10
24F1216	KA14DY	3PDT	12				
24F598	KA14DY	3PDT	24				
24F1217	KA14DY	3PDT	110	11.45	10.88	10.31	8.59

KAP ENCLOSED—5 AMPS—AC TYPE

24F2565	KAP11AY	DPDT	24	14.10	13.40	12.69	10.58
24F2566	KAP11AY	DPDT	120				
24F2567	KAP11AY	DPDT	240	14.80	14.06	13.32	11.10
24F2576	KAP14AY	3PDT	24	17.35	16.48	15.62	13.01
24F2577	KAP14AY	3PDT	120				
24F2578	KAP14AY	3PDT	240	18.00	17.10	16.20	13.50

KAP ENCLOSED—5 AMPS-DC TYPE

Stock No.	Type	Action	Volts	1-24	25-50	51-99	100-249
24F2573	KAP11DY	DPDT	12	13.95	13.25	12.56	10.46
24F2574	KAP11DY	DPDT	24	13.95	13.25	12.56	10.46
24F2575	KAP11DY	DPDT	110	15.35	14.58	13.82	11.51
24F2583	KAP14DY	3PDT	12	17.15	16.29	15.44	12.86
24F2584	KAP14DY	3PDT	24	17.15	16.29	15.44	12.86
24F2585	KAP14DY	3PDT	110	18.30	17.39	16.47	13.73

KAP OPEN—TYPE 10 AMPS—AC TYPE

24F1665	KA5AG	SPDT	6	7.80	7.41	7.02	5.85
24F1666	KA5AG	SPDT	12				
24F1667	KA5AG	SPDT	24				
24F1668	KA5AG	SPDT	120				
24F1669	KA5AG	SPDT	240	8.85	8.41	7.97	6.64
24F1670	KA11AG	DPDT	6	9.15	8.69	8.24	6.86
24F1671	KA11AG	DPDT	12				
24F1672	KA11AG	DPDT	24				
24F1673	KA11AG	DPDT	120				
24F1674	KA11AG	DPDT	240	10.25	9.74	9.23	7.69
24F1675	KA14AG	3PDT	6	11.70	11.12	10.53	8.78
24F1676	KA14AG	3PDT	12				
24F1677	KA14AG	3PDT	24				
24F1678	KA14AG	3PDT	120				
24F1679	KA14AG	3PDT	240	12.35	11.73	11.12	9.26

KA OPEN—10 AMPS—DC TYPE

45F023	KA5DG	SPDT	6	7.30	6.94	6.57	5.48
45F024	KA5DG	SPDT	12				
45F026	KA5DG	SPDT	24				
45F025	KA5DG	SPDT	110	8.35	7.93	7.52	6.26
45F027	KA11DG	DPDT	6	9.00	8.55	8.10	6.75
45F028	KA11DG	DPDT	12				
45F029	KA11DG	DPDT	24				
45F030	KA11DG	DPDT	110	9.85	9.36	8.87	7.39
62F3090	KA14DG	3PDT	6	11.75	11.16	10.58	8.81
45F031	KA14DG	3PDT	12				
45F032	KA14DG	3PDT	24				
45F033	KA14DG	3PDT	110	12.50	11.88	11.25	9.38

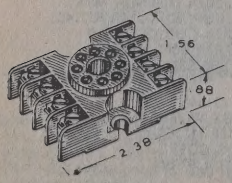
KAP ENCLOSED—10 AMPS—AC TYPES

62F3091	KAP5AG	SPDT	24	12.85	12.21	11.57	9.64
45F034	KAP5AG	SPDT	120				
24F2568	KAP11AG	DPDT	6	14.35	13.63	12.92	10.76
24F2569	KAP11AG	DPDT	24				
24F2570	KAP11AG	DPDT	120				
24F2579	KAP14AG	3PDT	24	17.55	16.67	15.80	13.16
24F2580	KAP14AG	3PDT	120				

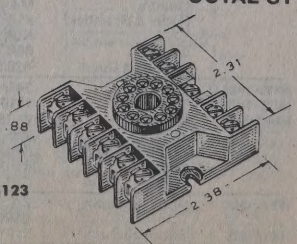
KAP ENCLOSED—10 AMPS—DC TYPES

62F3092	KAP5DG	SPDT	24	12.50	11.88	11.25	9.38
62F3093	KAP5DG	SPDT	110	14.10	13.40	12.69	10.58
24F2571	KAP11DG	DPDT	24	14.20	13.49	12.78	10.65
24F2572	KAP14DG	DPDT	110	15.50	14.73	13.95	11.63
24F2581	KAP14DG	3PDT	24	17.50	16.63	15.75	13.13
24F2582	KAP14DG	3PDT	110	18.80	17.86	16.92	14.10

OCTAL-STYLE SOCKETS



27E122



27E123

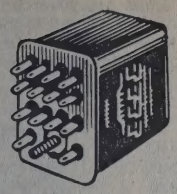
For KRP, KRP3-H, KAP, KBP, KCP, EBT, and EBA relays; CD-21, CD-38, CH, CK, and CR time delays; and CS sensor. **Type 27E122** is a molded polycarbonate, 8-pin screw socket, rated 10 amperes. **Type 27E123** is a molded polycarbonate, 11-pin screw terminal socket, rated 10 amperes.

Stock No.	Type	1-24	25-50	51-99	100-249
57F3431	27E122	4.20	3.99	3.78	3.15
57F3432	27E123	6.29	5.98	5.66	4.72

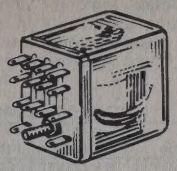
General Purpose Relays

Potter & Brumfield

KHU—KHS SERIES COMPACT RELAYS



KHS



KHU

- **KHU Series UL recognized**
- **Used for data processing, computer and process control applications.**

Small 4PDT relays. Designed to meet exacting requirements of data processing, computer and process control applications. **Suffix-1** denotes silver contacts rated 3 amps @ 30 VDC or 120 VAC, resistive. **Suffix-2** denotes silver-cadmium oxide contacts rated 3 amps. **Suffix-3** indicates gold alloy contacts for low level to 1 amp application. **Suffix-6** indicates gold overlay on silver bifurcated contacts rated 1 amp @ 30 VDC resistive or 120 VAC. Mounting: solder terminals with 3-48 stud 0.312" long. **KHU Series** is recognized under component program of UL and has clear polycarbonate cover. **KHS Series** is UL recognized and is hermetically sealed in metal enclosure. **Suffix N** denotes neon indicator available with 120V AC or DC coil only. Weight without socket: KHU—1.12 oz. KHS—1.63 oz.

DC VOLTS—Hermetically Sealed Metal—3 AMP except (††) 1 AMP

Stock No.	Type	Coil Input Volts	Coil Res. (Ohms)	1-24	25-50	51-99	100-249
24F2561	KHS17D11	6	40				
24F2562	KHS17D11	12	160	17.75	16.86	15.98	13.31
24F2563	KHS17D11	24	650				
24F2564	KHS17D11	110	11000	20.00	19.00	18.00	15.00
24F3280	KHS17D12	24	650	17.75	16.86	15.98	13.31
67F1058	KHS17D12	110	11000	20.00	19.00	18.00	15.00
67F1059	KHS17D13††	24	650	45.80	43.51	41.22	34.35

DC VOLTS—U.L. Recognized Clear Plastic—3 AMP except (**) 1 AMP

45F035	KHU17D11	6	40				
45F036	KHU17D11	12	160	9.90	9.41	8.91	7.43
45F037	KHU17D11	24	650				
45F038	KHU17D11	48	2600	10.25	9.74	9.23	7.69
45F3083	KHU17D11	90	9000	11.50	10.93	10.35	8.63
45F039	KHU17D11	110	11000	12.15	11.54	10.94	9.11
45F040	KHU17D12	24	650	9.90	9.41	8.91	7.43
45F041	KHU17D12	110	11000	12.15	11.54	10.94	9.11
62F3080	KHU17D16**	12	160	11.45	10.88	10.31	8.59
62F3081	KHU17D16**	24	650	11.45	10.88	10.31	8.59

AC VOLTS—Hermetically Sealed Metal—3 AMPS

Stock No.	Type	Coil Input Volts	Coil Res. (Ohms)	1-24	25-50	51-99	100-249
24F2557	KHS17A11	6	10.5				
24F2558	KHS17A11	12	43				
24F2559	KHS17A11	24	160	19.45	18.48	17.51	14.59
24F2560	KHS17A11	120	3900				
24F3283	KHS17A12	120	3900				
67F1061	KHS17A13	120	3900	47.50	45.13	42.75	35.63

AC VOLTS—UL Recognized Clear Plastic—3 AMPS

45F042	KHU17A11	6	10.5				
45F043	KHU17A11	12	43	11.60	11.02	10.44	8.70
45F044	KHU17A11	24	160				
45F045	KHU17A11	120	3900				
62F3038	KHU17A11N	120	3900	14.55	13.82	13.10	10.91
62F3082	KHU17A12	120	3900	11.60	11.02	10.44	8.70
62F3011	KHU17A13	120	3900	33.80	32.11	30.42	25.35

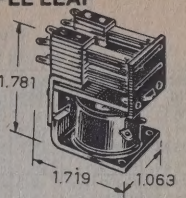
SOCKETS AND SPRING FOR KH SERIES

Stock No.	Type	Description	1-24	25-50	51-99	100-249
57F3422	27E006	4PDT sol. term.	1.06	1.01	.95	.80
57F3415	24A032	Skt. retainer	.09	.09	.08	.07
57F3423	24E007	4PDT PC. term.	1.09	1.04	.98	.82
57F3402	20C217	Hold Down Spring	.22	.21	.20	.17
57F3447	27E166	4PDT screw term.	10.19	9.68	9.17	7.64

GA SERIES—MULTIPLE LEAF

- **Multiple Contact**
- **For Industrial Control**

Low Cost, all purpose, multiple contact, voltage switching relay. Used for many industrial control applications. Tinned, pierced solder type terminals. Contacts: Silver rated 5 amps, @ 28 VDC or 120 VAC resistive. Designed for maximum self-cleaning action. Mounting: 8-32 tapped core with locating boss. Weight: 3½ oz.

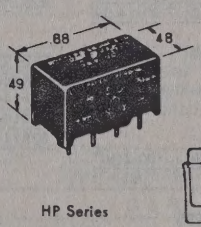


Volts	DC Coils Ohms	DC Coils Milliamps	Volts	AC Coils Ohms	AC Coils Milliamps
24	288	83	6	1.7	1,000
			12	6.8	500
			24	26.0	260
			120	690	50

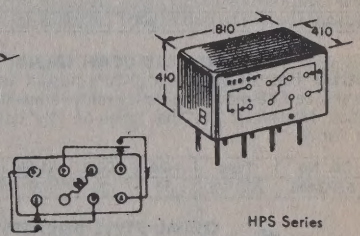
COIL DATA—GA SERIES

Stock No.	Type	Action	Coil Input	1-24	25-50	51-99	100-249
24F1183	GA11A	DPDT	6VAC				
62F3094	GA11A	DPDT	12VAC				
24F1184	GA11A	DPDT	24VAC	15.15	14.39	13.64	11.36
24F1195	GA11A	DPDT	120VAC				
62F3095	GA14A	3PDT	24VAC	19.45	18.48	17.51	14.59
62F3096	GA14A	3PDT	120VAC				
24F1186	GA17A	4PDT	6VAC				
24F1187	GA17A	4PDT	12VAC	23.25	22.09	20.93	17.44
24F1188	GA17A	4PDT	24VAC				
24F1189	GA17A	4PDT	120VAC				
24F1190	GA11D	DPDT	6VDC				
24F1191	GA11D	DPDT	12VDC	15.05	14.30	13.55	11.29
24F1192	GA11D	DPDT	24VDC				
24F1193	GA11D	DPDT	110VDC	15.75	14.96	14.18	11.81
24F1194	GA17D	4PDT	6VDC				
24F1195	GA17D	4PDT	12VDC	22.30	21.19	20.07	16.73
24F1196	GA17D	4PDT	24VDC				
24F1197	GA17D	4PDT	110VDC	23.00	21.85	20.70	17.25

HP AND HPS SERIES HALF SIZE CYSTAL CASE



HP Series



HPS Series

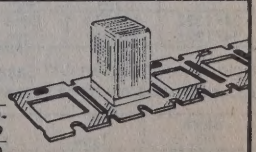
HP SERIES. Circuit board or socket mounting. Encased in a nylon heat-sealed (non-hermetic) cover. Contacts rated 0.3-2 Amps @ 28 VDC or 0.1-0.5A @ 120VAC @ 25° C resistive. Terminals on .2 grid. Wt. 3 oz. **HPS SERIES.** Hermetically sealed version of **HP SERIES.** Designed for prolonged submersion of pc. boards. HP socket may be used for mounting. Sealed metal enclosed. Wt. ¼ oz.

Stk. No.	Type	Action	VDC	1-24	25-50	51-99	100-249
67F1070	HP11D	DPDT	6				
24F2898	HP11D	DPDT	12	18.20	17.29	16.38	13.65
24F2899	HP11D	DPDT	24				
45F227	HP11D	DPDT	48	18.95	18.00	17.06	14.21
24F3367	HPS11D	DPDT	12				
24F3368	HPS11D	DPDT	24	21.45	20.38	19.31	16.09

Stk. No.	Type	Description	1-24	25-50	51-99	100-249
57F3426	27E062	DPDT sol. term.	1.42	1.35	1.28	1.07
57F3416	24A051	Skt. retainer	.24	.23	.22	.18

MOUNTING STRIP

Will mount 8 KH sockets (except 27E166) in one length of aluminum strip, measuring 10.9" x 2.25" x .062".



Stk. No.	Type	1-24	25-50	51-99	100-249
57F3464	37D633	1.07	1.02	.96	.80

KRP AND KRP-N SERIES GENERAL PURPOSE RELAYS

KRP Series. Versatile, multi-contact arrangement. Enclosed in clear polycarbonate dust cover. Standard 8 pin octal type plug for KRP5 and KRP11, 11 pin for KRP-14. Contacts: 5 amps are silver, 10 amps are silvercadmium oxide. **KRP-N Series.** Indicator Lamp Relay incorporating a lamp to indicate current or voltage availability in power circuit. Mounting: standard octal plug. Contacts: Silver cadmium oxide rated 10 amps. Enclosed in clear polycarbonate dust cover. Approximate weight: 3 oz.

AC VOLTS 5 AMPS

Stock No.	Type	Input Volts	Action	1-24	25-50	51-99	100-249
24F522	KRP5AY	6 V	SPDT	11.85	11.26	10.67	8.89
67F1113	KRP5AY	12 V	SPDT	11.85	11.26	10.67	8.89
24F524	KRP5AY	24 V	SPDT	11.85	11.26	10.67	8.89
24F520	KRP5AY	120 V	SPDT	11.85	11.26	10.67	8.89
24F548	KRP11AY	6 V	DPDT	13.40	12.73	12.06	10.05
24F1223	KRP11AY	12 V	DPDT	13.40	12.73	12.06	10.05
24F525	KRP11AY	24 V	DPDT	13.40	12.73	12.06	10.05
24F518	KRP11AY	120 V	DPDT	13.40	12.73	12.06	10.05
24F1324	KRP11AY	240 V	DPDT	14.10	13.40	12.69	10.58
24F1224	KRP14AY	6 V	3PDT	16.50	15.68	14.85	12.38
24F1225	KRP14AY	12 V	3PDT	16.50	15.68	14.85	12.38
24F526	KRP14AY	24 V	3PDT	16.50	15.68	14.85	12.38
24F527	KRP14AY	120 V	3PDT	16.50	15.68	14.85	12.38
45F103	KRP14AY	240 V	3PDT	17.10	16.25	15.39	12.83

AC VOLTS 10 AMPS

24F1330	KRP5AG	6 V	SPDT	12.35	11.73	11.12	9.26
67F1114	KRP5AG	12 V	SPDT	12.35	11.73	11.12	9.26
24F1331	KRP5AG	24 V	SPDT	12.35	11.73	11.12	9.26
24F1332	KRP5AG	120 V	SPDT	12.35	11.73	11.12	9.26
24F1333	KRP11AG	6 V	DPDT	13.75	13.06	12.38	10.31
24F1334	KRP11AG	12 V	DPDT	13.75	13.06	12.38	10.31
24F1335	KRP11AG	24 V	DPDT	13.75	13.06	12.38	10.31
24F1336	KRP11AG	120 V	DPDT	13.75	13.06	12.38	10.31
24F1696	KRP11AG	240 V	DPDT	14.55	13.82	13.10	10.91
24F1337	KRP14AG	6 V	3PDT	16.90	16.06	15.21	12.68
24F1338	KRP14AG	12 V	3PDT	16.90	16.06	15.21	12.68
24F1339	KRP14AG	24 V	3PDT	16.90	16.06	15.21	12.68
24F1340	KRP14AG	120 V	3PDT	16.90	16.06	15.21	12.68
24F2947	KRP14AG	240 V	3PDT	17.90	17.01	16.11	13.43

AC VOLTS 10 AMPS WITH INDICATOR LAMP

24F1435	KRP11AN	6 V	DPDT	15.65	14.87	14.09	11.74
24F1436	KRP11AN	12 V	DPDT	15.65	14.87	14.09	11.74
24F1437	KRP11AN	24 V	DPDT	15.65	14.87	14.09	11.74
24F1438	KRP11AN	120 V	DPDT	15.65	14.87	14.09	11.74
24F1439	KRP11AN	240 V	DPDT	16.55	15.72	14.90	12.41
62F3085	KRP14AN	6 V	3PDT	19.05	18.10	17.15	14.29
62F3086	KRP14AN	12 V	3PDT	19.05	18.10	17.15	14.29
62F3087	KRP14AN	24 V	3PDT	19.05	18.10	17.15	14.29
24F1329	KRP14AN	120 V	3PDT	19.05	18.10	17.15	14.29
62F3084	KRP14AN	240 V	3PDT	19.95	18.95	17.96	14.96

DC VOLTS 5 AMPS

Stock No.	Type	Input Volts	Action	1-24	25-50	51-99	100-249
24F1226	KRP5DY	6 V	SPDT	11.80	11.21	10.62	8.85
24F1325	KRP5DY	12 V	SPDT	11.80	11.21	10.62	8.85
24F1227	KRP5DY	24 V	SPDT	11.80	11.21	10.62	8.85
24F1326	KRP5DY	110 V	SPDT	13.25	12.59	11.93	9.94
24F680	KRP11DY	6 V	DPDT	13.25	12.59	11.93	9.94
24F683	KRP11DY	12 V	DPDT	13.25	12.59	11.93	9.94
24F528	KRP11DY	24 V	DPDT	13.25	12.59	11.93	9.94
67F1115	KRP11DY	48 V	DPDT	13.90	13.21	12.51	10.43
24F682	KRP11DY	110 V	DPDT	14.55	13.82	13.10	10.91
24F1228	KRP14DY	6 V	3PDT	16.40	15.58	14.76	12.30
24F1229	KRP14DY	12 V	3PDT	16.40	15.58	14.76	12.30
24F679	KRP14DY	24 V	3PDT	16.40	15.58	14.76	12.30
67F1116	KRP14DY	48 V	3PDT	16.90	16.06	15.21	12.68
24F1327	KRP14DY	110 V	3PDT	17.60	16.72	15.84	13.20

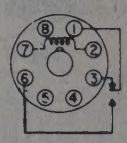
DC VOLTS 10 AMPS

62F3088	KRP5DG	6 V	SPDT	12.30	11.69	11.07	9.23
45F104	KRP5DG	12 V	SPDT	12.30	11.69	11.07	9.23
24F1343	KRP5DG	24 V	SPDT	12.30	11.69	11.07	9.23
24F1344	KRP5DG	110 V	SPDT	13.60	12.92	12.24	10.20
24F1345	KRP11DG	6 V	DPDT	13.70	13.02	12.33	10.28
24F1346	KRP11DG	12 V	DPDT	13.70	13.02	12.33	10.28
24F1347	KRP11DG	24 V	DPDT	13.70	13.02	12.33	10.28
67F1117	KRP11DG	48 V	DPDT	14.50	13.78	13.05	10.88
24F1348	KRP11DG	110 V	DPDT	14.95	14.20	13.46	11.21
24F1349	KRP14DG	6 V	3PDT	16.80	15.96	15.12	12.60
24F1350	KRP14DG	12 V	3PDT	16.80	15.96	15.12	12.60
24F1359	KRP14DG	24 V	3PDT	16.80	15.96	15.12	12.60
67F1118	KRP14DG	48 V	3PDT	17.70	16.87	15.93	13.28
24F1351	KRP14DG	110 V	3PDT	18.15	17.24	16.34	13.61

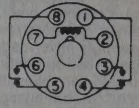
DC VOLTS 10 AMPS WITH INDICATOR LAMP

24F1440	KRP11DN	6 V	DPDT	15.55	14.77	14.00	11.66
24F1441	KRP11DN	12 V	DPDT	15.55	14.77	14.00	11.66
24F1442	KRP11DN	24 V	DPDT	15.55	14.77	14.00	11.66
24F1443	KRP11DN	110 V	DPDT	16.80	15.96	15.12	12.60
67F1119	KRP14DN	24 V	3PDT	18.80	17.86	16.92	14.10

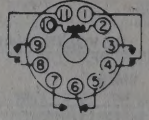
KRP5



KRP11



KRP14

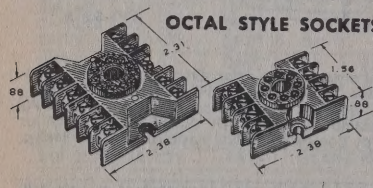


KCP-KRP HOLD DOWN SPRING

20C176 Fits all KCP and KRP plug-in relays. Steel spring can be moved aside for relay removal and installation. Mounting: 2⅜₂" dia. holes on 1⅞₆" centers. Wt. 3 oz. for 50.

Stk. No.	Type	1-24	25-50	51-99	100-249
57F3400	20C176	.30	.29	.27	.23

OCTAL STYLE SOCKETS

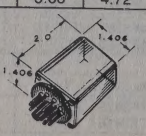


For KRP, KRP3-H, KAP, KBP, KCP, EBT and EBA relays; CD-21, CD-38, CH, CK, and CR time delays; and CS sensor.

Stock No.	Type	Term.	1-24	25-50	51-99	100-249
57F3431	27E122	8-pin	4.20	3.99	3.78	3.15
57F3432	27E123	11-pin	6.29	5.98	5.66	4.72

"P" CASE

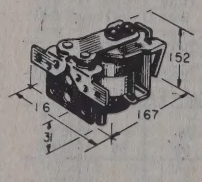
A clear polycarbonate case for mounting rectifiers, capacitors, or combinations (with octal type plug with 8 or 11 pins). Comes complete with 4 screws. 2x1.4x1.4". Av. Shpg. wt. 3 oz.



Stock No.	Type	Plugs	1-24	25-50	51-99	100-249
24F1322	35D070	8-pin	1.19	1.13	1.07	.89
24F1323	35D072	11-pin	1.42	1.35	1.28	1.07

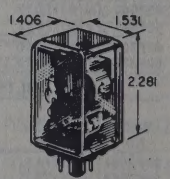
Hold-down spring for "P" Case, and KRP series relays. Will accommodate machine screws or rivets.

Stock No.	Type	1-24	25-50	51-99	100-249
57F3400	20C176	.30	.29	.27	.23



KR3-H AND KRP3-H COMPACT RELAYS

- **Used where limited space is a factor**
- **Weighs only 2 oz.**



Heavy duty relay ideal for limited space. Copper alloy movable contact carrier has twin silver-cadmium oxide contacts rated 20 amps @ 120V AC 60 Hz resistive or 28V DC; 1 HP 120/240V 60 Hz. Contact arrangement is 1 Form X (SPST-NO-DM) only. Terminals suitable for .250" quick connect, also solder; for contacts: solder only for coil. Mtg.: one 6-32 stud and locating tab on .437" center. Size: 1.6"x1.671"x1.52". Seated height: 1.21". **KRP3-H Series.** As above except enclosed in clear polycarbonate dust cover with an octal plug-in case. 1.406x1.531x2.281". CONTACTS: SPST-NO-DM

Stock No.	Type	Coil Input	Coil Ohms	1-24	25-50	51-99	100-249
62F3039	KR3AH	12 VAC	21	11.00	10.45	9.90	8.25
24F2630	KR3AH	24 VAC	85	11.00	10.45	9.90	8.25
24F2631	KR3AH	120 VAC	2250	11.00	10.45	9.90	8.25
62F3040	KRP3AH	12 VAC	21	15.55	14.77	14.00	11.66
24F2638	KRP3AH	24 VAC	85	15.55	14.77	14.00	11.66
24F2639	KRP3AH	120 VAC	2250	15.55	14.77	14.00	11.66
24F2633	KR3DH	12 VDC	120	10.80	10.26	9.72	8.10
24F2634	KR3DH	24 VDC	472	10.80	10.26	9.72	8.10
62F3041	KR3DH	110 VDC	10000	11.80	11.21	10.62	8.85
24F2641	KRP3DH	12 VDC	120	15.30	14.54	13.77	11.48
24F2642	KRP3DH	24 VDC	472	15.30	14.54	13.77	11.48
62F3042	KRP3DH	110 VDC	10000	16.40	15.58	14.76	12.30

AC VOLTS 5 AMPS

Stock No.	Type	Coil Input	Coil Ohms	Action	1-24	25-50	51-99	100-249
21F1053	KRPA5AY	6V	6	SPDT	9.55	9.07	8.60	7.16
21F1054	KRPA5AY	12V	24	SPDT	9.55	9.07	8.60	7.16
21F1055	KRPA5AY	24V	85	SPDT	9.55	9.07	8.60	7.16
21F1056	KRPA5AY	120V	2,250	SPDT	9.55	9.07	8.60	7.16
21F1075	KRPA11AY	6V	6	DPDT	10.80	10.26	9.72	8.10
21F1076	KRPA11AY	12V	24	DPDT	10.80	10.26	9.72	8.10
21F1077	KRPA11AY	24V	85	DPDT	10.80	10.26	9.72	8.10
21F1078	KRPA11AY	120V	2,250	DPDT	10.80	10.26	9.72	8.10
21F1079	KRPA11AY	240V	9,110	DPDT	11.40	10.83	10.26	8.55
21F1104	KRPA14AY	6V	6	3PDT	13.30	12.64	11.97	9.98
21F1105	KRPA14AY	12V	24	3PDT	13.30	12.64	11.97	9.98
21F1106	KRPA14AY	24V	85	3PDT	13.30	12.64	11.97	9.98
21F1107	KRPA14AY	120V	2,250	3PDT	13.30	12.64	11.97	9.98
21F1108	KRPA14AY	240V	9,110	3PDT	13.80	13.11	12.42	10.35

AC VOLTS 10 AMPS

21F1049	KRPA5AG	6V	6	SPDT	9.90	9.41	8.91	7.43
21F1050	KRPA5AG	12V	24	SPDT	9.90	9.41	8.91	7.43
21F1051	KRPA5AG	24V	85	SPDT	9.90	9.41	8.91	7.43
21F1052	KRPA5AG	120V	2,250	SPDT	9.90	9.41	8.91	7.43
21F1065	KRPA11AG	6V	6	DPDT	11.05	10.50	9.95	8.29
21F1066	KRPA11AG	12V	24	DPDT	11.05	10.50	9.95	8.29
21F1067	KRPA11AG	24V	85	DPDT	11.05	10.50	9.95	8.29
21F1068	KRPA11AG	120V	2,250	DPDT	11.05	10.50	9.95	8.29
21F1069	KRPA11AG	240V	9,110	DPDT	11.70	11.12	10.53	8.78
21F1094	KRPA14AG	6V	6	3PDT	13.60	12.92	12.24	10.20
21F1095	KRPA14AG	12V	24	3PDT	13.60	12.92	12.24	10.20
21F1096	KRPA14AG	24V	85	3PDT	13.60	12.92	12.24	10.20
21F1097	KRPA14AG	120V	2,250	3PDT	13.60	12.92	12.24	10.20
21F1098	KRPA14AG	240V	9,110	3PDT	14.45	13.73	13.01	10.84

AC VOLTS 10 AMPS WITH INDICATOR LAMP

21F1070	KRPA11AN	6V*	6	DPDT	12.60	11.97	11.34	9.45
21F1071	KRPA11AN	12V*	24	DPDT	12.60	11.97	11.34	9.45
21F1072	KRPA11AN	24V*	85	DPDT	12.60	11.97	11.34	9.45
21F1073	KRPA11AN	120V	2,250	DPDT	12.60	11.97	11.34	9.45
21F1074	KRPA11AN	240V	9,110	DPDT	13.30	12.64	11.97	9.98
21F1099	KRPA14AN	6V*	6	3DPT	15.35	14.58	13.82	11.51
21F1100	KRPA14AN	12V*	24	3PDT	15.35	14.58	13.82	11.51
21F1101	KRPA14AN	24V*	85	3PDT	15.35	14.58	13.82	11.51
21F1102	KRPA14AN	120V	2,250	3PDT	15.35	14.58	13.82	11.51
21F1103	KRPA14AN	240V	9,110	3PDT	16.10	15.30	14.49	12.08

DC VOLTS 5 AMPS

Stock No.	Type	Coil Input	Coil Ohms	Action	1-24	25-50	51-99	100-249
21F1061	KRPA5DY	6V	32.1	SPDT	9.50	9.03	8.55	7.13
21F1062	KRPA5DY	12V	120	SPDT	9.50	9.03	8.55	7.13
21F1063	KRPA5DY	24V	472	SPDT	9.50	9.03	8.55	7.13
21F1064	KRPA5DY	110V	10,000	SPDT	10.65	10.12	9.59	7.99
21F1089	KRPA11DY	6V	32.1	DPDT	10.65	10.12	9.59	7.99
21F1090	KRPA11DY	12V	120	DPDT	10.65	10.12	9.59	7.99
21F1091	KRPA11DY	24V	472	DPDT	10.65	10.12	9.59	7.99
21F1092	KRPA11DY	48V	1,800	DPDT	11.20	10.64	10.08	8.40
21F1093	KRPA11DY	110V	10,000	DPDT	11.70	11.12	10.53	8.78
21F1115	KRPA14DY	6V	32.1	3PDT	13.20	12.54	11.88	9.90
21F1116	KRPA14DY	12V	120	3PDT	13.20	12.54	11.88	9.90
21F1117	KRPA14DY	24V	472	3PDT	13.20	12.54	11.88	9.90
21F1118	KRPA14DY	48V	1,800	3PDT	13.65	12.97	12.29	10.24
21F1119	KRPA14DY	110V	10,000	3PDT	14.20	13.49	12.78	10.65

DC VOLTS 10 AMPS

21F1057	KRPA5DG	6V	32.1	SPDT	9.90	9.41	8.91	7.43
21F1058	KRPA5DG	12V	120	SPDT	9.90	9.41	8.91	7.43
21F1059	KRPA5DG	24V	472	SPDT	9.90	9.41	8.91	7.43
21F1060	KRPA5DG	110V	10,000	SPDT	10.95	10.40	9.86	8.21
21F1080	KRPA11DG	6V	32.1	DPDT	11.05	10.50	9.95	8.29
21F1081	KRPA11DG	12V	120	DPDT	11.05	10.50	9.95	8.29
21F1082	KRPA11DG	24V	472	DPDT	11.05	10.50	9.95	8.29
21F1083	KRPA11DG	48V	1,800	DPDT	11.65	11.07	10.49	8.74
21F1084	KRPA11DG	110V	10,000	DPDT	12.05	11.45	10.85	9.04
21F1109	KRPA14DG	6V	32.1	3PDT	13.55	12.87	12.20	10.16
21F1110	KRPA14DG	12V	120	3PDT	13.55	12.87	12.20	10.16
21F1111	KRPA14DG	24V	472	3PDT	13.55	12.87	12.20	10.16
21F1112	KRPA14DG	48V	1,800	3PDT	14.25	13.54	12.83	10.69
21F1113	KRPA14DG	110V	10,000	3PDT	14.65	13.92	13.19	10.99

DC VOLTS 10 AMPS WITH INDICATOR LAMP

21F1085	KRPA11DN	6V*	32.1	DPDT	12.50	11.88	11.25	9.38
21F1086	KRPA11DN	12V*	120	DPDT	12.50	11.88	11.25	9.38
21F1087	KRPA11DN	24V*	472	DPDT	12.50	11.88	11.25	9.38
21F1088	KRPA11DN	110V	10,000	DPDT	13.55	12.87	12.20	10.16
21F1114	KRPA14DN	24V*	472	3PDT	15.15	14.39	13.64	11.36

*Not U.L. Recognized

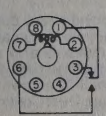
KRPA HOLD DOWN SPRING

Stock No.	Type	1-24	25-50	51-99	100-249
57F3400	20C176	.30	.29	.27	.23

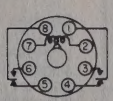
UL CONTACT RATINGS FOR KRPA

Material	Silver	Silver-cadmium oxide	
Code	Y	G & N	
Models	SPDT, DPDT & 3PDT	SPDT & DPDT	3PDT
Ratings	5 amps @ 120V AC 1/10 HP @ 120V AC 3 amps @ 240V AC 1/6 HP @ 240V AC	10 amps @ 250V AC 1/3 HP @ 250V AC 1/6 HP @ 120V AC	10 amps @ 120V AC 1/6 HP @ 120V AC 6 amps @ 250V AC 1/3 HP @ 250V AC

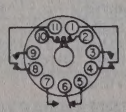
WIRING DIAGRAMS
(Bottom View)



KRPA5

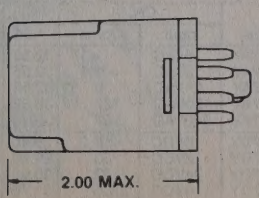


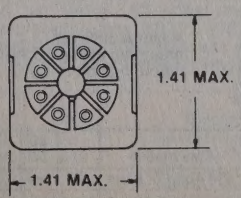
KRPA11



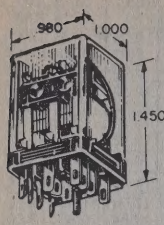
KRPA14

OUTLINE DRAWINGS

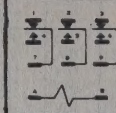




KNP SERIES—COMPACT 3 AMP RELAYS



Small AC or DC General Purpose Relay



Recognized under the Component Program of UL and CSA for ratings of 1/10 HP @ 120VAC; 3 amps @ 32VDC resistive, or 3 amps @ 240VAC 80% PF. U/L File No. E22575. Contacts are fine silver cross bars for low resistance point contact. Terminals are .110" quick-connect/solder. Fit sockets below. **KNP-11 Series** has 6-32" tapped hole with locating tab for chassis mounting. **KNP-21 Series** has 3-48" stud for chassis mounting. Enclosed in clear polycarbonate dust cover. Size when seated 1.45" high max. Wt. 1.4 oz.

COIL DATA—KNP SERIES

DC			AC		
Input	Ohms	Nom. Power	Input	Ohms	Nom. Power
6V	40	.9W	.....	.....	.....
12V	160	.9W	12V	43	1.2VA
24V	650	.9W	24V	160	1.2VA
110V	11000	.9W	.....	.....	.....
.....	.....	...	120V	3900	1.2VA

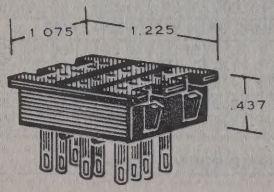
AC VOLTS—3 AMPS

Stock No.	Type	Action	Coil	1-24	25-50	51-99	100-249
24F3333	KNP5A21	SPDT	12				
24F3332	KNP5A21	SPDT	24	11.75	11.16	10.58	8.81
24F3335	KNP5A21	SPDT	120				
67F1102	KNP11A11	DPDT	120	14.25	13.54	12.83	10.69
24F3338	KNP11A21	DPDT	24	13.95	13.25	12.56	10.46
24F3339	KNP11A21	DPDT	120				
24F3341	KNP14A21	3PDT	12				
24F3342	KNP14A21	3PDT	24	16.25	15.44	14.63	12.19
24F3343	KNP14A21	3PDT	120				

DC VOLTS—3 AMPS

Stock No.	Type	Action	Coil	1-24	25-50	51-99	100-249
24F3320	KNP5D21	SPDT	6	10.00	9.50	9.00	7.50
24F3321	KNP5D21	SPDT	12	10.00	9.50	9.00	7.50
24F3322	KNP5D21	SPDT	24	10.00	9.50	9.00	7.50
24F3323	KNP5D21	SPDT	110	11.75	11.16	10.58	8.81
67F1104	KNP11D11	DPDT	12	12.10	11.50	10.89	9.08
67F1105	KNP11D11	DPDT	24	12.10	11.50	10.89	9.08
24F3324	KNP11D21	DPDT	6	11.90	11.31	10.71	8.93
24F3325	KNP11D21	DPDT	12	11.90	11.31	10.71	8.93
24F3326	KNP11D21	DPDT	24	11.90	11.31	10.71	8.93
67F1111	KNP11D21	DPDT	48	12.10	11.50	10.89	9.08
24F3329	KNP14D21	3PDT	12	14.20	13.49	12.78	10.65
24F3330	KNP14D21	3PDT	24	14.20	13.49	12.78	10.65

8



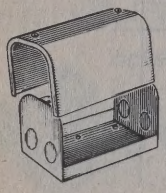
KNP SERIES SOCKETS

Stock No.	Type	Description	1-24	25-50	51-99	100-249
57F3428	27E118	SPDT/DPDT/3PDT solder terminal socket. No retainer spring required	1.14	1.08	1.03	.86
57F3429	27E119	SPDT/DPDT/3PDT printed circuit terminal socket.	1.14	1.08	1.03	.86
57F3404	20C246	Hold-down spring.	.20	.19	.18	.15

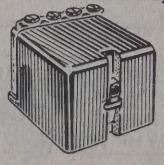
DUST COVERS

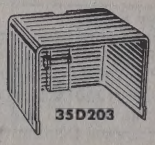
- **Knockouts for ½" dia. conduit**
- **Sheet Metal Base**
- **Gray Hammertone Finish**

35D227



35D013





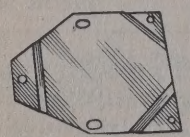
35D203

Sheet metal base with knockouts for ½" dia. conduit, Alum. cover with two screws, Gray Hammertone Finish. Mounting: Three No. 10 holes on 1⅞ × 4⅛" ctrs.

Stock No.	Type	Material	L.	W.	H.	1-24	25-50	51-99
24F1289	35D227	PM Metal	5.313	3.813	3.813	8.98	8.53	8.08
24F1318	35D013	PRD Metal	5.312	3.375	3.125	7.41	7.04	6.67
57F3460	35D203	PM Plast.	3.394	2.657	2.719	* 1.74	1.65	1.57

*WHEN MOUNTED ON RELAY

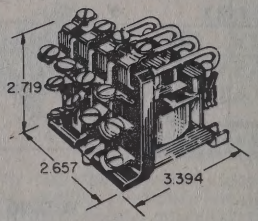
PM SERIES ADAPTOR PLATE



Adaptor plate for mounting PM on PR/PRD mounting holes.

Stock No.	Type	Description	1-24	25-50	51-99	100-249
57F3462	37B370	PM Adaptor Plate	.67	.64	.60	.50

PM SERIES POWER RELAYS



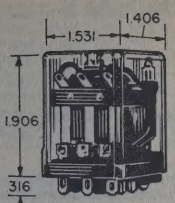
- **For polyphase and Heavy Duty Switching**
- **UL and CSA listed Except 480V**

Compact 4PDT power relay for polyphase and heavy duty switching applications. Screw terminals. Has silver-cadmium oxide contacts rated at 25 amps at 240VAC 50/60 Hz resistive. 1 HP per movable arm at 120V or 240V, AC single phase. UL (File E22575) and CSA listed except 480V. Mounts by one front key hole and two rear channel slots for 8-32 screws on 2" × 2.5" triangular centers. Weight 14 oz. For enclosures see Dust Covers listed on this page.

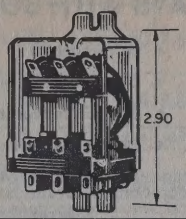
Stock No.	Type	Coil Input	Coil Ohms	1-24	25-50	51-99	100-249
24F1430	PM17AY	6VAC	.37	32.55	30.92	29.30	24.41
24F1431	PM17AY	12VAC	1.4	32.55	30.92	29.30	24.41
24F1432	PM17AY	24VAC	5	32.55	30.92	29.30	24.41
24F1433	PM17AY	120VAC	120	32.55	30.92	29.30	24.41
24F1434	PM17AY	240VAC	587	32.70	31.07	29.43	24.53
24F1426	PM17DY	6VDC	8.2	29.90	28.41	26.91	22.43
24F1427	PM17DY	12VDC	33	29.90	28.41	26.91	22.43
24F1428	PM17DY	24VDC	132	29.90	28.41	26.91	22.43
24F1429	PM17DY	110VDC	2760	31.70	30.12	28.53	23.78

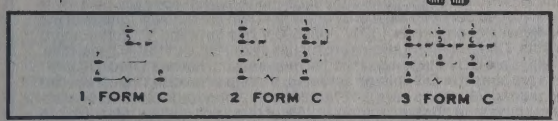
General Purpose Relays Potter & Brumfield

KUP SERIES—RELIABLE 10 AMP RELAYS AND KUMP 15 AMP RELAYS



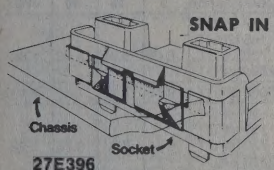
For Industrial Control

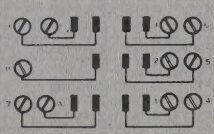




Type KUP-KUMP relays have polycarbonate dust cover, are UL Recognized under File E22575, and CSA Listed under file 15734. Contact ratings of all **KUP** models are for duty at either 28V DC or 240V AC, 80% PF. Power rating of 10 amp contacts is ¼ HP, 120V AC; and ½ HP, 240V AC, 80% PF. The 5 amp contacts are rated 1/10 HP, 120V AC; and ¼ HP, 240V AC, 80% PF. **KUMP** contacts are rated at 15 amps, 277V AC, 80% PF; ¼ HP, 120V AC; and ½ HP, 240V AC. Contact life expectancy for both relay series is 10 million operations, mechanical, and 100,000 operations at full load. At loads of less than maximum rating, life expectancy rises accordingly. All models have .187" QC/solder terminals. **KUP** with suffix "55" has flange mount case unsuited for socket mounting. All other models use sockets and hold-down springs listed. Weight is approximately 3 oz. each model. (**) test button (†) with neon light (††) test button and neon light.

SNAP IN SOCKETS





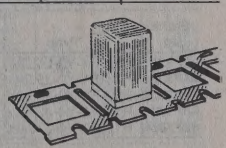
27E396
27E400

SPDT/DPDT/3PDT snap-in sockets require no mounting screws or retainer spring. 27E396 has .187" quick connection termination; 27E400, solder eyelet termination.

Stk. No.	Type	1-24	25-50	51-99	100-249
57F3466	27E396	2.10	2.00	1.89	1.58
57F3467	27E400	1.33	1.26	1.20	1.00

MOUNTING STRIP

Will mount 6 KU sockets (except 27E121) in aluminum strip 11.9" x 3.0" x .062".



Stk. No.	Type	1-24	25-50	51-99	100-249
57F3465	37D632	2.65	2.52	2.39	1.99

SOCKETS AND SPRINGS FOR KUP RELAYS

Stock No.	Type	Description	1-24	25-50	51-99	100-249
57F3424	27E043	Solder term.	1.33	1.26	1.20	1.00
57F3425	27E046	Printed circuit socket	1.58	1.50	1.42	1.19
57F3403	20C228	Hold down spring	.30	.29	.27	.23
57F3430	27E121	Screw term. socket	6.66	6.33	5.99	5.00
57F3427	27E067	QC term. socket	2.10	2.00	1.89	1.58

AC VOLTS—10 AMPS except (*) 5 AMPS

Stock No.	Type	Action	Coil V	1-24	25-50	51-99	100-249
24F2600	KUP5A15	SPDT	6				
24F2601	KUP5A15	SPDT	12				
24F2602	KUP5A15	SPDT	24	6.80	6.46	6.12	5.10
24F2603	KUP5A15	SPDT	120				
24F2604	KUP5A15	SPDT	240	8.50	8.08	7.65	6.38
67F1108	KUP11A11*	DPDT	120	8.10	7.70	7.29	6.08
24F2609	KUP11A15	DPDT	6				
24F2610	KUP11A15	DPDT	12				
24F2611	KUP11A15	DPDT	24	8.00	7.60	7.20	6.00
24F2612	KUP11A15	DPDT	120				
24F2613	KUP11A15	DPDT	240	9.70	9.22	8.73	7.28
62F3031	KUP11A35**	DPDT	120	9.80	9.31	8.82	7.35
67F1109	KUP14A11*	3PDT	120	9.05	8.60	8.15	6.79
24F2618	KUP14A15	3PDT	6				
24F2619	KUP14A15	3PDT	12				
24F2620	KUP14A15	3PDT	24	8.90	8.46	8.01	6.68
24F2621	KUP14A15	3PDT	120				
24F2622	KUP14A15	3PDT	240	10.60	10.07	9.54	7.95
62F3032	KUP14A25**	3PDT	120	10.25	9.74	9.23	7.69
62F3033	KUP14A35†	3PDT	120	10.70	10.17	9.63	8.03
62F3035	KUP14A45††	3PDT	120	11.90	11.31	10.71	8.93

DC VOLTS—10 AMPS except (*) 5 AMPS

24F2605	KUP5D15	SPDT	6	6.25	5.94	5.63	4.69
24F2606	KUP5D15	SPDT	12	6.25	5.94	5.63	4.69
24F2607	KUP5D15	SPDT	24	6.25	5.94	5.63	4.69
24F2608	KUP5D15	SPDT	110	9.00	8.55	8.10	6.75
24F2614	KUP11D15	DPDT	6	7.55	7.17	6.80	5.66
24F2615	KUP11D15	DPDT	12	7.55	7.17	6.80	5.66
24F2616	KUP11D15	DPDT	24	7.55	7.17	6.80	5.66
24F2617	KUP11D15	DPDT	110	10.30	9.79	9.27	7.73
67F1110	KUP11D11*	DPDT	24	7.65	7.27	6.89	5.74
62F3037	KUP11D35	DPDT	24	11.85	11.26	10.67	8.89
24F2623	KUP14D15	3PDT	6	8.70	8.27	7.83	6.53
24F2624	KUP14D15	3PDT	12	8.70	8.27	7.83	6.53
24F2625	KUP14D15	3PDT	24	8.70	8.27	7.83	6.53
24F2626	KUP14D15	3PDT	110	11.45	10.88	10.31	8.59

AC VOLTS—15 AMPS

33F1575	KUMP11A18	DPDT	6				
33F1576	KUMP11A18	DPDT	12				
33F1577	KUMP11A18	DPDT	24	8.95	8.50	8.06	6.71
33F1578	KUMP11A18	DPDT	120				
33F1579	KUMP11A18	DPDT	240	10.65	10.12	9.59	7.99

DC VOLTS—15 AMPS

33F1580	KUMP11D18	DPDT	6				
33F1581	KUMP11D18	DPDT	12	8.65	8.22	7.79	6.49
33F1582	KUMP11D18	DPDT	24				
33F1583	KUMP11D18	DPDT	110	11.40	10.83	10.26	8.55

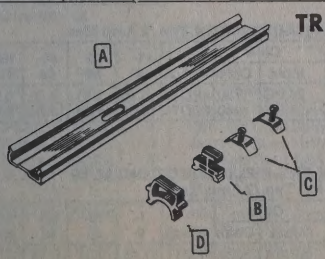
FLANGED TYPE
AC VOLTS—10 AMPS

Stock No.	Type	Action	Coil V	1-24	25-50	51-99	100-249
24F3264	KUP5A55	SPDT	120	7.10	6.75	6.39	5.33
24F3265	KUP11A55	DPDT	24	8.30	7.89	7.47	6.23
24F3266	KUP11A55	DPDT	120	8.30	7.89	7.47	6.23
24F3267	KUP14A55	3PDT	6	9.20	8.74	8.28	6.90
24F2891	KUP14A55	3PDT	12	9.20	8.74	8.28	6.90
24F2892	KUP14A55	3PDT	24	9.20	8.74	8.28	6.90
24F2893	KUP14A55	3PDT	120	9.20	8.74	8.28	6.90
24F3268	KUP14A55	3PDT	240	10.90	10.36	9.81	8.18

DC VOLTS—10 AMPS

24F3274	KUP5D55	SPDT	24	6.55	6.22	5.90	4.91
24F3275	KUP11D55	DPDT	6	7.85	7.46	7.07	5.89
24F3276	KUP11D55	DPDT	12	7.85	7.46	7.07	5.89
24F3277	KUP11D55	DPDT	24	7.85	7.46	7.07	5.89
24F3278	KUP11D55	DPDT	110	10.60	10.07	9.54	7.95
24F3279	KUP14D55	3PDT	6	9.00	8.55	8.10	6.75
24F2894	KUP14D55	3PDT	12	9.00	8.55	8.10	6.75
24F2895	KUP14D55	3PDT	24	9.00	8.55	8.10	6.75
24F2896	KUP14D55	3PDT	110	11.75	11.16	10.58	8.81

TRACK MOUNT SYSTEM FOR SOCKETS

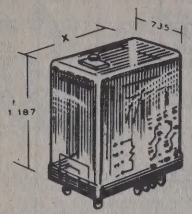


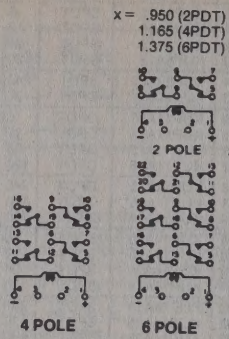
(A)—Extruded aluminum, three foot section with slotted holes on 6" centers for #8 screws. **(B)**—Plastic clip for mounting sockets 27E122, 27E123. Two clips required per socket. **(C)**—steel mounting clip with #6-40 tapped hole for mounting sockets 27E121, 27E122, 27E123, and 27E166. Includes one #6-40x1 3/32" screw. Two retainers and screws required per socket. **(D)**—Plastic clip will mount 27E487 only. Two required per socket.

Stock No.	Type	Fig.	Description	Each
57F3418	24A064	A	Three Foot Section of Track	3.29
57F3421	24A072	B	Plastic Twist-Clip	.20
57F3420	24A071	C	Steel Mounting Clip	.11
57F3419	24A067	D	Plastic Mounting Clip	.21

8

R10-E1 SERIES INDUSTRIAL RELAYS WITH SOLDER TERMINALS





- **UL recognized**
- **CSA recognized up to 6PDT Models**
- **Contact life expectancy of 10 million mech. operations**
- **1000V Initial Breakdown**

UL recognized under File E42810 and E2 9244 Models to 6PDT have CSA recognition. Contact life expectancy for all series is 10 million operations, mechanical. Wiring connections should be made so that opposite polarity is not developed between adjacent contacts. Initial breakdown voltage of the gaps between contacts is 1000V rms; 500 V rms between "Z" (bifurcated) contacts. Contact rating shown are for use at 28V DC or 115V AC, resistive. "V" relays are DC voltage actuated. "J" relays are current actuated (DC). "S" relays are sensitive DC voltage actuated. Voltages listed in "Input" col. are maximums. "E1" relays have .012" x .080" x .21" long solder terminals w/ #3-48 mounting stud. Pickup is approx. 75% of rated coil voltage. Max. pickup power of SPDT R10-SS1.0 and -SS220 is 20 mW DC @ 25°C. Wt. 0.8-1.4 oz.

8

2 AMP Typical/3 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1071	R10-E1-Y1-SS1.0K	6 DC	1000	SPDT	9.45	8.51	7.56	6.62
67F1072	R10-E1-Y1-SS220	3 DC	220	SPDT	9.45	8.51	7.56	6.62
45F105	R10-E1-Y2-V52	6 DC	52	2PDT	5.95	5.36	4.75	4.17
45F106	R10-E1-Y2-V185	12 DC	185	2PDT	5.95	5.36	4.75	4.17
45F107	R10-E1-Y2-V700	24 DC	700	2PDT	5.95	5.36	4.75	4.17
62F3043	R10-E1-Y2-V2.5K	48 DC	2500	2PDT	5.95	5.36	4.75	4.17
45F108	R10-E1-Y4-V52	6 DC	52	4PDT	7.05	6.35	5.64	4.94
45F109	R10-E1-Y4-V185	12 DC	185	4PDT	7.05	6.35	5.64	4.94
45F110	R10-E1-Y4-V700	24 DC	700	4PDT	7.05	6.35	5.64	4.94
45F111	R10-E1-Y4-V2.5K	48 DC	2500	4PDT	7.05	6.35	5.64	4.94
45F112	R10-E1-Y4-V15K	115 DC	15000	4PDT	10.15	9.14	8.12	7.11
45F113	R10-E1-Y6-V90	12 DC	90	6PDT	10.50	9.45	8.40	7.35
45F114	R10-E1-Y6-V430	24 DC	430	6PDT	10.50	9.45	8.40	7.35
62F3046	R10-E1-Y6-V1.5K	48 DC	1500	6PDT	10.50	9.45	8.40	7.35
62F3047	R10-E1-Y6-V9.0K	115 DC	9000	6PDT	12.35	11.12	9.88	8.65

5 AMP Typical 7½ Amp Max.

62F3030	R10-E1-X2-V28	5 DC	28	2PDT	6.45	5.81	5.16	4.52
62F3048	R10-E1-X2-V52	6 DC	52	2PDT	6.45	5.81	5.16	4.52
45F115	R10-E1-X2-V185	12 DC	185	2PDT	6.45	5.81	5.16	4.52
45F116	R10-E1-X2-V700	24 DC	700	2PDT	6.45	5.81	5.16	4.52
62F3049	R10-E1-X2-V2.5K	48 DC	2500	2PDT	6.45	5.81	5.16	4.52
62F3050	R10-E1-X2-V15K	115 DC	15000	2PDT	9.55	8.60	7.64	6.69
45F117	R10-E1-X2-115VAC	115 AC	*9 OK	2PDT	14.70	13.23	11.76	10.29
45F118	R10-E1-X4-V185	12 DC	185	4PDT	8.05	7.25	6.44	5.64
45F119	R10-E1-X4-V700	24 DC	700	4PDT	8.05	7.25	6.44	5.64
62F3052	R10-E1-X4-V2.5K	48 DC	2500	4PDT	8.05	7.25	6.44	5.64
62F3053	R10-E1-X4-V15K	115 DC	15000	4PDT	11.15	10.04	8.92	7.81
45F120	R10-E1-X4-115VAC	115 AC	*9.0K	4PDT	12.50	11.25	10.00	8.75
62F3054	R10-E1-X6-V25	6 DC	25	6PDT	12.00	10.80	9.60	8.40
45F121	R10-E1-X6-V90	12 DC	90	6PDT	12.00	10.80	9.60	8.40
45F122	R10-E1-X6-V430	24 DC	430	6PDT	12.00	10.80	9.60	8.40
62F3055	R10-E1-X6-V1.5K	48 DC	1500	6PDT	12.00	10.80	9.60	8.40
62F3056	R10-E1-X6-V9.0K	115 DC	9000	6PDT	13.85	12.47	11.09	9.70

*Diode

67F1073	R10-E1-X6-115VAC	115 AC	*7.5K	6PDT	20.25	18.23	16.20	14.18
67F1074	R10-E1-X8-115VAC	115 AC	*7.5K	8PDT	23.55	21.20	18.84	16.49

7½ AMP Typical/7½ Amp Max.

67F1075	R10-E1-W2-V185	12 DC	185	2PDT	7.40	6.66	5.92	5.18
67F1076	R10-E1-W2-V700	24 DC	700	2PDT	7.40	6.66	5.92	5.18
67F1077	R10-E1-W4-V700	24 DC	700	4PDT	9.95	8.96	7.96	6.97

BIFURCATED LOW LEVEL CONTACTS 100 MA Typ./2 Amp Max.

62F3067	R10-E1-Z2-V52	6 DC	52	2PDT				
45F125	R10-E1-Z2-V185	12 DC	185	2PDT				
45F126	R10-E1-Z2-V700	24 DC	700	2PDT	6.65	5.99	5.32	4.66
62F3068	R10-E1-Z2-V2.5K	48 DC	2500	2PDT				
62F3069	R10-E1-Z2-V15.0K	115 DC	15000	2PDT	9.75	8.78	7.80	6.83
62F3070	R10-E1-Z4-V52	6 DC	52	4PDT				
45F127	R10-E1-Z4-V185	12 DC	185	4PDT				
45F128	R10-E1-Z4-V700	24 DC	700	4PDT	8.45	7.61	6.76	5.92
62F3071	R10-E1-Z4-V2.5K	48 DC	2500	4PDT				
62F3072	R10-E1-Z4-V15.0K	115 DC	15000	4PDT	11.55	10.40	9.24	8.09
62F3073	R10-E1-Z6-V25	6 DC	25	6PDT				
45F129	R10-E1-Z6-V90	12 DC	90	6PDT				
45F130	R10-E1-Z6-V430	24 DC	430	6PDT	12.60	11.34	10.08	8.82
62F3074	R10-E1-Z6-V1.5K	48 DC	1500	6PDT				
62F3075	R10-E1-Z6-V9.0K	115 DC	9000	6PDT	14.45	13.01	11.56	10.12

SENSITIVE CURRENT 2 AMP Typ./3 Amp Max.

45F131	R10-E1-Y2-U2.5K	5.8 mA	2500	2PDT	8.30	7.47	6.64	5.81
45F132	R10-E1-Y2-J5.0K	4.1 mA	5000	2PDT	8.95	8.06	7.16	6.27
62F3065	R10-E1-Y2-J10.0K	3.1 mA	10000	2PDT	9.55	8.60	7.64	6.69
45F133	R10-E1-Y4-J2.5K	8.4 mA	2500	4PDT	9.40	8.46	7.52	6.58
62F3066	R10-E1-Y4-J10.0K	4.5 mA	10000	4PDT	10.65	9.59	8.52	7.46

SENSITIVE CURRENT—BIFURCATED CONTACTS 100 MA Typ./2 Amp Max

45F135	R10-E1-Z4-J1.0K	12.0 mA	1000	4PDT	10.80	9.72	8.64	7.56
45F136	R10-E1-Z4-J2.5K	8.4 mA	2500	4PDT	10.80	9.72	8.64	7.56
45F137	R10-E1-Z4-J5.0K	6.2 mA	5000	4PDT	11.45	10.31	9.16	8.02

R10-E2 PRINTED CIRCUIT TERMINALS

2 AMP Typical/3 Amp Max.

45F138	R10-E2-Y2-V185	12 DC	185	2PDT	5.95	5.36	4.76	4.17
45F139	R10-E2-Y2-V700	24 DC	700	2PDT	5.95	5.36	4.76	4.17
45F140	R10-E2-Y4-V185	12 DC	185	4PDT	7.05	6.35	5.64	4.94
45F141	R10-E2-Y4-V700	24 DC	700	4PDT	7.05	6.35	5.64	4.94
62F3057	R10-E2-Y6-V90	12 DC	90	6PDT	10.50	9.45	8.40	7.35

5 AMP Typical/7½ Amp Max.

67F1078	R10-E2-X2-V700	24DC	700	2PDT	6.45	5.81	5.16	4.52

7½ AMP Typical/7½ Amp. Max.

67F1079	R10-E2-W2-V700	24 DC	700	DPDT	7.40	6.66	5.92	5.18

BIFURCATED CONTACTS 100 MA Typ./2 Amp Max.

45F143	R10-E2-Z4-V700	24 DC	700	4PDT	8.45	7.61	6.76	5.92
62F3061	R10-E2-Z6-V430	24 DC	430	6PDT	12.60	11.34	10.08	8.82

SENSITIVE CURRENT-BIFURCATED CONTACTS 100 MA Typ./2 Amp Max.

67F1081	R10-E2-Z4-J5.0K	6.2 mA	5000	4PDT	11.45	10.31	9.16	8.02

General Purpose Relays Potter & Brumfield

SOLDER TERMINALS—2 AMP Typ./3 Amp Max. . R10L SERIES HAS LIGHT EMITTING DIODE (LED)

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1082	R10L-E1-Y2-V52	6 DC	52	2PDT	10.75	9.68	8.60	7.53
67F1083	R10L-E1-Y2-V185	12 DC	185	2PDT				
67F1084	R10L-E1-Y2-V700	24 DC	700	2PDT				
67F1085	R10L-E1-Y2-V2.5K	48 DC	2500	2PDT				
67F1086	R10L-E1-Y4-V52	6 DC	52	4PDT	11.85	10.67	9.48	8.30
67F1087	R10L-E1-Y4-V185	12 DC	185	4PDT				
67F1088	R10L-E1-Y4-V700	24 DC	700	4PDT				
67F1089	R10L-E1-Y6-V430	24 DC	430	6PDT	15.30	13.77	12.24	10.71

Has light emitting diode (LED) indicator. LED produces highly visible red light when coil is energized. LED has long operating life and high reliability. Other operating specs. same as standard R10 Series relays. Relays fit standard R10 Series sockets. Observe polarity when wiring R10L-with LED.

BIFURCATED CONTACTS 100 MA Typ./2 Amp Max.

67F1090	R10L-E1-Z4-V700	24 DC	700	4PDT	13.25	11.93	10.60	9.28

SOLDER TERMINALS—5 AMP Typ./7½ Amp Max.

67F1091	R10L-E1-X2-V185	12 DC	185	2PDT	11.25	10.13	9.00	7.88
67F1092	R10L-E1-X2-V700	24 DC	700	2PDT	11.25	10.13	9.00	7.88
67F1093	R10L-E1-X4-V185	12 DC	185	4PDT	12.85	11.57	10.28	9.00
67F1094	R10L-E1-X4-V700	24 DC	700	4PDT	12.85	11.57	10.28	9.00
67F1095	R10L-E1-X4-V2.5K	48 DC	2500	4PDT	12.85	11.57	10.28	9.00
67F1096	R10L-E1-X6-V430	24 DC	430	6PDT	16.80	15.12	13.44	11.76

PC TERMINALS—2 AMP Typ./3 Amp Max.

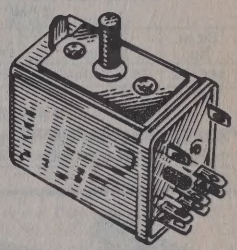
Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
67F1097	R10L-E2-Y2-V185	12 DC	185	2PDT	10.75	9.68	8.60	7.53
67F1098	R10L-E2-Y4-V700	24 DC	700	4PDT	11.85	10.67	9.48	8.30

SOLDER TERMINALS—2 AMP Typ./7.5 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
33F1625	R10-E6-X2-V52	6 DC	52	2PDT	7.35	6.62	5.88	5.15
33F1626	R10-E6-X2-V185	12 DC	185	2PDT				
33F1627	R10-E6-X2-V700	24 DC	700	2PDT				
33F1628	R10-E6-X2-115VAC	115 AC	9.0K	2PDT	13.40	12.06	10.72	9.38
33F1629	R10-E6-X4-V185	12 DC	185	4PDT	8.95	8.06	7.16	6.27
33F1630	R10-E6-X4-V700	24 DC	700	4PDT				
33F1631	R10-E6-X4-115VAC	115 AC	9.0K	4PDT	15.60	14.04	12.48	10.92
33F1632	R10-E6-Y2-V185	12 DC	185	2PDT	6.85	6.17	5.48	4.80
33F1500	R10-E6-Y2-V700	24 DC	700	2PDT				
33F1501	R10-E6-Y4-V185	12 DC	185	4PDT	7.95	7.16	6.36	5.57
33F1502	R10-E6-Y4-V700	24 DC	700	4PDT				

R10-E6 SERIES RELAYS

Standard R10-E1 relays with solder terminals and fitted with a bracket on the narrow side of its case for chassis mounting. The bracket has one #6-32 x .375" stud and one locating tab on .437" centers.

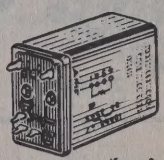


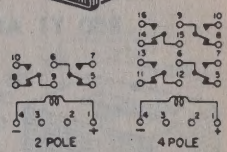
2 AMP Typ./3 Amp Max.

Stock No.	Type	Coils Input	Coils Ohms	Action	1-9	10-49	50-99	100-499
54F046	R10S-E1-Y1-J1.0K	3.2mA	1,000	SPDT	8.80	7.92	7.04	6.16
54F047	R10S-E1-Y1-J2.5K	2.0mA	2,500	SPDT	8.80	7.92	7.04	6.16
54F048	R10S-E1-Y1-J5.0K	1.4mA	5,000	SPDT	10.65	9.59	8.52	7.46
54F049	R10S-E1-Y2-J1.0K	4.5mA	1,000	2PDT	9.55	8.60	7.64	6.69
54F050	R10S-E1-Y2-J2.5K	2.9mA	2,500	2PDT	9.55	8.60	7.64	6.69
54F051	R10S-E1-Y2-J5.0K	2.0mA	5,000	2PDT	11.40	10.26	9.12	7.98
54F052	R10S-E1-Y4-J1.0K	6.5mA	1,000	4PDT	10.95	9.86	8.76	7.67
54F053	R10S-E2-Y1-J1.0K	3.2mA	1,000	SPDT	8.80	7.92	7.04	6.16
54F054	R10S-E2-Y1-J2.5K	2.0mA	2,500	SPDT	8.80	7.92	7.04	6.16
54F055	R10S-E2-Y1-J5.0K	1.4mA	5,000	SPDT	10.65	9.59	8.52	7.46
54F056	R10S-E2-Y2-J2.5K	2.9mA	2,500	2PDT	9.55	8.60	7.64	6.69
54F057	R10S-E2-Y4-J1.0K	6.5mA	1,000	4PDT	10.95	9.86	8.76	7.67

R105 GENERAL PURPOSE RELAYS

R10S series relays are very sensitive, current actuated DC relays for direct drive by DTL, TTL, ECL, and HTL. Available in solder (E1), and pc board (E2) termination. Maximum pickup is listed in "Input" column. Weight: 0.8 to 1.4 oz.

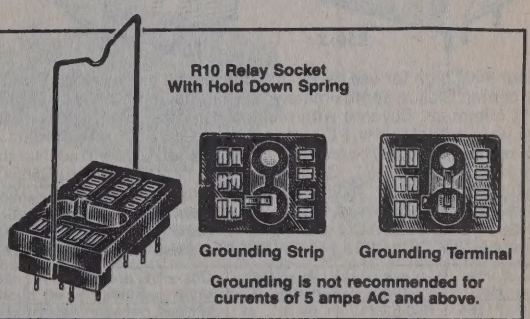




SOCKETS FOR R10 SERIES

Stk. No.	Part No.	No. of Poles	Terminal	Gnd. Type	Hold down Spring*	1-9	10-49	50-99	100-499
57F3433	27E125	2	Solder	Strip	20C249	.88	.79	.70	.62
57F3434	27E126	4	Solder	Strip	20C250	1.11	1.00	.89	.78
57F3435	27E127	6	Solder	Strip	20C251	1.42	1.28	1.14	.99
57F3451	27E211	8	Solder	Strip	20C266	2.19	1.97	1.75	1.53
57F3444	27E162	2	Solder	None	20C249	.88	.79	.70	.62
57F3445	27E163	4	Solder	None	20C250	1.11	1.00	.89	.78
57F3446	27E164	6	Solder	None	20C251	1.42	1.28	1.14	.99
57F3436	27E128	2	P/C	Strip	20C249	.88	.79	.70	.62
57F3437	27E129	4	P/C	Strip	20C250	1.11	1.00	.89	.78
57F3438	27E130	6	P/C	Strip	20C251	1.42	1.28	1.14	.99
57F3453	27E254	8	P/C	Strip	20C266	2.19	1.97	1.75	1.53
57F3448	27E193	2	P/C	Term.	20C249	.88	.79	.70	.62
57F3449	27E194	4	P/C	Term.	20C250	1.11	1.00	.89	.78
57F3450	27E195	6	P/C	Term.	20C251	1.42	1.28	1.14	.99
57F3443	27E152	4	**	Strip	20C250	1.69	1.52	1.35	1.18

(*) Not included with socket.
**Solder/Bkt. Mt.

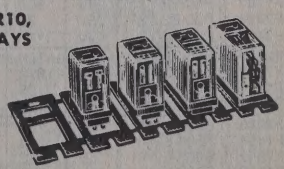

R10 Relay Socket
With Hold Down Spring
Grounding Strip
Grounding Terminal
Grounding is not recommended for currents of 5 amps AC and above.

RELAY RETAINERS

Stk. No.	Part No.	No. of Poles	Description	1-9	10-49	50-99	100-499
57F3406	20C249	2	Wire Hold Down Spring	.11	.10	.09	.08
57F3407	20C250	4	Wire Hold Down Spring				
57F3408	20C251	6	Wire Hold Down Spring				
57F3412	20C266	8	Wire Hold Down Spring				
57F3411	20C259	All	Wire Hold Down Strap (P/C only)				
57F3413	20C300		Wire Hold Down Spring for 2 Pole R10S only.	.16	.14	.13	.11
57F3414	20C301		Wire Hold Down Spring for 4 Pole R10S only.				

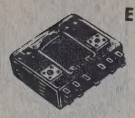
**Solder/Bkt. Mt.

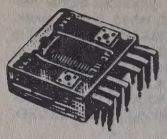
MOUNTING STRIP FOR R10, R12, R13, R14, R15 RELAYS



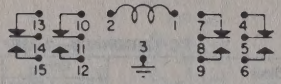
10 pre-punched breakaway mounting plates stamped from .064" aluminum. Designed to simplify mounting one or more relays on chassis or racks. Each plate accepts 2, 4, 6 or 8 pole solder terminal relay or socket.
37D645. Mounting strip, R10P126.
57F3463. NET Each..... 1.92

R40 SERIES—SLIMLINE® DC OPERATED RELAY





- For PC Boards
- UL Component Recog.
- Only 0.43" High



4 PDT. Allows easy circuit board layout and 6" board mounting centers. Nominal power 720 mW. Mechanical life: 50 million operations. Contact ratings for 115 V AC or 28 V DC, resistive.

R40-E3 MOUNTS FLAT ON PRINTED CIRCUIT BOARD
2 AMP TYP., 3 AMP MAX.

Stock No.	Type	Volts	1-9	10-49	50-99	100-499
45F164	R40-E3-Y4-V800	24 DC	13.10	11.79	10.48	9.17

5 AMP TYP., 7.5 AMP MAX.

45F166	R40-E3-X4-V200	12 DC	14.10	12.69	11.28	9.87
45F167	R40-E3-X4-V800	24 DC				

R40-E1 SOLDER TERMINALS OR PLUG IN SOCKET MFG.
2 AMP TYP., 3 AMP MAX.

Stock No.	Type	Volts	1-9	10-49	50-99	100-499
45F144	R40-E1-Y4-V50	6 DC	12.50	11.25	10.00	8.75
45F145	R40-E1-Y4-V200	12 DC				
45F146	R40-E1-Y4-V800	24 DC				

5 AMP TYP., 7.5 AMP MAX.

45F148	R40-E1-X4-V200	12 DC	13.50	12.15	10.80	9.45
45F149	R40-E1-X4-V800	24 DC				

BIFURCATED CONTACTS—0.1A TYP., 2A MAX.

45F151	R40-E1-Z4-V800	24 DC	13.90	12.51	11.12	9.73

DRY CIRCUIT/CROSSBAR—500 μA TYP., 250 mA MAX.

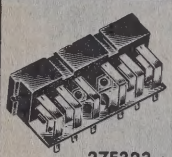
45F152	R40-E1-L4-V200	12 DC	15.30	13.77	12.24	10.71
45F153	R40-E1-L4-V800	24 DC				

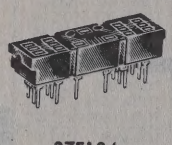
5 AMP TYP., 7.5 AMP MAX.

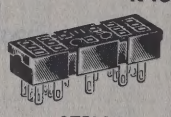
45F158	R40-E2-X4-V200	12 DC	13.50	12.15	10.80	9.45

8

R40 SOCKETS

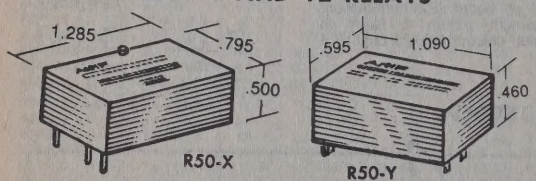

27E323


27E134


27E135

Stk. No.	Type	Terminals	1-9	10-49	50-99	100-499
57F3454	27E323	Rt. angle PC	2.31	2.08	1.85	1.62
57F3441	27E134	Vertical PC	1.95	1.76	1.56	1.37
57F3442	27E135	Chassis mount solder	2.33	2.10	1.86	1.63
57F3409	20C252	Hold down spring	.11	.10	.09	.08

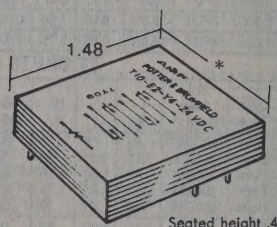
R50 Y1 AND Y2 RELAYS



Seat .460" high for use on PC boards spaced as close as .6" center to center. Pickup approximately 75% of rated coil voltage. Dropout 5% minimum. Covered with molded polyester case. Epoxy sealed for wave solderability. PC terminals spaced on .1" grid. Contact life expectancy: 500,000 operations minimum, UL recognized. Nominal pickup power: R50-Y1, 330 mW DC; R50-Y2, 410 mW DC; R50S-Y2, 290 mW DC; R50-X1, 450 to 562 mW DC; R50S-Y1, 160 mW DC. Contact rating: R50, 2 amps @ 28V DC or 1 amp @ 120V AC resistive. R50S, 1 amp @ 28V DC or 0.5 amp @ 120V AC resistive, R50-X1 5 amps @ 28V DC or 2.5 amps @ 120V AC resistive. U.L. Recognized.

Stock No.	Type	Input	Res. Ω	Contacts	Current Rating	1-9	10-49
67F1185	R50-E2-Y1	6V	47	SPDT	2A	4.10	3.69
67F1186	R50-E2-Y1	12V	200	SPDT	2A	4.10	3.69
67F1187	R50-E2-Y1	24V	950	SPDT	2A	4.40	3.96
24F2494	R50-E2-Y2	5V	32	DPDT	2A	5.65	5.09
24F2495	R50-E2-Y2	6V	45	DPDT	2A	5.65	5.09
24F2496	R50-E2-Y2	12V	170	DPDT	2A	5.65	5.09
24F2497	R50-E2-Y2	24V	670	DPDT	2A	5.75	5.18
33F1621	R50-E2-X1	5V	25	SPDT	5A	4.85	4.37
33F1622	R50-E2-X1	6V	37	SPDT	5A	4.85	4.37
33F1623	R50-E2-X1	12V	125	SPDT	5A	4.85	4.37
33F1551	R50S-E2-Y1	5V	64	SPDT	1A	4.00	3.60
33F1552	R50S-E2-Y1	6V	66	SPDT	1A	4.00	3.60
33F1553	R50S-E2-Y1	12V	330	SPDT	1A	5.25	4.73
33F1554	R50S-E2-Y1	24V	950	SPDT	1A	5.50	4.95
33F1555	R50S-E2-Y2	5V	42	DPDT	1A	5.25	4.73
33F1556	R50S-E2-Y2	6V	60	DPDT	1A	5.25	4.73
33F1557	R50S-E2-Y2	12V	260	DPDT	1A	5.25	4.73

T10 SERIES RELAYS



Seated height .425

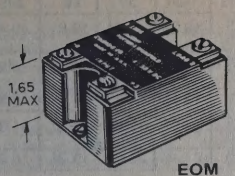
(*) 2PDT-1.24 4PDT-1.54
6PDT-1.84

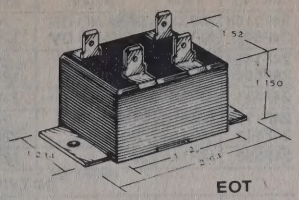
- General Purpose
- Low Bounce
- Long Life

Only .425" high. PC boards can be mounted on 0.6" centers. Permissive-make contacts. Operate and release times are each 15 ms, including bounce. Y2, Y4, Y6 silver, single-button contacts rated to 2 amps @ 28V DC or 120V AC, resistive. Z2, Z4, Z6 silver, bifurcated contacts rated from low level to 1 amp @ 60V DC or 120V AC, resistive. Epoxy-sealed for wave solderability. polyester cover bonded to relay base but not hermetically sealed allowing cleaning by immersion. Cleaning time must not exceed two minutes. U.L. Recognized.

Stock No.	Type	Input	Res. Ω	Contacts	Current Rating	1-9	10-49
24F2500	T10-E2-Y2	12V	310	DPDT	2A	6.55	5.90
24F2501	T10-E2-Y2	24V	1200	DPDT	2A	6.55	5.90
33F1593	T10-E2-Y4	12V	190	4PDT	2A	8.40	7.56
33F1594	T10-E2-Y4	24V	769	4PDT	2A	8.40	7.56
24F2508	T10-E2-Z4	12V	190	4PDT	1A	9.80	8.82
24F2512	T10-E2-Y6	12V	122	6PDT	2A	10.40	9.36

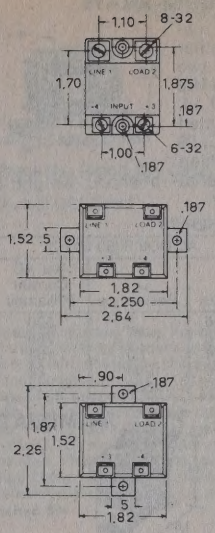
EOM-EOT SERIES

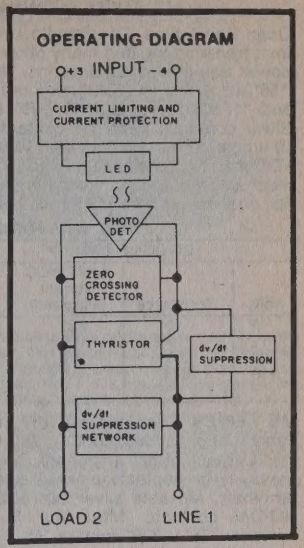




Stk. No.	Type	Input VDC	Input mA	Triac-Switch SPST-No VAC	Amps	1-9	10-24	25-49
28F1400	EOM1DB22	3-32	15	120	2.5, *3.5	20.05	18.05	16.24
28F1401	EOM1DB72	3-32	15	120	7, *25	25.20	22.68	20.41
28F1402	EOM1DB24	3-32	15	240	2.5, *3.5	21.40	19.26	17.33
28F1403	EOM1DB74	3-32	15	240	7, *25	27.75	24.98	22.48
28F1404	EOM1DB22	5	11	120	2.5, *3.5	17.80	16.02	14.42
28F1405	EOM1DB72	5	11	120	7, *25	22.90	20.61	18.55
28F1408	EOM1DB22	12	11	120	2.5, *3.5	17.80	16.02	14.42
28F1409	EOM1DB72	12	11	120	7, *25	22.90	20.61	18.55
28F1412	EOM1DB22	24	11	120	2.5, *3.5	17.80	16.02	14.42
28F1413	EOM1DB72	24	11	120	7, *25	22.90	20.61	18.55
28F1414	EOM1DB24	24	11	240	2.5, *3.5	19.15	17.24	15.51
33F1584	EOT1DB22	3-32	15	120	2.5, *3.5	16.50	14.85	13.37
33F1585	EOT1DB42	3-32	15	120	5, *10	19.15	17.24	15.51
28F1417	EOT1DC72	3-32	15	120	7, *25	21.85	19.67	17.70
28F1419	EOT1DC74	3-32	15	240	7, *25	24.35	21.92	19.72
28F1420	EOT1DC22	5	11	120	2.5, *3.5	14.30	12.87	11.58
28F1421	EOT1DC72	5	11	120	7, *25	19.70	17.73	15.96

*Mounted to appropriate heatsink w/silicon grease.

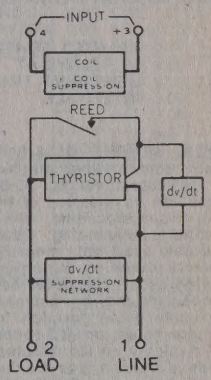


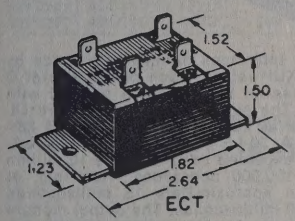


Solid-state controlled, isolated by optoelectronic coupler. Both feature zero voltage turn on and zero current turn off. Life expectancy greater than 100 million operations at rated values. Current rating is 25°C, 120 VAC, 50/60 Hz. Maximum load current derating is linear between 25°C and 55°C ambient. Can be driven directly by TTL, DTL, ECL, HTL, or MOS logic. EOM has screw terminals. EOT has .250" quick-connect terminals; non-hermetically sealed.

8

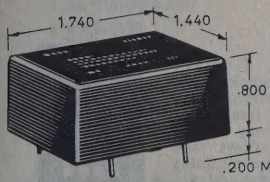
ECT OPERATING DIAGRAM





Stk. No.	Type	Triac Switch Input Volts	Input Ohms	Input mA	SPST-No VAC	Amps	1-9	10-24	25-49
28F1432	ECT1AC22	120 AC	—	6.2	120	2.5, *3.5	13.15	11.84	10.65
28F1433	ECT1AC72	120 AC	—	6.9	120	7, *25	18.75	16.88	15.19
28F1435	ECT1AC74	120 AC	—	9.5	240	7, *25	18.50	16.65	14.99
67F1184	ECT1DB44	24 DC	2000	12	120	5, *10	11.60	10.44	9.40
67F1183	ECT1DC72	5 DC	87	57	120	7, *25	14.85	13.37	12.03
28F1438	ECT1DC72	12 DC	500	24	120	7, *25	14.85	13.37	12.03
28F1439	ECT1DC22	24 DC	2000	12	120	2.5, *3.5	9.70	8.73	7.86
28F1440	ECT1DC72	24 DC	2000	12	120	7, *25	14.85	13.37	12.03

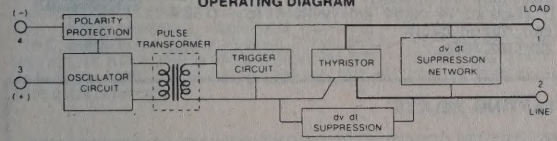
Mounted to appropriate heatsink w/silicon grease



EAX SERIES

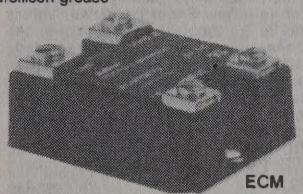
- TTL, MOS, I^2L compatible
- 1.2 amp load current
- 100 million operations

OPERATING DIAGRAM



Consists of solid-state switch; controlled and isolated by toroidal transformer driven by pulse circuit. Compatible with TTL, MOS, and I^2L logic. Input current: 12 mA, max. at all input voltages. Load current 1.2 amp, 120 Vac, 50/60 Hz., +25°C, derated linearly between +25°C and +55°C to a value .75 amp. Operate time: .5 ms, max. Release time: Typical turnoff at first zero crossover. Operating ambient: −10°C to +55°C. Operating life expectancy: 100 million operations, min. Approximate weight: 1 oz.

Stk. No.	Type	Input VDC	Triac-Switch SPST-No mA	VAC	Amps	1-9	10-24	25-49
28F1446	EAXIDA 12-5	5	12	120	1.2	14.00	12.60	11.34
28F1447	EAXIDA 12-12	12	12	120	1.2	14.00	12.60	11.34



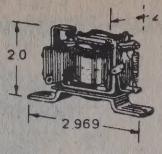
ECM

ECM SERIES hybrid relay consists of a solid state switch controlled and isolated by an internal reed relay. Packaged in a non-potted, screw terminal enclosure only .875" high, the ECM switches AC loads up to 40 amps. Current ratings for each rating code are listed in the ECM Switch Rating Table. Maximum load current derating is linear between +25°C and +55°C ambient. The referenced heatsink in the rating table is 15" x 15" x .125" aluminum for rating code ⑦ and 20" x 20" x .125" aluminum for rating code ⑨. Relays should be mounted securely to the heatsink using thermal joint compound between the relay and heatsink.

Stock No.	Type	Input DC Volts	Input Ohms	Input mA	TRIAC SWITCH SPST-NO AC Volts	Rating Code	1-9	10-24	25-49
81F4493		5	87	57			13.25	11.93	10.73
81F4494	• ECM1DE72	12	500	24	120	⑦	13.25	11.93	10.73
81F4495		24	2,000	12			13.25	11.93	10.73
81F4496		5	56	89			13.90	12.51	11.26
81F4497	• ECM1DE74	12	320	37.5	240	⑦	13.90	12.51	11.26
81F4498		24	1,280	18.8			13.90	12.51	11.26
81F4499		5	87	57			18.60	16.74	15.07
81F4500	• ECM1DE92	12	500	24	120	⑨	18.60	16.74	15.07
81F4501		24	2,000	12			18.60	16.74	15.07
81F4502		5	56	89			19.90	17.91	16.12
81F4503	• ECM1DE94	12	320	37.5	240	⑨	19.90	17.91	16.12
81F4504		24	1,280	18.8			19.90	17.91	16.12

MR SERIES MEDIUM POWER RELAYS

Open frame type. Can handle small motors, transmitters, and many other similar power equipment applications. Mtg: two .156" dia. holes on 2.250" centers for MR3 and 11; 2.625" centers for MR5 and 14. Silver contacts. MR3 has contacts rated 10 amps; all others, 8 amps, 120 VAC, 28 VDC resistive. Life expectancy is 5 million mechanical operation. Insulating material—phenolic. Weight: 4 oz. For dust covers, see MS series below.



COIL DATA FOR MR SERIES

DC COILS			AC COILS (50/60 HZ)		
Volts	Resistance	Average DC Current Milligrams	Volts	DC Resistance	Ave. AC Current Milliamps
6	24	250	6	2.7	550
12	96	125	12	13.2	268
24	360	67	24	50	134
110	8000	14.4	120	1250	28
...	....	....	240	4600	14

AC TYPE

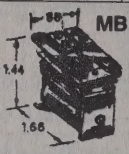
Stk. No.	Type	Action	Input Volts	1-24	25-50	51-99	100-249
24F1158	MR3A	SPST-NO-DM	24	13.90	13.21	12.51	10.43
24F506	MR3A	SPST-NO-DM	120				
24F1159	MR5A	SPDT	24	11.85	11.26	10.67	8.89
24F509	MR5A	SPDT	120				
24F534	MR5A	SPDT	240	13.10	12.45	11.79	9.83
24F1160	MR11A	DPDT	24	15.85	15.06	14.27	11.89
24F511	MR11A	DPDT	120				
24F536	MR14A	3PDT	120	21.40	20.33	19.26	16.05

DC TYPE

Stk. No.	Type	Action	Input Volts	1-24	25-50	51-99	100-249
45F006	MR3D	SPST-NO-DM	12	14.35	13.63	12.92	10.76
24F550	MR5D	SPDT	6	12.00	11.40	10.80	9.00
24F1167	MR5D	SPDT	12				
24F1169	MR11D	DPDT	12	15.95	15.15	14.36	11.96
24F1170	MR11D	DPDT	24				
24F1315	MR11D	DPDT	110	17.05	16.20	15.35	12.79

MB MINIATURE DC CONTACTOR

MB SERIES. Designed for very high current applications, 60 A @ 28 VDC res. Contact arms; stationary, heavy brass, silver contacts pierced solder terminals. Movable silver bar SPST-NO-DM contacts. Mtg. four 3—48 holes on .375" x .375" centers. Wt. 2 oz.



MB Series

Stock No.	Type	Coil Input	Coil Ohms	1-24	25-50	51-99	100-249
24F612	MB3D	12VDC	62.3	21.20	20.14	19.08	15.90
24F613	MB3D	24VDC	245				

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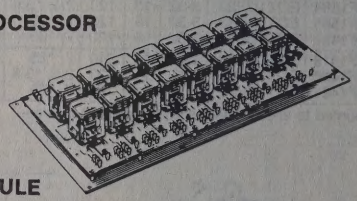
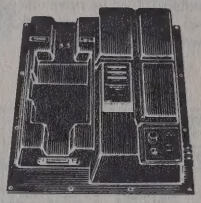
VERSATILE, AFFORDABLE MICROPROCESSOR BASED CONTROL



LOGIC MODULE WITH 29 INDEPENDENT CHANNELS

ABLE TO CONTROL 16 RELAYS AT DIFFERENT TIMING INTERVALS



LOGIC MODULE QL08-1000. 29 independent channels, is programmable in either minutes or seconds and can control as many as 16 output relays. A programmable wait feature allows a "wait" to be inserted at the beginning of any start time or the end of any stop time, with a 96-132V, 60 Hz. pulse required to reinitiate sequencing. QL08 utilizes a non-volatile, electrically alterable read only memory which needs no battery backup for memory retention during power failures. Should a power interruption occur, the QL08 remembers its location in the sequence. Sequencing may be resumed at that point when power is restored. Maximum cycle duration for the QL08 is 99.9 minutes, in the minutes mode, or 99.9 seconds, in the seconds mode. Resolution is 0.1 minute, in the minutes mode, or 0.1 second, in the seconds mode. Output 1 has maximum of 8 start/stop times, outputs 2 and 3 have a maximum of 4 start/stop times each and outputs 4 through 16 have 1 start/stop time each. Approximate dimensions: 15.75"H x 12.65"W x 3.5"D (40.0 x 32.1 x 8.89 cm).

22F1181. NET 594.40

INTERCONNECTION CABLE

INTERCONNECTION CABLE QC08-1000. Required to connect the QL08 logic module to the QR08 output module. This ribbon cable with card edge connectors is five feet (152.4 cm) long.

22F1183. NET 33.45

OUTPUT MODULE

OUTPUT MODULE QR08-1000. Interfaces directly with loads by means of 16 UL Recognized KUP relays. Each of the 2 form C DPDT) relays in the module has an LED wired in parallel with its coil to indicate operation. The output relay contacts are UL rated ¼ HP @ 120V AC; ⅓ HP @ 240V AC; 10 Amperes @ 28V DC or 240V AC, 80% PF; 10 FLA, 30 LRA @ 125V AC; and 5 FLA, 15 LRA @ 250V AC. Minimum expected contact life is 10 million operations, mechanical, and 100,000 operations, electrical, at rated load. Relays operate in approximately 15 milliseconds and release in approximately 10 milliseconds. The output module has .250" quick connect terminals for fast, secure wiring. Approximate dimensions: 8.3"H x 17.8"W x 2.5"D (21.1 x 45.2 x 6.35 cm).

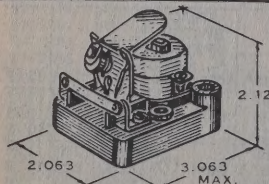
22F1180. NET 337.80

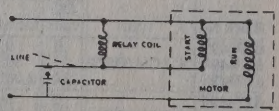
PROGRAM MODULE

PROGRAM MODULE QS08-1000. Programs may be entered and changed quickly and easily using the QS08. Once the programming has been completed and the unit has begun sequencing, the program module may be disconnected and removed. This allows one QS08 to be used with several logic modules and also prevents program tampering. Approximate dimensions: 5.75"H x 3.6"W x 1.12" D (14.6 x 9.14 x 2.84 cm) with 5 foot (152.4 cm) ribbon cable.

22F1182. NET 81.05

MS SERIES MOTOR STARTING RELAYS





Disconnects capacitor on capacitor start, induction run motors Operates on back EMF of start winding. Armature gap can be altered to change pick-up. UL recognized. Mounting: two .156" dia. holes on 1.563" centers. Contacts: ¾ HP, fine silver; 3 HP, silver cadmium.

Stock No.	Type	In-put	Res. Ω	Con-tacts	Rat-ing	1-24	25-50	51-99	100-240
25F775	MS2AY	120V	530	SPST-	¾ HP	14.10	13.40	12.69	10.58

MS/MR SERIES DUST COVER

Metal dust cover.

Stock No.	Type	1-24	25-50	51-99	100-249
57F3459	35D130	6.27	5.96	5.64	4.70

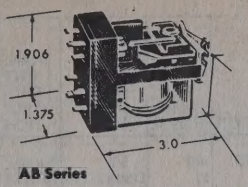
Heavy Duty Power Relays

AB AND ABC SERIES MEDIUM POWER 10 AMP RELAYS

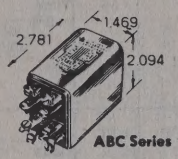
Equipped with terminals to fit snap-on connectors and may be applied to PC using dip soldering. Recognized under component program of UL and are CSA listed. Silver contacts.

AB Series. For appliance and general purpose applications. Mtg.—Two 8-32 tapped holes on 1¼" centers. Wt. 5 oz.

ABC Series. Med. duty power relay for small motors. Enclosed in non-hermetic, heavy metal cover. Mtg.-one ⅜" × 8-32" metal stud and locating tab on .562" center. "Y" style contacts, 10 amp @ 120 VAC, or 5 amp @ 240 VAC resistive. Wt. approx. 7 oz.



AB Series



ABC Series

DPDT AC TYPE

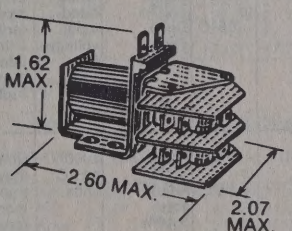
Stock No.	Type	Input Volts	Ohms	1-24	25-50	51-99	100-249
62F2962	AB11AY	24VAC	23	17.70	16.82	15.93	13.28
24F1121	AB11AY	120VAC	510	17.70	16.82	15.93	13.28
45F000	AB11AY	240VAC	2050	18.70	17.77	16.83	14.03
62F2964	ABC11AY	24VAC	23	18.75	17.81	16.88	14.06
24F1129	ABC11AY	120VAC	510	18.75	17.81	16.88	14.06
45F001	ABC11AY	240VAC	2050	19.70	18.72	17.73	14.78

DPDT DC TYPE

Stock No.	Type	Input Volts	Ohms	1-24	25-50	51-99	100-249
62F2965	AB11DY	12VDC	72	18.80	17.86	16.92	14.10
62F2966	AB11DY	24VDC	288	18.80	17.86	16.92	14.10
62F2967	AB11DY	110VDC	6050	19.60	18.62	17.64	14.70
62F2969	ABC11DY	12VDC	72	19.70	18.72	17.73	14.78
62F2970	ABC11DY	24VDC	288	19.70	18.72	17.73	14.78

S87R SERIES 20 AMP POWER RELAYS

- UL RECOGNIZED
- 1 MILLION OPERATIONS



For use in vending machines, washing machines, machine-tool control systems, heating and air conditioning systems, and automated conveyor systems. U.L. Recognized. Has a life expectancy of 50,000 operations at full load; 1 million operations, mechanical. Operating temp. range is –45 C to + 65 C. Contacts are rated at 20 amps, 277VA; 60 LRA, 12 FLA, 1 HP @ 125 VAC; 48 LRA, 8 FLA, 2HP @ 250 VAC pilot duty; 360 VA, 125/250 VAC. Mounting is by one .166" dia. mounting hole and .160" dia. boss. Termination is .250" quick connect.

Stock No.	Type S87R	Coil Input	Coil Ohms	Coil Power	Con. Arr.	1-24	25-50	51-99	100-249
20F765	5A2B1D1	24V	32			5.75	5.46	5.18	4.31
20F766	5A2B1D1	120V	800	4.0 VA	SPDT	5.75	5.46	5.18	4.31
20F767	5A2B1D1	240V	3200			6.35	6.03	5.72	4.76
20F768	11A2B1D1	24V	32			7.80	7.41	7.02	5.85
20F769	11A2B1D1	120V	800	4.0 VA	DPDT	7.80	7.41	7.02	5.85
20F770	11A2B1D1	240V	3200			8.40	7.98	7.56	6.30
20F771	5D2B1D1	12V	50	2.9W	SPDT	5.35	5.08	4.82	4.01
20F772	5D2B1D1	24V	200	2.9W	SPDT	5.35	5.08	4.82	4.01
20F773	11D2B1D1	24V	128	4.5W	DPDT	7.35	6.98	6.62	5.51

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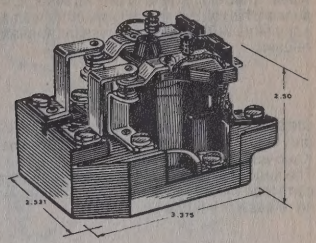
PRD SERIES POWER RELAYS

- For high inrush current applications
- Protective Plastic Coil Cover
- UL and CSA listed



Heavy duty power relay. For high inrush current applications such as motor starting and incandescent lamp loads. Coil housed in protective plastic enclosure to min. possibility of damage. 100,000 operations @ full load. Directly interchangeable with the PR model. All PRD 1, 3, 5 models have contact ratings of 25 amps @ 277VAC, res. 1 HP @ 120/240VAC Models PRD 7, or 11 with AY and DY suffixes are rated 25 amps @240VAC, 20 amps @ 277VAC, res. 1 HP @ 120/240VAC Models 7, 11 with the suffix AG are rated 30 amps @ 240VAC, 20 amps @ 277VAC, res. 1 HP @ 120/240VAC, 10 amps @ 600VAC resistive. Floating movable contact carrier provides excellent pressure and wipe between contact surfaces, thus keeping voltage drop to a minimum between mating contacts. UL and CSA listed.

AC VOLTS

Stock No.	Type	Coil Input	Coil Ohms	Contacts	1-24	25-50	51-99	100-249
33F1503	PRD1AYO	24V	12	SPST-NO	8.80	8.36	7.92	6.60
33F1504	PRD1AYO	120 V	290	SPST-NO	8.80	8.36	7.92	6.60
33F1505	PRD3AYO	6 V	.86	SPST-NO-DM	8.80	8.36	7.92	6.60
33F1506	PRD3AYO	12 V	3.2	SPST-NO-DM	8.80	8.36	7.92	6.60
33F1507	PRD3AYO	24 V	12	SPST-NO-DM	8.80	8.36	7.92	6.60
33F1508	PRD3AYO	120 V	290	SPST-NO-DM	8.80	8.36	7.92	6.60
33F1509	PRD3AYO	208 V	850	SPST-NO-DM	9.00	8.55	8.10	6.75
33F1510	PRD3AYO	240 V	1200	SPST-NO-DM	9.00	8.55	8.10	6.75
33F1515	PRD5AYO	6 V	.86	SPDT	10.10	9.60	9.09	7.58
33F1516	PRD5AYO	12 V	3.2	SPDT	10.10	9.60	9.09	7.58
33F1517	PRD5AYO	24 V	12	SPDT	10.10	9.60	9.09	7.58
33F1518	PRD5AYO	120 V	290	SPDT	10.10	9.60	9.09	7.58
33F1519	PRD5AYO	208 V	850	SPDT	10.30	9.79	9.27	7.73
33F1520	PRD5AYO	240 V	1200	SPDT	10.30	9.79	9.27	7.73
33F1525	PRD7AGO	120 V	290	DPST-NO	10.90	10.36	9.81	8.18
33F1526	PRD7AYO	6 V	.86	DPST-NO	10.95	10.40	9.86	8.21
33F1527	PRD7AYO	12 V	3.2	DPST-NO	10.95	10.40	9.86	8.21
33F1528	PRD7AYO	24 V	12	DPST-NO	10.95	10.40	9.86	8.21
33F1529	PRD7AYO	120 V	290	DPST-NO	10.95	10.40	9.86	8.21
33F1530	PRD7AYO	208 V	850	DPST-NO	11.15	10.59	10.04	8.36
33F1531	PRD7AYO	240 V	1200	DPST-NO	11.15	10.59	10.04	8.36
33F1536	PRD11AGO	120 V	290	DPDT	13.55	12.87	12.20	10.16
33F1537	PRD11AYO	6 V	.86	DPDT	13.60	12.92	12.24	10.20
33F1538	PRD11AYO	12 V	3.2	DPDT	13.60	12.92	12.24	10.20
33F1539	PRD11AYO	24 V	12	DPDT	13.60	12.92	12.24	10.20
33F1540	PRD11AYO	120 V	290	DPDT	13.60	12.92	12.24	10.20
33F1541	PRD11AYO	208 V	850	DPDT	13.80	13.11	12.42	10.35
33F1542	PRD11AYO	240 V	1200	DPDT	13.80	13.11	12.42	10.35
33F1543	PRD11AYO	480 V	4500	DPDT	17.80	16.91	16.02	13.35
33F1548	PRDA11AYA	12 V	3.2	DPDT*	21.30	20.24	19.17	15.98
33F1549	PRDA11AYA	24 V	12	DPDT*	21.30	20.24	19.17	15.98
33F1550	PRDA11AYA	120 V	290	DPDT*	21.30	20.24	19.17	15.98
33F1633	PRDA11AYA	240 V	1200	DPDT*	21.50	20.43	19.35	16.13

*Has aux. SPDT, 5A, snap-action switch.

DC VOLTS

33F1511	PRD3DYO	6 V	18	SPST-NO-DM	8.45	8.03	7.61	6.34
33F1512	PRD3DYO	12 V	71	SPST-NO-DM	8.45	8.03	7.61	6.34
33F1513	PRD3DYO	24 V	288	SPST-NO-DM	8.45	8.03	7.61	6.34
33F1514	PRD3DYO	110 V	6050	SPST-NO-DM	9.80	9.31	8.82	7.35
33F1521	PRD5DYO	6 V	18	SPDT	9.75	9.26	8.78	7.31
33F1522	PRD5DYO	12 V	71	SPDT	9.75	9.26	8.78	7.31
33F1523	PRD5DYO	24 V	288	SPDT	9.75	9.26	8.78	7.31
33F1524	PRD5DYO	110 V	6050	SPDT	11.10	10.55	9.99	8.33
33F1532	PRD7DYO	6 V	18	SPDT	10.60	10.07	9.54	7.95
33F1533	PRD7DYO	12 V	71	SPDT	10.60	10.07	9.54	7.95
33F1534	PRD7DYO	24 V	288	SPDT	10.60	10.07	9.54	7.95
33F1535	PRD7DYO	110 V	6050	SPDT	11.95	11.35	10.76	8.96
33F1544	PRD11DYO	6 V	18	DPDT	13.25	12.59	11.93	9.94
33F1545	PRD11DYO	12 V	71	DPDT	13.25	12.59	11.93	9.94
33F1546	PRD11DYO	24 V	288	DPDT	13.25	12.59	11.93	9.94
33F1547	PRD11DYO	110 V	6050	DPDT	14.60	13.87	13.14	10.95

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CD SERIES—Remarkably dependable, accurate and flexible, offers an unusually wide selection of operational configurations, all with accurate time delay values, fast reset time and excellent repeatability. It is available in two types: Knob-adjustable in two versions, one with the relay in the same enclosure as the solid state unit, the other with an auxiliary relay. A second type is adjustable with an external resistor. Available for time delay on operate or on release.

CH SERIES—Intended for a wide range of industrial applications where economy is of greater interest than non-false operation. It is available in two types: Knob-adjustable with the relay in the same enclosure as the solid state unit. The second type has a fixed time delay period that is set at the factory and cannot be modified; its case has no knob. Available for time delay on operate, on release or interval on.

CJ SERIES—Time delay dry reed relays have high sensitivity and low power requirements. CJH external resistor provides adjustable time delay on operate.

CK SERIES—Similar to the CH with the exception that they do not have timing cycle interrupt transfer and will time as low as 0.1 second. These time delays include an internally mounted DPDT relay rated 10 amperes to form a compact and convenient assembly. Enclosed in white nylon dust covers, CK relays are available in three types: fixed, resistor adjustable and knob adjustable for AC or DC operation. Mounting convenience is provided by plug-in octal type terminals.

CL SERIES—Designed for delay on operate the CL Series is similar to the CU with the exception that they don't have timing cycle interrupt transfer and will time to 0.1 second. These solid state time delays are ideal for AC or DC applications. A DPDT KU relay rated 10 amperes is mounted in the same enclosure, forming a compact assembly. CL relays are enclosed in yellow polycarbonate dust covers and are available in three types: fixed, resistor adjustable and knob adjustable. Plug-in/quick-connect terminals facilitate handling and hook-up.

CR SERIES—Recycle timer has two independent control knobs for adjusting ON and OFF delays in 5 models from 0.1 to 180 seconds. The recycling sequence is initiated by applying power to the terminals. When the first preset delay is complete, the contacts transfer from normally OFF to energized ON, at which time the ON delay begins. If power is removed during any part of the operate cycle, the CR will revert to its OFF state (contacts open).

CU SERIES—An outstanding value in solid state time delay relays. The low cost CU Series is designed for delay on operate application in machines, process controls, copiers, office equipment, coin-operated machines and many others. Relays are available in three types: Fixed time delay that is set at the factory and cannot be modified, adjustable with an external resistor, and knob-adjustable with a reference scale. For minimum time (on external resistor types), two terminals, 2 and 5 must be shorted; for maximum time, the listed external resistor must be added between terminals 2 and 5. For intermediate times, select a lesser value resistor or use a potentiometer. Either fixed or resistor adjustable models can be furnished in two types of enclosures with the relay mounted in the same case as the solid state circuit. The CUB series knob-adjustable time delay is offered in a slightly taller enclosure. All CU series time delays have an internal DPDT 10 amp relay of the KUP series. The cases for the CU and KUP are dimensionally the same.

CG SERIES—Available in time delay on operate, delay on release or interval on. Feature CMOS integrated circuit controlling DPDT relay having contacts rated 10 amps @ 120VAC, or 5 amps @ 240VAC resistive. Repeatability, including first cycle of operation, typically .05% for DC units, .1% for AC units. Delay time provided by IC network not normally affected by voltage transients encountered in industrial applications. Relay contacts will not transfer if timing cycle is momentarily interrupted.

CW SERIES—Programmable time delay relay features a CMOS integrated circuit with delay on operate, delay on release and interval on timing functions. Timing is controlled by four toggle switches on the unit's case. One switch selects timing function, one selects seconds or minutes timing mode and the other two select timing range. Actual delay time is set using an adjustment knob on the case. This permits easy programmability within the 0.5-5, 1-10, 5-10 and 10-100 timing ranges. An internal DPDT relay rated 10 amps controls load switching. An LED on the case will illuminate when the relay is on. Mounting convenience is provided by plug-in octal type terminals.

Time Delay Relays

COMPARISON OF GENERAL SPECIFICATIONS OF TIME DELAY RELAYS

TYPE	TEMP. RANGE	TOLERANCE AND DELTA TIME	TRANSIENT PROTECTION	FALSE OPR.	RECYCLE AND RELEASE TIME	REPEATABILITY
CD	-40° to +55°	±5% Delta Time: ±5%	1 joule MOV	None	CD-38 45 Milliseconds typical	CD-38 ±1% Others ±2% (AC UNITS ADD ±1 cycle 60 HZ)
CH	-10°C to +55°C	±5% Delta Time: ±10%	1000V (on all 120VAC models)	Contacts may transfer momentarily if timing interval is interrupted	125 milliseconds typical	±2% (AC UNITS ADD ±1 cycle 60 Hz)
CJ	-10° to +55°C	±10% Delta Time: ±10%		None	50 milliseconds typical	±2%
CK	-10°C to +55°C	±5% Delta Time: ±10%	1 joule MOV	None	60 milliseconds typical	±2% (AC UNITS ADD ±1 cycle 60 Hz)
CL	-10°C to +40°C	Fixed ±5% Adjust ±10%	1,000V on AC units	None	100 milliseconds typical	3% (AC UNITS ADD ±1 cycle 60 Hz)
CR	-40°C to +55°C	Adjust ±20% Delta Time: ±10%	Twice rated input voltage for 1 ms.	Contacts may transfer momentarily if timing interval is interrupted	60 milliseconds typical	2% (AC UNITS ADD ±1 cycle 60Hz)
CU	-10°C to +40°C	Fixed ±5% Adjustable ±10%	1000 V on AC units	Contacts may transfer momentarily if timing interval is interrupted	150 milliseconds typical	±3% (AC UNITS ADD ±1 cycle 60 Hz)
CG	-10°C to +55°C	Both ±5%	1 joule MOV	None	30-40 milliseconds typical	0.05% AC 0.1% DC incl. first cycle
CW	Oper: -10°C to +55°C Storage: -40°C to +85°C	+10%, -0% of max +0%, -20% of min. **TIME:** ±5% max.	1 joule MOV	None	75 milliseconds maximum 50 milliseconds max.	AC ±0.5% max. but not less than ±16 ms DC ±0.1% max. but not less than ±3 ms.

DELAY ON OPERATE—24 VAC

Stock No.	Type	Delay (sec)	Control Method	Foot-notes	1-9	10-24	25-49
67F1154	CDB38-30001	0.1-10	Knob	1	66.45	63.13	59.81
24F3363	CKB38-30010	0.1-10	Knob	1	40.55	38.52	36.50
24F3354	CLB51-30010	0.1-10	Knob	1†	43.45	41.28	39.11
24F2881	CHB38-30001	1.0-10	Knob	1	38.30	36.39	34.47
24F2946	CUF42-30010	1.0-10	Res.	200K*†	33.75	32.06	30.38
24F2882	CHB38-30003	1.0-180	Knob	1	38.30	36.39	34.47
24F2941	CUF41-30010	1.0-10	Res.	10	33.85	32.16	30.47

DELAY ON OPERATE—120 VAC

Stock No.	Type	Delay (sec)	Control Method	Foot-notes	1-9	10-24	25-49
67F1156	CDB38-70001	0.1-1	Knob	1	66.45	63.13	59.81
67F1157	CDB38-70002	0.1-5	Knob	1	66.45	63.13	59.81
24F1881	CDB21-70003	0.1-10	Knob	2	58.85	55.91	52.97
24F1875	CDB38-70003	0.1-10	Knob	1	66.45	63.13	59.18
24F3364	CKB38-70010	0.1-10	Knob	1	40.55	38.52	36.50
24F3361	CKF38-70010	0.1-10	Res.	1&8*	38.10	36.20	34.29
24F3355	CLB51-70010	0.1-10	Knob	1†	41.50	39.43	37.35
24F3357	CLF41-70010	0.1-10	Res.	200K*†	38.95	37.00	35.06
67F1142	CLF42-70010	0.1-10	Res.	200K*	38.75	36.81	34.88
33F1664	CDB38-70006	0.3-30	Knob	1	66.45	63.13	59.81
24F1876	CDB38-70004	0.6-60	Knob	1	66.45	63.13	59.81
67F1158	CKB38-70060	0.6-60	Knob	1‡	41.90	39.81	37.71
24F2883	CHB38-70001	1.0-10	Knob	1	37.40	35.53	33.66
33F1597	CGB38-70010M	1.0-10**	Knob	1	79.20	75.24	71.28
24F3350	CUB51-70010	1.0-10	Knob	1†	40.00	38.00	36.00
24F2937	CUF41-70010	1.0-10	Res.	200K*†	34.70	32.97	31.23
24F2942	CUF42-70010	1.0-10	Res.	200K*†	34.70	32.97	31.23
67F1143	CUF41-70030	1.0-30	Res.	600K*†	34.70	32.97	31.23
67F1159	CHB38-70002	1.0-60	Knob	1‡	37.40	35.53	33.66
24F3351	CUB51-70120	1.0-120	Knob	1	40.00	38.00	36.00
24F2938	CUF41-70120	1.0-120	Res.	2.4M*†	34.70	32.97	31.23
24F2943	CUF42-70120	1.0-120	Res.	2.4M*†	34.70	32.97	31.23
24F2884	CHB38-70003	1.0-180	Knob	1‡	37.40	35.53	33.66
24F3365	CKB38-70120	1.2-120	Knob	1	46.75	44.41	42.08
24F3356	CLB51-70120	1.2-120	Knob	1†	47.20	44.84	42.48
24F1882	CDB21-70001	1.8-180	Knob	2	58.85	55.91	52.97
24F1877	CDB38-70005	1.8-180	Knob	1	66.45	63.13	59.81
67F1137	CUA41-70001	1.0	Fixed	1†	30.75	29.21	27.68
67F1144	CDF38-70001	1 max	Res.	1&9*	74.20	70.49	66.78
33F1665	CUA41-70005	5	Fixed	1	30.85	29.31	27.77
33F1598	CGB38-70050M	5.0-50**	Knob	1	79.20	75.24	71.28
67F1145	CDF38-70002	5 max	Res.	1&10*	74.20	70.49	66.78
67F1146	CDF31-70003	10 max	Res.	11&12*	70.85	67.31	63.77
67F1147	CDF38-70003	10 max	Res.	1&12*	74.20	70.49	66.78
33F1597	CGB38-70010M	10-100**	Knob	1	79.20	75.24	71.28
67F1138	CHA38-70001	10	Fixed	1‡	41.70	39.62	37.53
24F2927	CUA41-70010	10	Fixed	1†	30.85	29.31	27.77
24F2942	CUA42-70010	10	Fixed	1†	30.85	29.31	27.77
24F2928	CUA41-70120	120	Fixed	1†	30.85	29.31	27.77
24F2933	CUA42-70120	120	Fixed	1†	30.85	29.31	27.77

DELAY ON OPERATE—240 VAC

67F1160	CHB38-80001	1.0-10	Knob	1	42.85	40.71	38.57

DELAY ON OPERATE—12 VDC

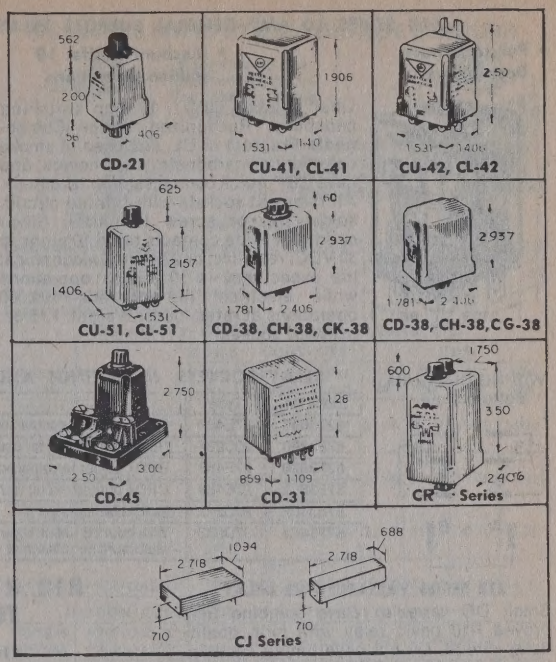
45F094	CJH01-20010	0.1-10	Res.	750K*	41.55	39.47	37.40
45F098	CJH03-20010	0.1-10	Res.	750K*	45.65	43.37	41.09
67F1161	CKD38-20010	0.1-10	Knob	1	38.95	37.00	35.06
45F095	CJH01-20120	1.0-120	Res.	1.8M*	41.55	39.47	37.40

DELAY ON OPERATE—24 VDC

24F1878	CDD38-30003	0.1-10	Knob	1	64.15	60.94	57.74
24F3362	CKH38-30010	0.1-10	Res.	1&8	38.15	36.24	34.34
45F096	CJH01-30010	0.1-10	Res.	750K*	41.55	39.47	37.40
45F100	CJH03-30010	0.1-10	Res.	750K*	45.70	43.42	41.13
24F3358	CLH41-30010	0.1-10	Res.	160K*†	36.20	34.39	32.58
24F1879	CDD38-30004	0.6-60	Knob	1	64.15	60.94	57.74
33F1600	CGD38-30010M	1.0-10**	Knob	1	76.90	73.06	69.21
24F2885	CHD38-30001	1.0-10	Knob	1	45.45	43.18	40.91
24F2939	CUH41-30010	1.0-10	Res.	160K*†	34.00	32.30	30.60
24F2944	CUH42-30010	1.0-10	Res.	160K*†	33.95	32.25	30.56
24F2940	CUH41-30120	1.0-120	Res.	2M*†	34.00	32.30	30.60
24F2886	CHD38-30003	1.0-180	Knob	1	45.45	43.18	40.91
24F1884	CDD21-30001	1.8-180	Knob	3	59.30	56.34	53.37
24F1880	CDD38-30005	1.8-180	Knob	1	64.15	60.94	57.74
24F2929	CUC41-30010	10	Fixed	1†	31.20	29.64	28.08
24F2930	CUC41-30120	120	Fixed	1†	31.40	29.83	28.26

DELAY ON OPERATE—48 VDC

67F1162	CDD38-40002	0.6-60	Knob	1	64.15	60.94	57.74
24F1883	CDD21-30003	0.1 to 10	Knob	3	59.30	56.34	53.37



INTERVAL ON—120 VAC

Stock No.	Type	Delay (sec)	Control Method	Foot-notes	1-9	10-24	25-49
33F1603	CGB38-79010M	1.0-10**	Knob	1	79.20	75.24	71.28
67F1172	CHB38-70021	1.0-10	Knob	1‡	51.65	49.07	46.49
67F1173	CHB38-70022	1.0-60	Knob	1‡	51.65	49.07	46.49
67F1174	CHB38-70023	1.0-180	Knob	1‡	51.65	49.07	46.49
33F1604	CGB38-79050M	5-50**	Knob	1	79.20	75.24	71.28
33F1605	CGB38-79100M	10-100**	Knob	1	79.20	75.24	71.28

INTERVAL ON—24 VDC

67F1175	CHD38-30021	1-10	Knob	1	62.65	59.52	56.39
33F1607	CGD38-39050M	5-50**	Knob	1	76.90	73.06	69.21
33F1608	CGD38-39100M	10-100**	Knob	1	76.90	73.06	69.21

DELAY ON RELEASE—24 VAC

67F1163	CHB38-30011	1-10	Knob	1&13	57.30	54.44	51.57

DELAY ON RELEASE—120 VAC

24F3260	CKB38-78010	0.1-10	Knob	1	51.25	48.69	46.13
24F1887	CDB38-70012	0.6-60	Knob	1	79.35	75.38	71.42
67F1164	CDB38-70014	0.1-10	Knob	1	79.35	75.38	71.42
67F1165	CDB38-70015	1.8-180	Knob	1	79.35	75.38	71.42
24F2887	CHB38-70011	1-10	Knob	1&13‡	54.95	52.20	49.46
67F1166	CHB38-70012	1-60	Knob	1&13‡	54.95	52.20	49.46
24F2888	CHB38-70013	1-180	Knob	1&13‡	54.95	52.20	49.46

DELAY ON RELEASE—24 VDC

24F1888	CDD38-30012	0.6-60	Knob	1	76.15	72.34	68.54
67F1167	CDD38-30014	0.1-10	Knob	1	76.15	72.34	68.54
67F1168	CDD38-30008	1.8-180	Knob	1	76.15	72.34	68.54
24F2889	CHD38-30011	1-10	Knob	1&13	65.80	62.51	59.22
24F2890	CHD38-30013	1-180	Knob	1&13	65.80	62.51	59.22

RECYCLE TIMER DELAY ON OP./RELEASE

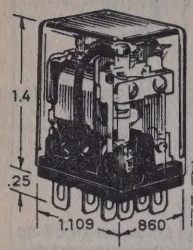
Stock No.	Type	Delay (sec)	Input Volts	Foot-notes	1-9	10-24	25-49
67F1169	CRB48-30180	1.8-180	24 VAC	1	127.50	121.13	114.75
33F1668	CRB48-70010	0.1-10	120 VAC	1	81.50	77.43	73.35
67F1170	CRB48-70180	1.8-180	120 VAC	1	109.80	104.31	98.82
67F1171	CRD48-30180	1.8-180	24 VDC	1	105.10	99.85	94.59

FOOTNOTES:—**M** = Minutes (†) UL. (*) Ext. resistor, not supplied, for max. time. Recommend ¼ watt min. resistor. **1)** Int. relay w DPDT contacts; 10 Amps, 120 VAC. **2)** Use with relay KRP5AG-120 VAC, KRP11AG-120VAC, or KRP14AG-120VAC. **3)** Use with KRP5DG-24VDC, KRP11DG-24VDC, or KRP14DG-24VDC relay. **4)** Use with KHP17D11-24VDC relay. **6)** Use with PRD11AY-120VAC relay. **8)** 750K resistor for max. time. **9)** 33K resistor for ½ max. time. **10)** 200K resistor for ½ max. time. **12)** 400K resistor for ½ max. time. **13)** Ext. switch or relay required. **14)** 1.6 meg. resistor for ½ max. time. (**) Indicates delay in minutes. (‡) Not recommended for continuous duty.

Potter & Brumfield Special Purpose & Time Delay

K10 SERIES 10 AMP GENERAL PURPOSE RELAYS

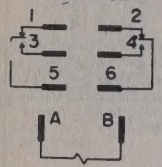
- **Polycarbonate Dust Covers**
- **Mechanical Life: 10 Million Operations**
- **Quick Connect Terminals**



Offer reliable, DPDT, 10 amp switching capability. Recognized under Components Program of UL. Enclosed in smoke colored polycarbonate dust covers and have .187" quick connect solder terminals. All relays fit sockets with printed circuit, solder lug or screw terminals. Silver cadmium oxide contacts rated 10 amps @ 30 VDC, resistive, or 277 VAC. Mechanical life expectancy is 10 million operations while electrical life exceeds 100,000 operations at rated loads. Weight: 1.15 oz. (without socket.)

Stock No.	Type	COILS Input	Res. in Ohms	Nom. Power	1-24	25-50	51-99	100-249
67F3886	K10P11A15	6V	10.5					
67F3887		12V	43					
67F3888		24V	160	1.2VA				
67F3889		48V	668					
67F3890		120V	3,900		7.45	7.08	6.71	5.59
67F3891	K10P11D15	6V	40					
67F3892		12V	160					
67F3893		24V	650	0.9W	6.65	6.32	5.99	4.99
67F3894		90V	9,000		7.45	7.08	6.71	5.59
67F3895		110V	11,000		7.80	7.41	7.02	5.85

WIRING DIAGRAM
Bottom View



RELAY SOCKETS, MOUNTINGS AND MOUNTING STRIPS

Stock No.	Type	Description	1-24	25-50	51-99	100-249
67F3897	27E487	DPDT screw terminal socket, rated 10 amps.	5.16	4.90	4.64	3.87
67F3896	20C297	Hold down spring for use with a screw terminal socket.	.22	.21	.20	.17
67F3898	27E488	DPDT solder terminal socket rated 10 amps.	1.34	1.27	1.21	1.01
67F3899	27E489	DPDT printed circuit terminal socket rated 10 amps.	1.41	1.34	1.27	1.06
57F3402	20C217	Hold down spring.	.22	.21	.20	.17
57F3464	37D633	Will mount 8 KH or Type No. 27E488 sockets in one length of aluminum strip, each at 10.9" x 2.25" x .062".	2.05	1.95	1.85	1.54

8

R12 SERIES VARIABLE TIME DELAY

Small DC variable relays combine field proved R10 basic relay with high quality delay circuit. Do not have timing cycle interrupt "transfer." DPDT contacts rated 5 amps. Solder terminals. Mtg: 3-48 stud or sockets with solder or PC terminals.

R14-R15 SERIES TIMING RESISTOR

The resistor values shown are for maximum delay time. For minimum time, short the external resistor terminals together.

Max. Time Delay	Resistance
2 sec.	1.32M
10 sec.	4.34K
30 sec.	1.32M
120 sec.	1.32M

R14 SERIES FIXED OR ADJUSTABLE

Externally resistor adjustable DC operated time delay relay. Accuracy: Externally adjustable to within ±25%. Repeatability: ±3%. Temp.: −10°C to +55°C. No timing cycle interrupt "transfer." Reverse polarity protection.

R12, R14, R15, R16, R52 SERIES SOLID-STATE TIME DELAY ON OPERATE RELAYS

R15 SERIES

AC operated externally resistor adjustable time delay relay. Accuracy: to within ±25%. Temp: −10°C to +55°C. Repeatability: ±3%. Momentary timing cycle interrupt "transfer."

R16 SERIES

Time delay on operate. Potentiometer sets timing value in range of 2.0-30 seconds. Contact life expectancy of 10 million operations, mechanical and at least 100,000 op. @ full load @ 28V DC.

R52 SOLID STATE TIMING MODULE

Makes time-delays of all but a few of the P&B 5, 6, 12, and 24V DC relays. Connects in series w/one of two coil terms. and pos. side of input line. Conducts 350 mA at voltages from 4.5 to 30V DC. Resistor adjustable.

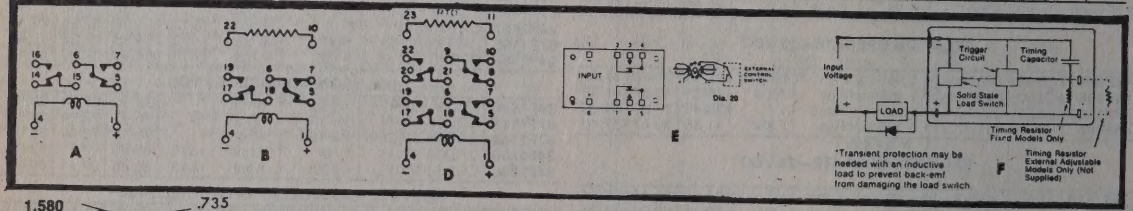
SOCKET WITH HOLD-DOWN SPRING

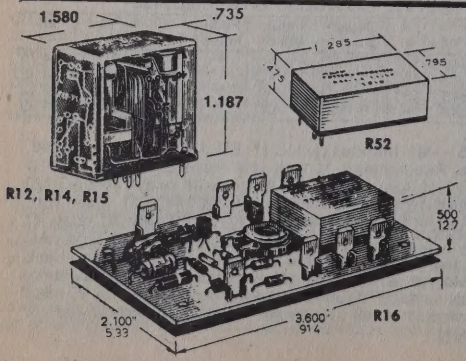
R12 SERIES SOCKETS

Stock No.	Type	Description	1-9	10-49	50-99	100-499
57F3439	27E131	DPDT sol.	1.42	1.28	1.14	.99
57F3408	20C251	Hold down Spring for above	.11	.10	.09	.08

R14-R15 SERIES SOCKETS

Stock No.	Type	Description	1-9	10-49	50-99	100-499
57F3455	27E328	DPDT and 4PDT sol.	2.19	1.97	1.75	1.53
57F3412	20C266	Hold down Spring for above	.11	.10	.09	.08

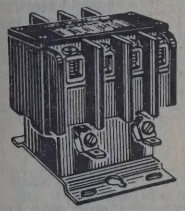




Stock No.	Type	Delay Sec.	Input Volts	Action	Amp Rtg.	Dia. No.	1-9	10-49	50-99
45F081	R12-2-12-X2-E1	0.1-2	12VDC	DPDT	5	A	32.80	29.52	26.24
45F082	R12-2-24-X2-E1	0.1-2	24VDC	DPDT	5	A	32.80	29.52	26.24
45F083	R12-30-12-X2-E1	1.0-30	12VDC	DPDT	5	A	33.60	30.24	26.88
45F084	R12-30-24-X2-E1	1.0-30	24VDC	DPDT	5	A	33.60	30.24	26.88
45F085	R12-120-12-X2-E1	5.0-120	12VDC	DPDT	5	A	36.3u	32.67	29.04
67F1000	R14-2A-12-X4-E1	.02-2	12VDC	4PDT	5	D	31.60	28.44	25.28
67F1001	R14-30A-24-X2-E1	0.3-30	24VDC	DPDT	5	B	30.45	27.41	24.36
67F1002	R14-30A-24-X4-E1	0.5-30	24VDC	4PDT	5	D	33.00	29.70	26.40
67F1011	R15-30A-115-X2E1	0.5-30	115VAC	DPDT	5	B	40.90	36.81	32.72
67F1013	R15-60A-115-Y2E1	1.0-60	115VAC	DPDT	2	B	40.40	36.36	32.32
33F1609	R16-30A-24A-Y2	2-30	24VAC	DPDT	2	E	23.80	21.42	19.04
33F1610	R16-30A-120A-Y2	2-30	120VAC	DPDT	2	E	25.15	22.64	20.12
24F498	R52-2B-1E1	.2-2	4.5-30VDC	SPST-NO	350mA	F	9.15	8.24	7.32
24F499	R52-30B-1E1	2-30	4.5-30VDC	SPST-NO	350mA		9.15	8.24	7.32
24F501	R52-100B-1E1	5-100	4.5-30VDC	SPST-NO	350mA		9.90	8.91	7.92

P25/P30/P40 Definite Purpose Contactors

P25 Definite purpose contactor is designed to switch three phase motor loads of up to 25 amps at 600V AC, resistive loads of up to 30 amps at 600V AC. The ruggedly constructed P25 is UL Recognized, and has field replaceable, silver-cadmium oxide contacts in a 3PST-NO-DM arrangement. Expected contact life exceeds 500,000 operations at rated load. Main contact terminals, #8-32 screws, are conveniently arranged for straight-through wiring. Other style terminals are available (below), but must be ordered separately. Coil terminals are combination #8-32 screw terminals and .250" quick connects. P25C models have a SPDT auxiliary snap switch with silver contacts rated 10 amps at 125-250V AC. The auxiliary switch has .250" quick connect terminals. P25P models have no auxiliary switch. Models with a "1" as the eighth character in the part number mount using two #10 screws on 2.125" centers. Models with a "2" as the eighth character in the part number are supplied with a universal mounting plate attached to the base of the contactor.



P30 and P40 series definite purpose contactors are physically identical except for their contact assemblies. P30 contactors switch motor loads up to 30 amps @ 600V AC, and resistive loads up to 40 amps @ 600V AC. P40 contactors switch motor loads up to 40 amps @ 600V AC, and resistive loads up to 50 amps @ 600V AC. Both the P30 and the P40 have field replaceable, silver-cadmium oxide contacts available in either 3PST-NO-DM or 4 PST-NO-DM arrangements. Expected contact life exceeds 200,000 operations at rated load for all models.

The main contact terminals, binder screws, are conveniently arranged for straight-through wiring. Other types of contact terminals are available. Coil terminals are combination #8-32 screws and .250" quick connects. Contactors have a "universal" mounting plate.

Models with a "C" following the series designator (P30 or P40) have a SPDT auxiliary snap action switch with silver contacts rated 10 amps @ 120-250V AC. The auxiliary switch has .250" quick connect terminals. Models with a "P" following the series designator have no auxiliary switch.

Contact Replacement Kit

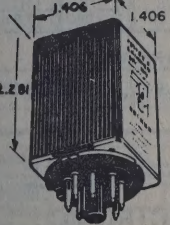
Kit includes contact pressure springs, movable contact assemblies, stationary contact assemblies and complete replacement instructions.

Stock No.	Type	Description	1-24	25-50	51-99	100-249
10F7875	9P25X1	Contact kit for 3 Pole P25	5.51	5.23	4.96	4.13
10F7839	9P25x2	Mounting Plate Kit	.63	.60	.57	.47
10F7868	9P30X1	Contact kit for 3 Pole P30	13.23	12.57	11.91	9.92
10F7869	9P30X2	Contact kit for 4 Pole P30	17.59	16.71	15.83	13.19
10F7870	9P40X1	Contact kit for 3 Pole P40	15.38	14.61	13.84	11.54
10F7871	9P40X2	Contact kit for 4 Pole P40	20.53	19.50	18.48	15.40

OPTIONAL CONTACT TERMINALS

Terminals listed below are available for use as optional main contact terminals on P25* P30+ and +P40 contactors.

Stock No.	Type	Description	1-24	25-50	51-99	100-249
10F7843	155354*	Screw with captive pressure plate	.27	.26	.24	.20
10F7842	26A866*	Box Lug	.62	.59	.56	.47
10F7841	26A902*	Dual .250" Quick Connect Screw with Captive	.14	.13	.13	.11
10F7873	15S362+	Pressure Plate	.42	.40	.38	.32
10F7872	9P30X3+	Box Lug	.63	.60	.57	.47
10F7874	26A945+	Dual .250" Quick Connect	.59	.56	.53	.44



EBT SERIES REED/TRIAC

Switches 7 amps, 60 Hz @ 25°C ambient with nominal load voltage of 120 VAC. Rated 5 amps rms 60 Hz @ 55°C ambient. Minimum operating current: 200 mA, 60 Hz. Expected life greater than 10 million operations. Bounce free. Operate time: 2 msec. maximum. Release time: 10 msec. maximum. Typical "Closed contact" voltage drop is 1.1 V. UL File E22575 Octal terminals fit standard 8 pin socket. Wt. approx 5.5 oz.

EBT

Stock No.	Type	Coil Input	Coil Ohms	Action	Each 1-9	10-24	25-49	50-Up
67F1180	EBT1DA52	12V	500	SPST	13.40	12.06	10.85	9.78
67F1181	EBT1DA52	24V	2000	SPST	13.40	12.06	10.85	9.78

CS SERIES SOLID STATE VOLTAGE SENSORS

Fixed Pick-Up And Adjustable Drop-Out. One Knob For Setting Drop-Out Value

Adjustable Pick-Up And Drop-Out. Two Knobs For Setting Desired Values

SPECIFICATIONS

Load Switching Relay: Arrangement —2 form C (DPDT) rated 10 amps @ 28VDC resistive or 120VAC resistive.
Temperature Range: −10° C to +55° C.
Temperature Coefficient: 0. 16%/° C (max.).
Repeatability: ±1% (max.)

P25 Contactors—Coil VA Max: Inrush = 40, Sealed = 10.

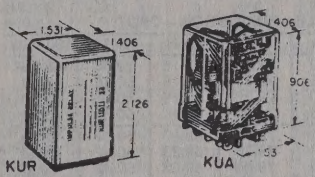
Stock Number	Type	COILS Input	CONTACTS Arrangement	Rating	Each 1-24	25-50	51-99	100-249
10F7827	P25P42A12P1	24	3PST-NO DM	25A	21.55	20.47	19.40	16.16
10F7828	P25P42A12P1	120						
10F7829	P25P42A12P1	240						
10F7830	P25C42A12D1	24	3PST-NO-DM+ Aux. Switch	25A	23.40	22.23	21.06	17.55
10F7833	P25P42A22P1	24	3PST-NO-DM	25A	22.40	21.28	20.16	16.80
10F7834	P25P42A22P1	120						
10F7835	P25P42A22P1	240						
10F7837	P25C42A22D1	120	3PST-NO-DM+	25A	24.25	23.04	21.83	18.19

P30 CONTACTORS—Coil VA MAX: Inrush = 92, sealed =12.

10F7845	P30P42A12P1	120	NO-DM	30A	25.75	24.46	23.18	19.31
10F7846	P30P42A12P1	240						
10F7847	P30C42A12D1	24	3PST-NO-DM+	30A	28.75	27.31	25.88	21.56
10F7848	P30C42A12D1	120						
10F7851	P30P47A12P1	120	4PST-NO-DM	30A	29.30	27.84	26.37	21.98
10F7854	P30C47A12D1	120	NO-DM+	30A	32.30	30.69	29.07	24.23

P40 Contactors—Coil VA Max: Inrush = 92, Sealed = 12.

10F7857	P40P42A12P1	120	NO-DM	40A	26.95	25.60	24.26	20.21
107F858	P40P42A12P1	240						
10F7860	P40C42A12D1	120	NO-DM+	40A	29.95	28.45	26.96	22.46
10F7862	P40P47A12P1	24	4PST-	40A	30.95	29.40	27.86	23.21
10F7865	P40C47A12D1	24	4PST-NO-DM+	40A	33.95	32.25	30.56	25.46
10F7866	P40C47A12D1	120						



KUR DIRECT-ACTION DPDT IMPULSE RELAY

Designed for applications requiring on-off operation or alternate energizing of two loads. Operation is based on permanent memory function of electromagnetic latching relay. Remains latched during complete loss of power: 5A at 28 volts DC, resistive, or 120 volts AC, 80% P.F. Weight: 3½ oz.

Stk. No.	Type	Coil V	1-9	10-24	25-49	50-Up
24F3261	KUR11D11	24DC	33.20	29.97	26.97	24.31

KUA SOLID STATE AMPLIFIER-DRIVEN RELAY

Nominal voltage of 24V DC. Polarity protection is built-in feature. Power requirement is approx. 1. 14 watts. Rated 1/10 HP 120 V 60 Hz. ¼ HP 240 V 60 Hz. 5A at 28V DC. Fit standard KU Series sockets. Wt. 3½ oz.

Stk. No.	Type	Coil V	1-9	10-24	25-49	50-Up
24F3262	KUA5G11	24DC	16.65	14.99	13.49	12.15
24F3263	KUA11G11	24DC	17.10	15.39	13.85	12.48

Relay is DPDT. Enclosed in molded nylon dust cover. 2 Form-C (DPDT) rated 10 amps @ 28 VDC resistive or 120 VAC resistive.

ADJUSTABLE PICK-UP AND DROP-OUT

Stock No.	Type	Pick-Up Range Volts	Drop-Out Range Volts	Each 1-9	10-24	25-49	50-Up
24F2951	CSJ38-30010	20-30	18-28	45.00	40.50	36.45	32.85
24F2952	CSJ38-70010	92-140	90-138	45.70	41.13	37.02	33.36
24F2953	CSL38-30010*	20-30	18-28	45.10	40.59	36.53	32.92
67F1021	CSL38-60010*	92-140	90-138	47.50	42.75	38.48	34.68

50-60 Hz AC except (*) DC.

FIXED PICK-UP AND ADJUSTABLE DROP-OUT

24F2954	CSJ38-71010	105	90-103	39.65	35.69	32.12	28.94
24F2955	CSL38-31010*	22	16-21	37.60	33.84	30.46	27.45

Potter & Brumfield Mercury Wetted Relays

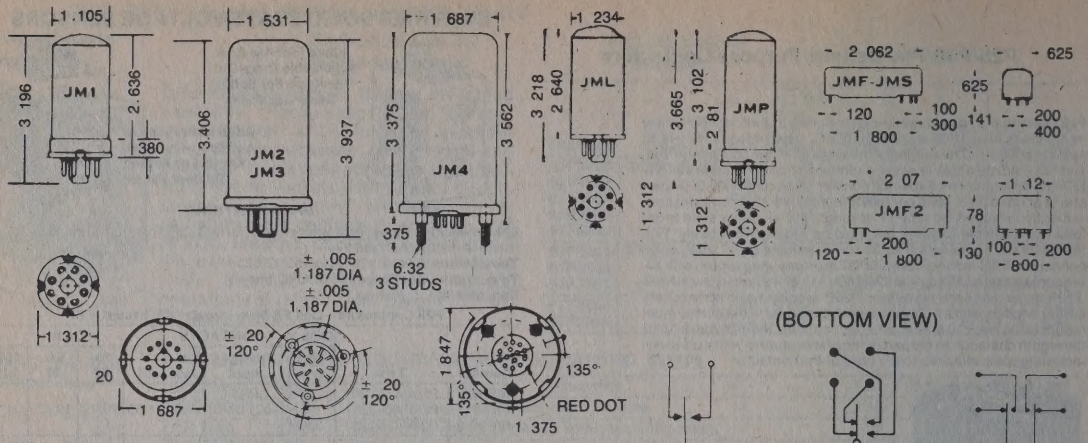


FIG. 61 JMF

FIG. 63

FIG. 71 JMF2

JM MERCURY-WETTED CONTACT RELAYS

Rare long life, high speed and unvarying dependability are the results of this hermetically sealed glass capsule, which contains a small reservoir of mercury sealed in a high pressure hydrogen atmosphere. Will handle contact loads up to 5 Amps @ 500V with operating time as short as 3ms. Contacts utilize the standard bridging Form D make-before-break arrangement, allowing single capsule SPDT, 2 capsule DPDT, 3 capsule 3PDT and 4-capsule 4PDT construction. Mounting position: Upright mtg. req'd, but deviation from upright to 30° causes only minor deviation in operating characteristics.

SINGLE CAPSULE-SINGLE COIL-SPDT

Stk. No.	Type	Ohms	1–9	10–24	25–99	100–249
62F2950	JM1-106-12	40	48.50	36.18	30.80	27.89
24F1680	JM1-109-12	130	46.80	34.91	29.72	26.91
24F1681	JM1-112-11	500	48.30	36.03	30.67	27.77
24F1682	JM1-114-11	700	48.25	35.99	30.64	27.74
24F1683	JM1-114-12	700	48.50	36.18	30.80	27.89
24F1684	JM1-118-11	2500	48.25	35.99	30.64	27.74
24F1685	JM1-119-11	4000	36.05	36.05	36.05	36.05
24F1686	JM1-120-11	7000	48.70	36.33	30.92	28.00
24F1687	JM1-121-11	11000	48.40	36.11	30.73	27.83
24F1688	JM1-123-11	25000	48.70	36.33	30.92	28.00
		4PDT–SINGLE COIL				
62F2953	JM4-110-41	390	143.10	106.75	90.87	82.28

DOUBLE CAPSULE—SINGLE COIL—DPDT

Stk. No.	Type	Ohms	1–9	10–24	25–99	100–249
24F2157	JM2-104-22	50	79.30	59.16	50.36	45.60
24F2158	JM2-109-22	315	79.30	59.16	50.36	45.60
24F2159	JM2-110-22	500	79.30	59.16	50.36	45.60
24F1690	JM2-111-22	700	79.30	59.16	50.36	45.60
24F2160	JM2-112-22	1250	79.40	59.23	50.42	45.66
24F2162	JM2-115-21	5000	79.40	59.23	50.42	45.66
24F1691	JM2-115-22	5000	79.40	59.23	50.42	45.66

THREE CAPSULE–SINGLE COIL

Stk. No.	Type	Ohms	1–9	10–24	25–99	100–249
62F2951	JM3-110-31	500	107.45	80.16	68.23	61.78
45F018	JM3-109-31	315	107.45	80.16	68.23	61.78
24F2168	JM3-115-31	5000	107.55	80.23	68.29	61.84

JML NON-BRIDGING MERCURY-WETTED CONTACT RELAYS

Employs a Form C non-bridging contact arrangement. They provide greater sensitivity, faster operation than JMP relays. Speeds from 3ms to 1.1ms are possible, depending upon coil power. Contacts are rated 2 amps max., 500V max. with contact protection. All JML relays mount in Amphenol 77-MIP-8 sockets. Weight: 4-oz.

SINGLE–SIDE–STABLE

Stk. No.	Type	Ohms	1–9	10–24	25–99	100–249
24F2189	JML1061-81	40				
24F2190	JML1110-81	350	30.95	23.09	19.65	17.80
24F2191	JML1160-81	1000				
24F2192	JML1190-81	2500	33.20	24.77	21.08	19.09
24F2193	JML1200-81	4000	33.20	24.77	21.08	19.09
45F3019	JML1240-81	1100	33.20	24.77	21.08	19.09
24F2194	JML1260-81	25000	35.70	26.63	22.67	20.53

BI–STABLE

24F2197	JML5200-81	4000	33.20	24.77	21.08	19.09
62F2957	JML5430-82	1100	34.45	25.70	21.88	19.81

TERMINATIONS

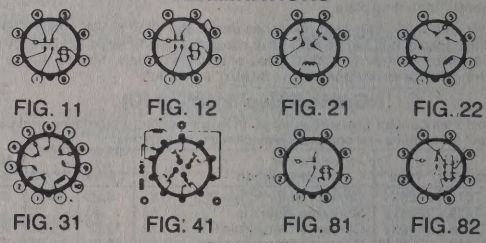


FIG. 11 FIG. 12 FIG. 21 FIG. 22

FIG. 31 FIG. 41 FIG. 81 FIG. 82

14 PIN MINI PLUG

Last Two Digits in Type Number Indicates Termination Fig. No.

JM MERCURY WETTED CONTACT RELAYS

JMF JMF2 (dual capsule*) and JMS relays have SPDT break-before-make (Form C) non-bridging contacts. JMP relays have SPDT break-before-make (Form D) bridging contacts. All contacts rated 500 volts at 2 amps except JMP which are rated 500 volts at 5 amps. Weight: JMF and JMS, 1¼ oz.; JMF2 and JMP, 3¼ oz.

JMF PRINTED CIRCUIT MODULE RELAYS

Single Side Stable

Stk. No.	Type	Ohms	1–9	10–24	25–99	100–249
24F2552	JMF1080-61	675				
24F2553	JMF1120-61	1425	29.70	22.16	18.86	17.08
24F2554	JMF1150-61	2400				
24F2555	JMF1160-61	4000	31.15	23.24	19.78	17.91

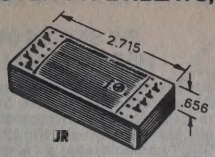
JMF2 PRINTED CIRCUIT MODULE RELAYS

62F2977	JMF21001-71*	520	48.85	36.44	31.02	28.09
62F2978	JMF21002-71*	2200				

MAKE NEWARK YOUR DEPENDABLE SOURCE FOR ALL ELECTRONIC PARTS AND EQUIPMENT

Dry Reed Relays Potter & Brumfield

COMPUTER TYPE RELAYS, JR, JRM



JR and JRM. Glass supported nylon insulated. 500 volts rms 60 Hz, between insulated points. 275 volts rms 60 Hz, between open contacts. **JR** Operate time: 3 ms @ nom. coil volt @ 25° C. Size 2.715 x .656" H max. **JRM** is 1.125" long, .468" high; width varies with contact arrangement. Oper. time: 1 ms. Release time: 1 ms. Pick-up; 75% or less nom. @ 25°C. Rating: 10 watts. **JRL.** Standard latching relay. 1 Form A and 2 Form A contacts rated 15 watts, resistive. Operate time at 25° C is 1.0ms (including bounce). Wt. 2 oz.

JR STANDARD

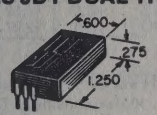
Stock No.	Type JR	No. Cav	Coil VDC	Coil Ohms	Con. Arr.	Reed Watts	1-9	10-24	25-99	100-249
24F2860	1000	1	6	150	1A	15	9.05	6.75	5.75	5.20
24F2867	1005	1	12	600	1A	15	9.45	7.05	6.00	5.43
24F2872	1025	1	12	600	1A	50	11.60	8.65	7.37	6.67
24F2868	1006	2	12	400	2A	15	12.15	9.06	7.72	6.99
24F2871	1045	1	12	600	1C*	10	18.70	13.95	11.87	10.75
24F3301	1046	2	12	400	2C*	10	24.60	18.35	15.62	14.15
24F2874	1010	1	24	2400	1A	15	10.15	7.57	6.45	5.84
24F2879	1030	1	24	2400	1A	50	12.40	9.25	7.87	7.13

(*) True form C

JRM MINIATURE

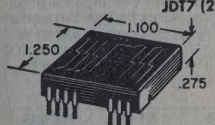
Stock No.	Type JRM	No. Cav	Coil VDC	Coil Ohms	Con. Arr.	W. In.	Wt. Oz.	1-9	10-24	25-99	100-249
24F3303	1000	1	6	200	1A	.432	.366	9.05	6.75	5.75	5.20
24F2909	1006	1	12	800	1A	.432	.366	9.10	6.79	5.78	5.23
24F2910	1007	2	12	520	2A	.557	.395	12.50	9.33	7.94	7.19
24F2919	1040	2	12	520	1B	.557	.395	11.50	8.58	7.30	6.61
24F2912	1012	1	24	3200	1A	.432	.366	9.90	7.39	6.29	5.69
24F2913	1013	2	24	2080	2A	.557	.395	12.85	9.59	8.16	7.39
24F2921	1044	2	24	2080	1B	.557	.395	11.60	8.65	7.37	6.67
24F2925	1052	3	24	1376	1A+1B	.698	.530	14.50	10.82	9.21	8.34
24F3308	1053	5	24	800	2A+2B	.968	.781	22.60	16.86	14.35	13.00

SERIES JDT DUAL THIN LINE RELAYS

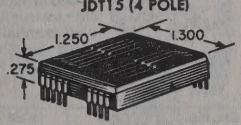


JDT7 (2 POLE)

JDT15 (4 POLE)



JDT21 (6 POLE)



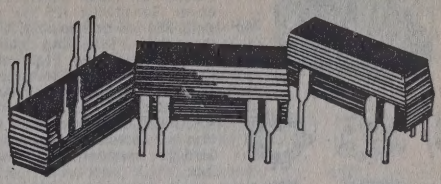
JDT27 (8 POLE)

Ideal for high density packaging applications. Reed relays have low profile (only 0.275" max. height). Hermetically sealed glass capsules are completely encapsulated in epoxy. Terminals are on .100" grid centers for ease of printed circuit board mounting and layout. Operate time is 3.5 milliseconds including bounce. Release time is 3.5 milliseconds maximum. Weight: ⅛ to ¾ oz. max.

Stock No.	Type JDT	No. Cav	Coil VDC	Coil Ohms	Con. Arr.	Reed Watts	1-9	10-24	25-99	100-249
62F3000	7DA1	2	6	115	2A	10	14.50	10.82	9.21	8.34
62F3001	7DA1	2	12	460	2A	10	14.50	10.82	9.21	8.34
24F3315	15DB1	4	6	115	4A	10	17.85	13.32	11.33	10.26
24F3316	15DB1	4	12	460	4A	10	17.85	13.32	11.33	10.26
62F3005	21DC1	6	24	1600	6A	10	21.30	15.89	13.53	12.25
24F3318	27DD1	8	6	60	8A	10	26.20	19.55	16.64	15.07
24F3319	27DD1	8	12	240	8A	10	26.20	19.55	16.64	15.07

JWD SERIES

DUAL IN—LINE PACKAGE DRY REED RELAY



The JWD series relay features the versatile dual in-line package (DIP) terminal configuration. This relay offers low cost, dry reed reliabilty and allows high density packaging for low profile printed circuit board applications. The JWD is available in 1 Form A, 1 Form B, 1 Form C, and 2 Form A contact arrangements with terminals on 0.100" centers. Mounted height is only 0.275" which makes PC board spacing on 0.500" centers possible.

GENERAL

Insulation Resistance: 10^{10} ohms minimum at 100 VDC between open contacts and coil to contact leads.
Ambient Temperature: —55° C to +85° C.
Shock: 100g max. in three planes for an 8 millisecond ½ wave pulse.
Vibration: 20g max. between 10 and 5,000 Hz.

JWD SELECTION CHART

1 Form A (SPST-NO) Models. Contacts Rates 10 Watts Max., 0.5 Amp Max., 200 Volts DC Max.

Stk. No.	Relay Part No. JWD	Diode	Nom. Volt. (VDC)	Resistance ±10% (Ohms)	Max. Pick-Up Volt. (VDC)	Min. Drop-Out Volt. (VDC)	Max. Volt. (VDC)	1-24	25-49
81F9286	107-1	no	5/6	500	3.8	0.5	19	3.25	2.93
81F9287	107-5	yes	5/6	500	3.8	0.5	19	3.55	3.20
81F9288	107-3	no	12/15	500	9.6	1.0	19	3.25	2.93
81F9289	107-7	yes	12/15	500	9.6	1.0	19	3.55	3.20
81F9290	171-5	no	24	2200	19.2	2.0	40	4.40	3.96
81F9291	171-10	yes	24	2200	19.2	2.0	40	4.70	4.23

2 Form A (DPST-NO) Models. Contacts Rated 3 Watts Max., 0.11 Amp Max., 100 Volts DC Max.

81F9292	171-21	no	5/6	200	3.8	0.5	14	4.30	3.87
81F9293	171-25	yes	5/6	200	3.8	0.5	14	4.60	4.14
81F9294	171-23	no	12/15	500	9.6	1.0	19	4.30	3.87
81F9295	171-27	yes	12/15	500	9.6	1.0	19	4.60	4.14
81F9296	171-24	no	24	2200	19.2	2.0	38	5.30	4.77
81F9297	171-28	yes	24	2200	19.2	2.0	38	5.60	5.04

1 Form B (SPST-NC) Models. Contacts Rates 3 Watts Max., 0.25 Amp Max., 100 Volts DC Max.

81F9298	171-12	no	5/6	500	3.8	0.5	7	4.55	4.10
81F9299	171-17	yes	5/6	500	3.8	0.5	7	4.85	4.37
81F9300	171-14	no	12/15	1200	9.6	1.0	16	5.05	4.55
81F9301	171-19	yes	12/15	1200	9.6	1.0	16	5.40	4.86
81F9302	171-15	no	24	2200	19.2	2.0	32	5.55	5.00
81F9303	171-20	yes	24	2200	19.2	2.0	32	5.80	5.22

1 Form C (SPDT) Models. Contacts Rated 4 Watts Max., 0.2 Amp Max., 100 Volts DC Max.

81F9304	172-1	no	5/6	200	3.8	0.5	12	6.10	5.49
81F9305	172-5	yes	5/6	200	3.8	0.5	12	6.40	5.76
81F9306	172-3	no	12/15	500	9.6	1.0	19	6.10	5.49
81F9307	172-7	yes	12/15	500	9.6	1.0	19	6.40	5.76
81F9308	172-4	no	24	2200	19.2	2.0	38	6.95	6.26
81F9309	172-8	yes	24	2200	19.2	2.0	38	7.25	6.53
81F9310	118-8	yes	24	1200	19.2	2.0	40	7.00	6.30

Note: All values are measured at +25° C.

JRE SERIES—SEALED DRY REED RELAYS

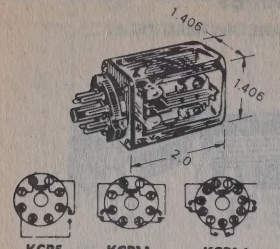
- **10 WATT REED RATING**
- **1 millisec Operate time for 1 form A**
- **Will accept direct drive from TTL**

Stock No.	Type JRE	No. Cav.	VDC	Ohms	Con. Arr.	1-24	25-49	50-74	75-99
23F5660	1DA1		5	200		7.10	6.39	6.04	5.68
23F5662	1DA1	1	12	1264	1A	7.20	6.48	6.12	5.76
23F5664	1DA1		24	5056		8.20	7.38	6.97	6.56
23F5665	2DB1		5	210		9.10	8.19	7.74	7.28
23F5666	2DB1	2	12	880	1B	9.20	8.28	7.82	7.36
23F5668	7DB1		5	118		8.60	7.74	7.31	6.88
23F5669	7DB1	2	12	555	2A	8.80	7.92	7.48	7.04
23F5670	7DB1		24	2250		8.90	8.01	7.57	7.12

Will pick up at 75% or less of rated coil voltage. Operate time, including bounce, is 1.0 msec. Each reed contact will switch a load of 10 watts, 200VDC or 10VA, 140VAC. Maximum contact rating is 500mA DC and 350mA AC. Mounted height is .360" with PC board spacing on .6" centers. Terminals are spaced on a 1.0" x 0.1" grid. All package lengths are: .950", package widths are: 1DA1-.310", 7DB1-.400", 2DB1-.400", 50DC1-.550". JRE1DA1 and JRE2DB1 each require 25mA and will accept direct drive from TTL @ 25°C.

Potter & Brumfield Time Delay, Sensitive Relays

KCP SERIES—SENSITIVE ENCLOSED RELAYS



Low cost DC sensitive relay enclosed in clear polycarbonate cover. Sensitivity: 125 mw single pole; 250 mw double pole; 375 mw three pole. Mounting: standard octal plug-in type. Eight pin for KCP5 and KCP11. Eleven pin for KCP14. Contacts: Silver, 2 Amp @ 30 VDC or 120 VAC resistive. Use KRP hold down spring when vibration is a factor or when using inverted or horizontal mounting. Wt. 3 oz.

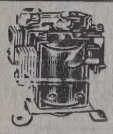
Stk. No.	Type	Action	Input	Ohms	1-24	25-50	51-99	100-249
24F489	KCP5	SPDT	7.2mA	2500	13.00	12.35	11.70	9.75
24F490	KCP5	SPDT	5.0mA	5000	13.10	12.45	11.79	9.83
24F491	KCP5	SPDT	3.6mA	10,000	13.95	13.25	12.56	10.46
24F492	KCP11	DPDT	10.0mA	2500	13.75	13.06	12.38	10.31
24F496	KCP11	DPDT	7.2mA	5000	13.95	13.25	12.56	10.46
24F497	KCP11	DPDT	5.0mA	10,000	15.00	14.25	13.50	11.25
24F493	KCP14	3PDT	12.3mA	2500	16.80	15.96	15.12	12.60
24F494	KCP14	3PDT	8.7mA	5000	17.05	16.20	15.35	12.79
24F495	KCP14	3PDT	6.1mA	10,000	18.10	17.20	16.29	13.58

LB LOW COST SENSITIVE RELAY

Current sensitive relays designed to operate on a few milliwatts DC. Sensitivity 200 milliwatts. Silver contacts rated at 5 amps. 28 VDC or 120 VAC resistive. Two 3/16" holes on 2 7/32" centers. 2 31/32"x1 1/4"x1 3/8". Weight 2 oz.

Stk. No.	Type	Action	Input	Ohms	1-24	25-50	51-99	100-249
24F570	LB5	SPDT	9.0mA	2500	10.35	9.83	9.32	7.76
24F571	LB5	SPDT	6.3mA	500	11.05	10.50	9.95	8.29
24F572	LB5	SPDT	4.5mA	10,000	11.95	11.35	10.76	8.96

LM SENSITIVE RELAY



Operates on only 100 msDC per pole. Medium cost high quality relay with silver contacts rated at 5 amps. 120 VAC, 80% P.F. Pick-up adjustable by tail spring adjusting screw. Mounting: Two No. 6-32 holes on 1 13/16" centers. DC only. 2 3/16x2 1/4x2 1/2". Weight: 5 oz.

Stk. No.	Type	Action	Input	Ohms	1-24	25-50	51-99	100-249
24F562	LM5	SPDT	6.3mA	2500	14.70	13.97	13.23	11.03
24F563	LM5	SPDT	4.5mA	5000	14.90	14.16	13.41	11.18
24F564	LM5	SPDT	3.2mA	10,000	16.25	15.44	14.63	12.19

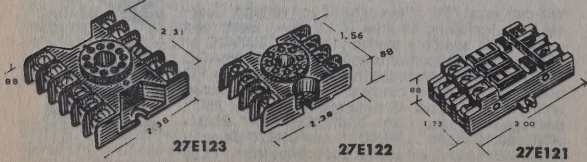
RS LIGHTWEIGHT SENSITIVE RELAY

Low cost, sensitive relay for current or voltage applications. Mountings: Two No. 4-40 holes on 3/4"x5/8" diagonal centers. SPDT bar palladium contacts rated at 2 amps. Size 1 x 1 1/16 x 15/16" high. Av. Shpg. wt. 1 1/2 oz.

Stk. No.	Type	Input	Ohms	1-24	25-50	51-99	100-249
24F1173	RS5D	6 VDC	335	13.70	13.02	12.33	10.28
24F1198	RS5D	12 VDC	1350	13.70	13.02	12.33	10.28
24F1174	RS5D	5.0mA	2500	13.85	13.16	12.47	10.39
24F1175	RS5D	3.5mA	5000	14.45	13.73	13.01	10.84
24F1176	RS5D	2.5mA	10,000	15.80	15.01	14.22	11.85

SOCKETS

Stock No.	Type	Relay Description	1-24	25-50	51-99	100-249
57F3430	27E121	CU, CL Series	6.66	6.33	5.99	5.00
57F3431	27E122	All delay on operate and integral on relays	4.20	3.99	3.78	3.15
37F3432	27E123	All delay on release relays	6.29	5.98	5.66	4.72



PW SERIES SENSITIVE HERMETICALLY SEALED

A miniature tube sensitive relay available in voltage or current actuated models. Sensitivity: Voltage: 180 mw; current; 40 mw. Precision, light weight hermetically sealed relay with 10g vibration to 500 Hz. Silver SPDT contacts rated at 1 amp @ 28 VDC, 1 amp @ 120 VAC resistive. Mounting Standard 7-pin miniature tube base. Weight: 1 oz. Size: 1 11/16" high above socket, .765" dia.

Stk. No.	Type	Input	Ohms	1-24	25-50	51-99	100-249
24F555	PW5DS	12 VDC	810	37.35	35.86	33.98	28.31
24F558	PW5LS	2.8mA	5000	38.35	36.43	34.52	28.76
24F559	PW5LS	2.0mA	10,000	39.35	37.38	35.42	29.51

BU BUZZER

Dependable AC operated buzzer. Spring steel armature buzzes when coil is energized. UL recognized. CSA listed. Mounting: 6-32 tapped core. Weight 1 5/8 oz.

Stk. No.	Type	Volts	1-24	25-50	51-99	100-249
24F2483	BU 6	6 VAC	4.35	4.13	3.92	3.26
24F2484	BU 12	12 VAC				
24F2485	BU24	24VAC				
24F2486	BU120	120VAC				

KT ANTENNA SWITCHING RELAY

Glass base insulation to minimize RF losses. Used to switch common transmitter-receiver antenna using 300-ohm line. DPDT silver contacts rated at 5 amps @ 120 VAC or 500 W. RF. Mounting: 6-32 stud. Weight: 1.5 oz. Size: 1 5/8"Lx1 5/16"Wx1 11/16"H.

Stk. No.	Type	Coil V	1-24	25-50	51-99	100-249
24F1275	KT11A	120 AC	13.25	12.59	11.93	9.94
24F1277	KT11D	12DC	12.70	12.07	11.43	9.53

SUPER SENSITIVE SPDT RELAY

Model SS5D. 10 mw. sensitivity. Dual coils with balanced armature on needle-point bearings for precision instruments and bridge circuits. May be used as a differential relay. SPDT silver contacts rated at 2 amps @ 28VDC or 120VAC resistive. Coil 10,000 ohms 1 ma. Mounting: Two No. 6-32 holes on 23/32" centers. Size: 1 3/4 x 1 5/16 x 1 1/16. Wt. 3 1/2 oz.

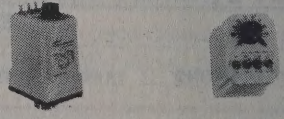
Stk. No.	Type	1-24	25-50	51-99	100-249
24F609	SS5D	60.85	57.81	54.77	45.64

CW SERIES TIME DELAY RELAY

The CW time delay relay features a CMOS integrated circuit containing all timing circuitry and control logic for delay on operate, delay on release and interval on timing functions. Both timing function and delay time are easily programmed by means of four toggle switches and an adjustment knob on top of the unit's case.

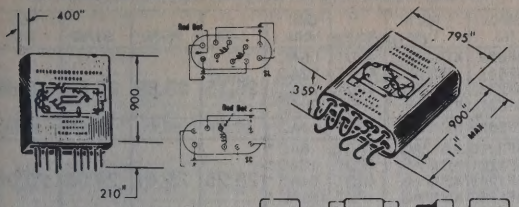
One switch selects timing function, one selects seconds or minutes timing mode and the other two select timing range. The knob is used to adjust the timer to the actual time delay within the 0.5-5, 1-10, 5-50 and 10-100 timing ranges.

Load switching is accomplished by an internal relay with DPDT contacts rated 10 amps.



Stk. No.	Type	Oper. Volt	1-9	10-24	25-49	50-99
81F4489	CWD-38-26000	12 VDC	89.25	84.79	80.33	71.40
81F4490	CWD-38-36000	24 VDC	89.25	84.79	80.33	71.40
81F4491	CWD-38-46000	48 VDC	89.25	84.79	80.33	71.40
81F4492	CWD-38-66000	110 VDC	89.25	84.79	80.33	71.40
81F4486	CWB-38-36000	24 VAC	89.25	84.79	80.33	71.40
81F4487	CWB-38-76000	120 VAC	89.25	84.79	80.33	71.40
81F4489	CWB-38-86000	240 VAC	97.65	92.79	87.89	78.12

SC AND SL SERIES MAGNETIC LATCHING RELAYS



- **For high shock and high vibration applications**
- **Temp. Range: −65° to +125C.**

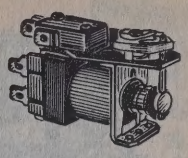
SC SERIES. Miniature permanent magnet relay. 200g shock, 30g vibration to 2000 Hz with no contact opening. Pickup: Approximately 260 mW @ 25° C. Operate time: 3 ms. max; @ nominal voltage @ +25° C. Drop out: 2.5 ms. max. @ nominal voltage @ +25° C. Terminals: Hook end solder or plug-in pins. Contacts: DPDT triclad plated. Rated load: 2 amps. @ 30 VDC; 1 amp. @ 120 VAC 60 Hz resistive, 100,000 operations minimum. SCG11D rectangular header with terminals on 0.2" grid. All DPDT. Wt. ¾ oz.

SL Series. Dual coil miniature magnetic latching relay with same specs and mountings as SC Series above except coils may be connected in series for polar operation. Wt. ¾ oz.

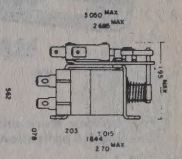
Stk. No.	Type	Ohms	VDC	1-24	25-50	51-99	100-249
24F1280	SC11D	550	24	68.50	65.08	61.65	51.38
24F1364	SC11DA	135	12	68.30	64.89	61.47	51.23
24F1281	SC11DA	550	24	68.30	64.89	61.47	51.23
45F210	SC11DB	135	12	67.60	64.22	60.84	50.70
24F1282	SC11DB	550	24	67.60	64.22	60.84	50.70
45F211	SCG11D	550	24	75.80	72.01	68.22	56.85

Stk. No.	Type	Ohms	VDC	1-24	25-50	51-99	100-249
62F2958	SL11D	40	6	70.40	66.88	63.36	52.80
24F1283	SL11D	630	24	70.40	66.88	63.36	52.80
24F1284	SL11DA	630	24	71.05	67.50	63.95	53.29
24F1380	SL11DB	160	12	70.40	66.88	63.36	52.80
24F1285	SL11DB	630	24	70.40	66.88	63.36	52.80

SERIES S89R LOW COST LATCHING RELAY



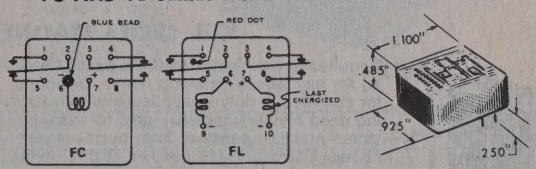
Bistable impulse relay that effects savings of power in applications where load is on long periods of time. To set relay, a 75 ms (min.) pulse is required. To release requires a second pulse. Time between pulses should be no less than 150ms. Contact rating, 15 amps, ½HP, 125/250V AC; 5 amps, 125V AC tungsten filament lamp load; ½ amp, 125V DC ¼ Amp, 250VDC. Life expectancy at full load, 50,000 operations min. 250,000 mechanical. Oper. temp. Range: -40to +60°C. Mounting is by two #8-32 tapped holes on 1.844" centers. Termination is .250" quick connect.



IMPULSE AND LATCHING RELAYS

Stock Number	Type	Input	Ohms	Contacts	1-24	25-50	51-99	100-249
20F755	S89R5ABD1	24V AC	8.7	SPDT	9.00	8.55	8.10	6.75
20F756	S89R5ABD1	120V AC	220	SPDT	9.00	8.55	8.10	6.75
20F757	S89R5ABD1	240V AC	1084	SPDT	9.20	8.74	8.28	6.90
20F758	S89R11ABD1	24V AC	8.7	DPDT	10.85	10.31	9.77	8.14
20F759	S89R11ABD1	120V AC	220	DPDT	10.85	10.31	9.77	8.14
20F760	S89R11ABD1	240V AC	1084	DPDT	11.05	10.50	9.95	8.29
20F761	S89R5DBD1	12V DC	22.5	SPDT	8.50	8.08	7.65	6.38
20F762	S89R5DBD1	24V DC	92	SPDT	8.50	8.08	7.65	6.38
20F763	S89R11DBD1	12V DC	22.5	DPDT	10.35	9.83	9.32	7.76
20F764	S89R11DBD1	24V DC	92	DPDT	10.35	9.83	9.32	7.76

FC AND FL SERIES MINIATURE LATCHING RELAYS



FC Series withstands 150g shock, 400g linear acceleration, 30g vibration to 2000 Hz. Range: —65°C to +125°C. Bifurcated contacts rated 3 amps @ 28 VDC resistive. Plugs in on 0.2" grid. Meets applicable specs of MIL-R-5757 and MSFC-SPEC-339. Wt. 0.75 oz. **FL Series** Dual coil. Same specs as FC except operates by pulsing each coil alternately or connecting coils in series from a reversing (polarized) source.

Stock No.	Type	Coils Volt.	Coils Ohms	1-24	25-50	51-99	100-249
24F2487	FC11D	6 VDC	60	67.55	64.17	60.80	50.66
24F2488	FC11D	12 VDC	210				
24F2489	FC11D	24 VDC	900				

Stk. No.	Type	Volt.	Ohms	1-24	25-50	51-99	100-249
24F1286	FL11D	6 VDC	67.5	67.85	64.46	61.07	50.89
24F1287	FL11D	12 VDC	230				
24F1288	FL11D	24 VDC	1000				

SPECIAL PURPOSE KM SUBMINIATURE RELAYS

For use where size and weight are critical factors. Used in small business machines, alarm systems, automatic toys and communication systems. Silver contacts rated at 2 amps. @ 28 VDC/120 VAC res. Terminals are solder lug type. Mounting: No. 2-56 tapped core with locating boss. Size: 1⅛"Lx1 1/16"Wx 53/64"H. Wt. 1 oz.

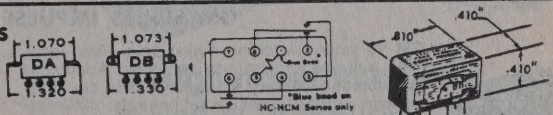
Stk. No.	Type	VDC	Contacts	1-24	25-50	51-99	100-249
45F065	KM5D	6	SPDT	15.70	14.92	14.13	11.78
45F066	KM5D	12	SPDT				
45F067	KM5D	24	SPDT				
24F1268	KM11D	6	DPDT	18.30	17.39	16.47	13.73
24F1269	KM11D	12	DPDT				
24F1270	KM11D	24	DPDT				
24F1271	KM14D	6	3PDT	22.40	21.28	20.16	16.80
24F1272	KM14D	12	3PDT				

HC AND HCM SERIES NON-LATCHING, NON-POLARIZED RELAYS

HC SERIES

Stock No.	Type	1-24	25-50	51-99	100-249
24F2596	HC11D-24V	64.40	61.18	57.96	48.30
24F2597	HC11DA-24V	66.85	63.51	60.17	50.14
24F2598	HC11DB-24V	66.75	63.41	60.08	50.06

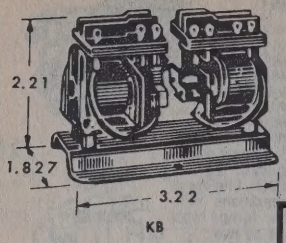
Stock No.	Type	1-24	25-50	51-99	100-249
45F203	HCM11D-24V	49.40	46.93	44.46	37.05
45F205	HCM11DB-24V	51.20	48.64	46.08	38.40

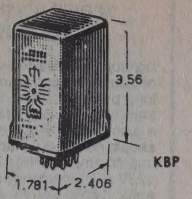


HC Series miniature, non-polarized, non-latching. High torque motor. Bifurcated gold plated silver DPDT contacts rated 2 A @ 28 VDC resistive. Temp. range: —65°C to +125°C. Hermetically welded. Meets or exceeds all applicable sections of MIL-R-5757, complies w/MSFC-SPEC-339. **HC11D** has plug-in plain case. **HC11DA** has hook-end solder terminals and shoulder brackets. **HC11DB** has hook-end solder terminals and flat mtg. plate with 2 holes. Size plain case: 0.8 x 0.4 x 0.4" Wt. 0.25 oz. **HCM Series** - Mil. version of HC. Meets or exceeds appropriate sections of MIL-R-5757.

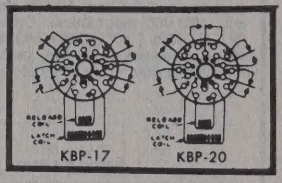
Potter & Brumfield Special Purpose Relays

KB and KBP SERIES DUAL COIL LATCHING RELAYS





- For Memory Work and Overload Applications
- Fast Acting
- Positive Latching

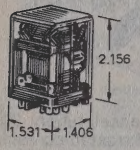


KB SERIES. Both release and trip coils must be for the same voltage. One coil operates relay to set latch and other releases it. Ideal for memory work and overload applications. Operates on momentary impulse to either coil. Mounting: two 0.156" dia. holes on 1.375" centers. Contacts: Silver, rated 5 amps. 120VAC 80% PF. *G Suffix indicates silver cadmium oxide contacts rated 10 amps. 120VAC 80% PF AC relays with 5 amp contacts are recognized under component program of UL (File 29244) and are CSA listed. AC coil for intermittent duty only. Wt. 6 oz.

KBP SERIES. Similar to KB Series except enclosed in translucent polypropylene dust cover and furnished with 20 pin octal type plugs for socket mounting. UL component recognition does not apply. Wt. 8 oz.

Stock No.	Mfr's Type	Action	Coil Volts	1-24	25-50	51-99	100-249
24F629	KB17AY	4PDT	6AC				
24F617	KB17AY	4PDT	12AC				
45F209	KB17AY	4PDT	24AC	25.15	23.89	22.64	18.86
24F631	KB17AY	4PDT	120AC				
62F3022	KB17AY	4PDT	240AC	27.80	26.41	25.02	20.85
24F3290	KB17AG	4PDT	6AC *				
24F3291	KB17AG	4PDT	12AC *				
24F1249	KB17AG	4PDT	24AC *	26.75	25.41	24.08	20.06
24F1250	KB17AG	4PDT	120AC *				
62F3023	KB17AG	4PDT	240AC *	28.60	27.17	25.74	21.45
24F632	KB17D	4PDT	6DC				
24F618	KB17D	4PDT	12DC	25.85	24.56	23.27	19.39
24F633	KB17D	4PDT	24DC				
24F619	KB17D	4PDT	110DC	26.75	25.41	24.08	20.06
24F3292	KB17DG	4PDT	6DC *	26.55	25.22	23.90	19.91
45F064	KB17DG	4PDT	12DC *	26.55	25.22	23.90	19.91
24F1355	KB17DG	4PDT	24DC *	26.55	25.22	23.90	19.91
62F3024	KB17DG	4PDT	110DC *	27.80	26.41	25.02	20.85
24F3293	KB23AY	6PDT	24AC	34.50	32.78	31.05	25.88
24F3294	KB23AY	6PDT	120AC	34.50	32.78	31.05	25.88
24F3295	KB23AG	6PDT	24AC *	36.90	35.06	33.21	27.68
24F3296	KB23AG	6PDT	120AC *	36.90	35.06	33.21	27.68
24F3297	KB23D	6PDT	24DC	32.50	30.88	29.25	24.38
24F3298	KB23DG	6PDT	24DC *	34.90	33.16	31.41	26.18
24F3299	KB23DG	6PDT	110DC *	36.05	34.25	32.45	27.04
67F1120	KBP11A	DPDT	120AC	32.90	31.26	29.61	24.68
67F1121	KBP11AG	DPDT	120AC *	33.20	31.54	29.88	24.90
24F2900	KBP17A	4PDT	120AC	44.85	42.61	40.37	33.64
24F2901	KBP17AG	4PDT	120AC *	46.00	43.70	41.40	34.50
24F2902	KBP17D	4PDT	24DC	44.40	42.18	39.96	33.30
24F2903	KBP17DG	4PDT	12DC *	45.65	43.37	41.09	34.24
24F2904	KBP17DG	4PDT	24DC *	45.65	43.37	41.09	34.24
24F2905	KBP20A	5PDT	120AC	51.90	49.31	46.71	38.93
24F2906	KBP20AG	5PDT	120AC *	54.30	51.59	48.87	40.73
62F3025	KBP20DG	5PDT	12DC *	53.00	50.35	47.70	39.75
24F2908	KBP20DG	5PDT	24DC *	53.00	50.35	47.70	39.75

KUL SERIES MAGNETIC LATCHING RELAY

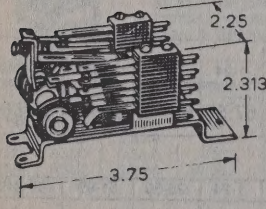


Requires approximately half the space needed for mechanical latching relays. Designed for continuous duty in applications demanding good memory stability. Ideal for machine tools, process controls and business machines. UL recognized File No. E22575 under component program and CSA listed. Silver-cadmium oxide contacts rated 10 amps @ 28 VDC, resistive or 120 VAC, 80% pF. All AC DPDT relays include diodes inside clear polycarbonate dust cover. Wt. 3.4 oz.

Stock No.	Type	Action	Coil V.	1-24	25-50	51-99	100-249
24F3250	KUL5A15S	SPDT	120AC	14.30	13.59	12.87	10.73
24F3251	KUL5D15S	SPDT	24DC	10.85	10.31	9.77	8.14
24F3252	KUL11A15S	DPDT	12AC	16.40	15.58	14.76	12.30
24F3253	KUL11A15S	DPDT	24AC	16.40	15.58	14.76	12.30
24F3254	KUL11A15S	DPDT	120AC	16.40	15.58	14.76	12.30
67F1122	KUL11D15D	DPDT	24DC *	19.80	18.81	17.82	14.85
24F3255	KUL11D15S	DPDT	12DC	13.05	12.40	11.75	9.79
24F3256	KUL11D15S	DPDT	24DC	13.05	12.40	11.75	9.79

(*) 350 ohms

AP SERIES RATCHET IMPULSE RELAYS

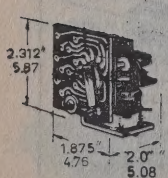


- Intermittent Operation
- Reliable and Compact
- Operates on Impulses as Short as 60 ms.

Reliable compact unit for applications requiring on-off or reversing action on alternate operations. Positive ratchet operation at all speeds on impulses as short as 60 ms. Intermittent coil operation only. Mounting: Three 0.156" dia. holes on 3.375" x 0.875" triangular centers. Contacts: Silver. 5 amps @ 120VAC, resistive. Wt. 7 oz.

Stock No.	Mfr's Type	Action	Coil Volts	1-24	25-50	51-99	100-249
24F1231	AP11A	DPDT	6VAC				
62F3018	AP11A	DPDT	12VAC				
24F1233	AP11A	DPDT	24VAC	37.95	36.05	34.16	28.46
24F1234	AP11A	DPDT	120VAC				
62F3019	AP11A	DPDT	240VAC	38.10	36.20	34.29	28.58
24F1238	AP17A	4PDT	24VAC	54.75	52.01	49.28	41.06
24F1239	AP17A	4PDT	120VAC	54.75	52.01	49.28	41.06
24F1241	AP11D	DPDT	6VDC	38.20	36.29	34.38	28.65
62F3021	AP11D	DPDT	12VDC	38.20	36.29	34.38	28.65
24F1243	AP11D	DPDT	24VDC	38.20	36.29	34.38	28.65
62F3020	AP11D	DPDT	110VDC	38.70	36.77	34.83	29.03
67F1124	AP17D	4PDT	12VDC	53.35	50.68	48.02	40.01
24F1247	AP17D	4PDT	24VDC	53.35	50.68	48.02	40.01
24F1248	AP17D	4PDT	110VDC	53.90	51.21	48.51	40.43

GM SERIES IMPULSE SEQUENCE RELAYS



GMIN

GM Versatile switching makes this relay especially suitable for single coil latching. Adaptable to automatic vending equipment, coin counting devices, remote television set controls, self-interrupting and homing circuits and many other applications. 2 Form C contact arrangement is switched alternately by cam action during drop-out of armature. AC version operates on 50% coil duty cycle (5 min. max.) Mountings: 8-32 tapped core with location boss. Suffix L (*) indicates an additional 2 Form C auxiliary contact and weighs 4¾ oz, Wt, w/0 aux,contacts 4 oz,

GMIN Uses basic GM structure with uni-directional PC boards. Board is attached to an extension of ratchet shaft. Movable contact arm advances one position each time armature drops out.

Stock No.	Type	Action	Coil Volts	1-24	25-50	51-99	100-249
24F2470	GM11A	DPDT	24AC	35.20	33.44	31.68	26.40
24F2471	GM11A	DPDT	120AC	35.20	33.44	31.68	26.40
24F2473	GM11AL11	DPDT*	120AC	44.60	42.37	40.14	33.45
24F2474	GM11D	DPDT	12DC	33.10	31.45	29.79	24.83
24F2475	GM11D	DPDT	24DC	33.10	31.45	29.79	24.83
24F2476	GM11D	DPDT	110DC	33.50	31.83	30.15	25.13
45F058	GM1N10A	SP-10 pos.	120AC	35.15	33.39	31.64	26.36
45F059	GM1N12A	SP-10 pos.	120AC	34.10	32.40	30.69	25.58
45F060	GM1N10D	SP-10 pos.	24DC	35.00	33.25	31.50	26.25
45F061	GM1N12D	SP-10 pos.	24DC	33.60	31.92	30.24	25.20

General Purpose Solenoids Potter & Brumfield

For use in such applications as vending machines, machine-tool equipment, and photocopy machines. Standard pull-on-operate models are available for either intermittent or continuous duty. Insulation is Class A (105°C). Termination: .187 x .020 quick connect lugs. All materials UL Recog.

S3H SERIES

Stk. No.	Type	Duty Cycle	Coil Input	Volts	Contin. Max. on Time	Approx. Coil Pwr.	1-24	25-49	50-99	100-249
29F1700	S3H-25-D-24	25%	DC	24	5 min	28 Watts	7.00	6.30	5.95	4.90

S4H SERIES

29F1710	S4H-25-D-24	25%	DC	24	5 min.	40 Watts	10.45	9.41	8.88	7.32
29F1712	S4H-25-D-110	25%	DC	110	5 min.	40 Watts	10.45	9.41	8.88	7.32

S11A SERIES

29F1719	S11A-100-A-24	100%	AC	24	contin.	12 VA	5.55	5.00	4.72	3.89
29F1725	S11A-100-D-24	100%	DC	24	contin.	8 Watts	4.95	4.46	4.21	3.47

S22 SERIES

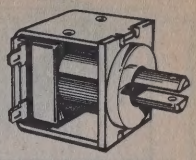
29F1729	S22-100-D-6	100%	DC	6	contin.	4 Watts	5.45	4.91	4.63	3.82

S28 SERIES

29F1733	S28-100-A-24	100%	AC	24	contin.	8 VA	4.35	3.92	3.70	3.05
29F1737	S28-100-D-6	100%	DC	6	contin.	5.5 Watts	4.35	3.92	3.70	3.05
29F1738	S28-25-D-12	25%	DC	12	5 min.	11.5 Watts	4.35	3.92	3.70	3.05
29F1739	S28-100-D-12	100%	DC	12	contin.	5.5 Watts	4.35	3.92	3.70	3.05

S34 SERIES

29F1745	S34-100-D-24	100%	DC	24	contin.	5 Watts	4.75	4.28	4.04	3.33



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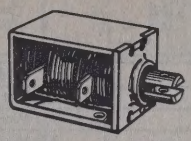

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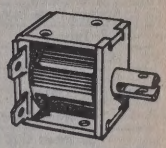

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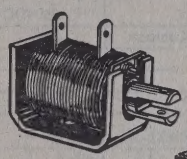

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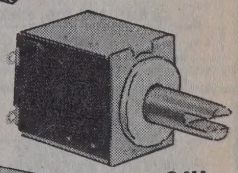

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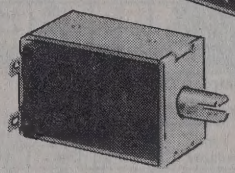


S11A

INPUT/OUTPUT MODULES AND MOUNTING BOARDS

MOUNTING BOARDS

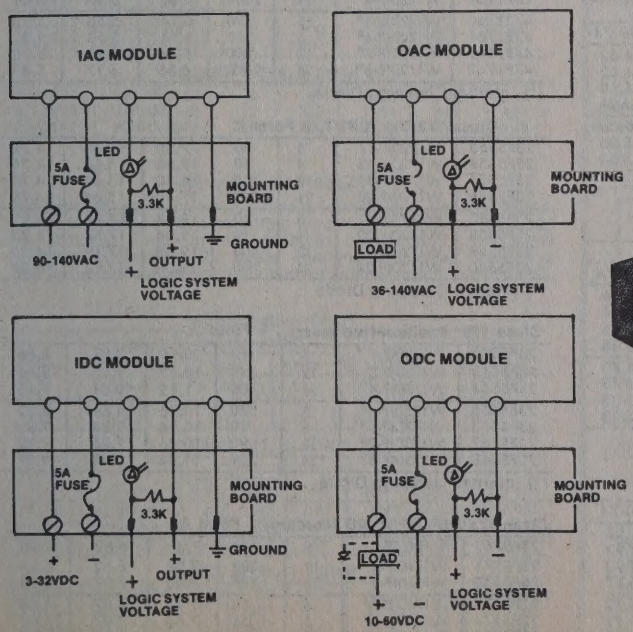
Stk. No.	Type	No. of Module Positions	Approx. Dimen. In Inches (L x W x H*)	1-9	10-24	25-49	50-Up
81F4505	2IO-4A	4	4.5 x 3.5 x 2.2	26.00	24.70	23.40	22.10
81F4506	2IO-8	8	8.4 x 3.5 x 2.2	35.00	33.25	31.50	29.75
81F9284	2IO-16	16	14.4 x 3.5 x 2.2	62.00	58.90	55.80	52.70
81F9285	2IO-24	24	18.75 x 4.5 x 2.2	92.00	87.40	82.80	78.20

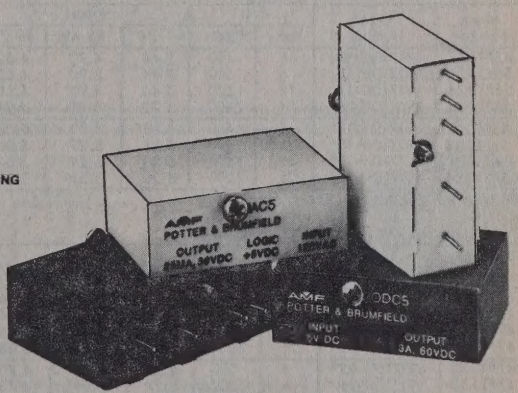
*Height is measured to top of mounted modules.

INPUT/OUTPUT MODULES

Stock No.	Type	Function	Case Color	Logic Voltage	Max. Input Current at Max. Input Voltage	Max. Load Current at Max. Load Voltage	1-9	10-99	100-249	250-499
75F001	IAC5	AC Input	Yellow	5VDC	12mA @ 140VAC	25mA @ 30VDC (25° C)	10.45	9.41	8.36	7.52
75F002	OAC5	AC Output	Black	5VDC	35mA @ 6VDC	3A @ 140VAC (25° C)*	10.45	9.41	8.36	7.52
75F003	IDC5	DC Input	White	5VDC	15mA @ 32VDC	25mA @ 30VDC (25° C)	10.45	9.41	8.36	7.52
75F004	ODC5	DC Output	Red	5VDC	25mA @ 6VDC	3A @ 60VDC (25° C)*	10.45	9.41	8.36	7.52

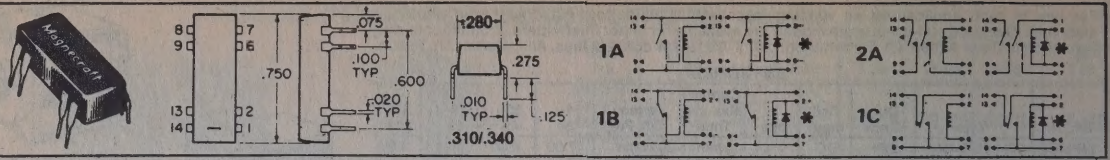
*Derate .040 A/° C from +25° C to +80° C ambient.





- High noise immunity
- Series operation compatible
- Photo isolation
- Plug-in mounting

Magnecraft® DIP Reed Relays



CONTACT FORM	1A	2A	1B	1C
Contact Rating	10VA at .5 Amp max.	10VA at .5 Amp max.	10VA at .5 Amp max.	8VA at .25 Amp max.
Op Time Typ.	300 Microseconds	600 Microseconds	400 Microseconds	500 Microseconds
Bounce Time Typ.	200 Microseconds	300 Microseconds	100 Microseconds	200 Microseconds
CR. Typ.	200 Milliohms			
IR. Typ.	10^{10} Ohms			
Life Typ.	25×10^6	25×10^6	25×10^6	10×10^6
Dielectric Between Contacts	200VDC min.	200VDC min.	200VDC min.	200VDC min.
Between Coil & Contacts	1000VDC min.			
Shock	100 G's, 11 milliseconds @ ½ sinewave			
Vibration	20 G's 0—5000 Hz operating			
Ambient Temp.	—55°C to 85°C			

CLASS 107 Dip, SPST-NO, 1 Form A

Stock Number	Type Number	Coil		Prices			
		Volts	Ohms	1-24	25-49	50-74	75-99
47F1106	W107DIP-1	5	500	4.02	3.62	3.42	3.22
47F1107	W107DIP-2	6	500	4.02	3.62	3.42	3.22
47F1108	W107DIP-3	12	500	4.02	3.62	3.42	3.22
47F1109	W107DIP-4	24	1,200	4.46	4.01	3.79	3.57
47F1110	W107DIP-5*	5	500	4.42	3.98	3.76	3.54
56F252	W107DIP-6*	6	500	4.42	3.98	3.76	3.54
56F253	W107DIP-7*	12	500	4.42	3.98	3.76	3.54
56F254	W107DIP-8*	24	1,200	4.84	4.36	4.11	3.87

(*) Internal Clamping Diode

Class 171 Dip, SPST-NO, 1 Form A

Stock Number	Type Number	Coil		Prices		
		Volts	Ohms	1-24	25-49	50-74
47F1137	W171DIP-2	5	500	3.80	3.42	3.23
47F1138	W171DIP-3	6	500	3.80	3.42	3.23
47F1139	W171DIP-4	12	500	3.80	3.42	3.23
47F1140	W171DIP-5	24	2,200	4.92	4.43	4.18
47F1142	W171DIP-7*	5	500	4.18	3.76	3.55
47F1143	W171DIP-8*	6	500	4.18	3.76	3.55
47F1144	W171DIP-9*	12	500	4.10	3.76	3.55
47F1145	W171DIP-10*	24	2,200	5.21	4.69	4.43

(*) Internal Clamping Diode

Class 171 Dip, SPST-NC, 1 Form B

Stock Number	Type Number	Coil		Prices		
		Volts	Ohms	1-24	25-49	50-74
47F1147	W171DIP-12	5	500	5.44	4.90	4.62
56F1023	W171DIP-13	6	500	5.44	3.90	4.62
56F1024	W171DIP-14	12	1,200	5.44	4.90	4.62
56F1025	W171DIP-15	24	2,200	5.78	5.20	4.91
56F1027	W171DIP-17*	5	500	5.88	5.29	5.00
56F1028	W171DIP-18*	6	500	5.88	5.29	5.00
56F1029	W171DIP-19*	12	1,200	5.88	5.29	5.00
56F1030	W171DIP-20*	24	2,200	6.20	5.58	5.27

(*) Internal Clamping Diode

Class 171 Dip, DPST-NO, 2 Form A

Stock Number	Type Number	Coil		Prices		
		Volts	Ohms	1-24	25-49	50-74
47F1148	W171DIP-21	5	200	5.36	4.82	4.56
47F1149	W171DIP-22	6	200	5.36	4.82	4.56
47F1150	W171DIP-23	12	500	5.36	4.82	4.56
47F1151	W171DIP-24	24	2,200	5.98	5.38	5.08
47F1152	W171DIP-25*	5	200	5.57	5.01	4.73
47F1153	W171DIP-26*	6	200	5.57	5.01	4.73
47F1154	W171DIP-27*	12	500	5.57	5.01	4.73
47F1155	W171DIP-28*	24	2,200	6.27	5.64	5.33

(*) Internal Clamping Diode

Class 118 Dip, SPDT, 1 Form C

Stock Number	Type Number	Coil		Prices		
		Volts	Ohms	1-24	25-49	50-74
47F1124	W118DIP-1	5	200	5.80	5.22	4.93
23F5550	W118DIP-2	6	200	5.80	5.22	4.93
47F1126	W118DIP-3	12	500	5.80	5.22	4.93
47F1127	W118DIP-4	24	1,200	6.32	5.69	5.37
47F1128	W118DIP-5*	5	200	6.14	5.53	5.22
23F5551	W118DIP-6*	6	200	6.14	5.53	5.22
23F5552	W118DIP-7*	12	500	6.14	5.53	5.22
47F1131	W118DIP-8*	24	1,200	6.58	5.92	5.59

(*) Internal Clamping Diode

Class 117 Dip, SPST-NO, 1 Form A

Stock Number	Type Number	Coil		Prices			
		Volts	Ohms	1-24	25-49	50-74	75-99
56F255	W117DIP-68	5	500	3.80	3.42	3.23	3.04
56F256	W117DIP-69	6	500	3.80	3.42	3.23	3.04
56F257	W117DIP-70*	5	500	4.18	3.76	3.55	3.34
56F258	W117DIP-71*	6	500	4.18	3.76	3.55	3.34
47F1113	W117DIP-3	12	500	3.80	3.42	3.23	3.04
47F1114	W117DIP-4	24	1,200	4.38	3.94	3.72	3.50
47F1117	W117DIP-7*	12	500	4.18	3.76	3.55	3.34
47F1118	W117DIP-8*	24	1,200	4.67	4.20	3.97	3.74

(*) Internal Clamping Diode

Class 117 Dip, DPST-NO, 2 Form A,

Stock Number	Type Number	Coil		Prices			
		Volts	Ohms	1-24	25-49	50-74	75-99
47F1119	W117DIP-9	5	200	5.46	4.91	4.64	4.37
47F1120	W117DIP-10	6	200	5.36	4.82	4.56	4.29
47F1121	W117DIP-11	12	500	5.36	4.82	4.56	4.29
47F1122	W117DIP-12	24	1,200	5.84	5.26	4.96	4.67

Class 172 Dip, SPDT, 1 Form C

Stock Number	Type Number	Coil		Prices		
		Volts	Ohms	1-24	25-49	50-74
47F1156	W172DIP-1	5	200	5.80	5.22	4.93
47F1157	W172DIP-2	6	200	5.80	5.22	4.93
47F1158	W172DIP-3	12	500	5.80	5.22	4.93
47F1159	W172DIP-4	24	2,200	6.60	5.94	5.61
47F1160	W172DIP-5*	5	200	6.14	5.53	5.22
47F1161	W172DIP-6*	6	200	6.14	5.53	5.22
47F1162	W172DIP-7*	12	500	6.14	5.53	5.22
47F1163	W172DIP-8*	24	2,200	6.86	6.17	5.83

(*) Internal Clamping Diode

Class 172 Dip, DPDT, 2 Form C

23F5553	W172DIP-17	5	60	17.40	15.66	14.79
23F5554	W172DIP-18	6	60	17.40	15.66	14.79
23F5555	W172DIP-19	12	200	17.40	15.66	14.79
23F5556	W172DIP-20	24	800	17.40	15.66	14.79
23F5557	W172DIP-21	5	60	19.08	17.17	16.22
23F5558	W172DIP-22	6	60	19.08	17.17	16.22
23F5559	W172DIP-23	12	200	19.08	17.17	16.22
23F5560	W172DIP-24	24	800	19.08	17.17	16.22

(*) Internal Clamping Diode

Class 173 Position-free merc., 1 Form A,

23F5561	W173DIP-1	5	80	10.19	9.17	8.66
23F5563	W173DIP-3	12	240	10.19	9.17	8.66
23F5564	W173DIP-4	24	1,600	11.12	10.01	9.45
23F5565	W173DIP-5*	5	80	10.96	9.86	9.32
23F5566	W173DIP-6*	6	80	10.96	9.86	9.32
23F5567	W173DIP-7*	12	240	10.96	9.86	9.32
23F5568	W173DIP-8*	24	1,600	11.64	10.48	9.89

(*) Internal Clamping Diode

Class 174 DIP, SPST-NO Mercury, 1 Form A,

23F5569	W174DIP-1	5	55	7.36	6.62	6.26
23F5571	W174DIP-3	12	300	7.36	6.62	6.26
23F5572	W174DIP-4	24	1,100	7.80	7.07	6.63
23F5573	W174DIP-5*	5	55	7.86	7.07	6.68
23F5574	W174DIP-6*	6	55	7.86	7.07	6.68
23F5575	W174DIP-7*	12	300	7.86	7.07	6.68
23F5576	W174DIP-8*	24	1,100	8.30	7.47	7.06

(*) Internal Clamping Diode

EPOXY MOLDED REED RELAYS

Reed relays satisfy many applications because contacts are hermetically sealed in glass envelope to protect against pollution from dust and atmospheric gases. Because of simple structure within glass envelope, most reed switches have life in the order of 10^9 operations when used within their switching capacity and are just as reliable when called on to work after long periods of inactivity. Switching time is very short—typically .5 to 3 milli-seconds, excluding any time lag due to the coil and supply circuits. Most commonly used contact materials for dry reed switches are rhodium over gold, tungsten and other special alloys. Immersion resistant: Epoxy molded modular construction, completely resistant to standard printed circuit board cleaning processes. Insulation resistance across open contacts is 10^{10} Ohms or greater.

Specifications

Type	101	104
Contact Rating Max. (resistive load)	10VA	8VA
Switching Volts Max.	200VDC	100VDC
Switching Current Max.	.5Amp	.25Amp
Dielectric Standoff:		
—Min. across open contacts	300VDC	200VDC
—Min. between mutually insulated points	1000VDC	1000VDC
Life at rated load with appropriate contact res.	25 x 10^6	10 x 10^6

CLASS W101, 1 Form A

Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74
23F5577	W101MIP-1*	5	250	4.30	3.87	3.66
23F5578	W101MIP-2*	12	1,400	4.40	3.96	3.74
23F5579	W101MIP-3*	24	3,300	4.62	4.16	3.93
23F5580	W101MIP-4**	5	250	4.30	3.87	3.66
23F5581	W101MIP-5**	12	1,400	4.40	3.96	3.74
23F5582	W101MIP-6**	24	3,300	4.62	4.16	3.93

CLASS W101, 2 Form A

Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74
23F5583	W101MIP-13†	5	110	5.14	4.63	4.37
23F5584	W101MIP-14†	12	450	5.18	4.66	4.40
23F5585	W101MIP-15†	24	1,950	5.30	4.77	4.51
23F5586	W101MIP-80††	5	90	5.26	4.73	4.47
23F5587	W101MIP-152††	24	1,500	5.38	4.84	4.57

CLASS W104, 1 Form C

Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74
23F5588	W104MIP-15#	5	250	7.24	6.52	6.15
23F5589	W104MIP-38#	12	900	7.32	6.59	6.22
23F5590	W104MIP-61#	24	2,600	7.44	6.70	6.32
23F5591	W104MIP-19##	5	250	7.24	6.52	6.15
23F5592	W104MIP-42##	12	900	7.32	6.59	6.22
23F5593	W104MIP-65##	24	2,600	7.44	6.70	6.32

CLASS W104, 2 Form C

23F5594	W104MIP-25	5	45	10.96	9.86	9.32
23F5595	W104MIP-48	12	230	10.98	9.88	9.33
23F5596	W104MIR-71	24	1,200	11.08	9.97	9.42

MERCURY MIP RELAYS

Available in Mercury wetted and position free Mercury MIP's. Compact printed circuit mounting on either 1" x .150 or 1" x .100 pin spacing. Epoxy molded modular construction, completely resistant to standard PC board cleaning processes. Dielectric standoff minimum between mutually insulated points is 1000VDC.

Specification Chart

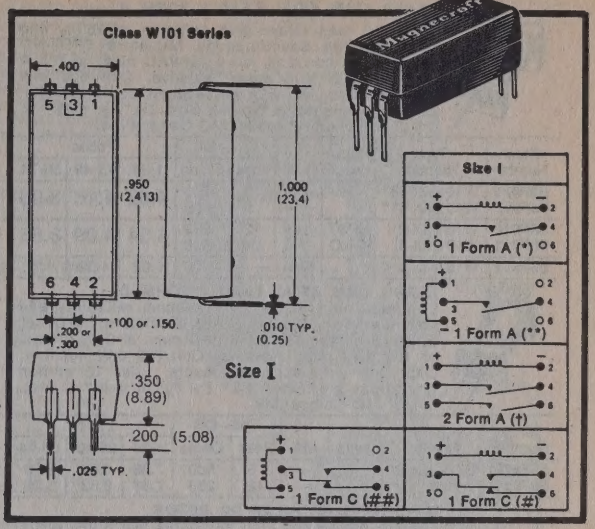
Series	Contact Rated Max.	Switching Max. Volts	Switching Max. Amps	Ins. Res. @ 100VDC	Dielec. Open Min.
131	50VA	100VDC	1A	10^{11} Min.	1000VDC
134	50VA	1000VDC	1A	10^{10} Min.	1000VDC
135	10VA	28VDC	.1A	10^{11} Min.	500VDC

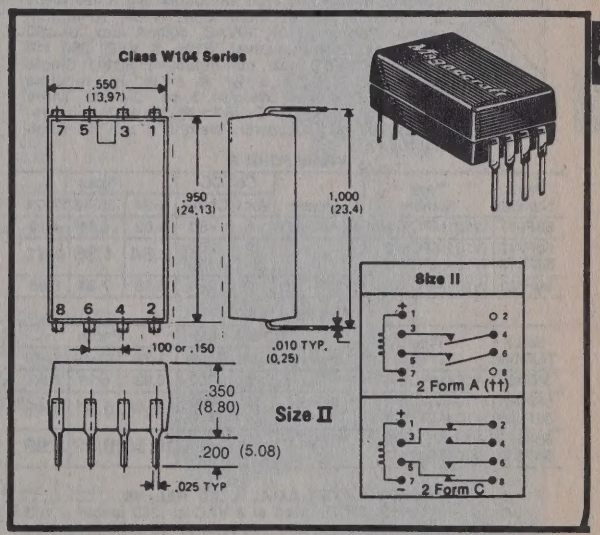
CLASS 131, 1 FORM A

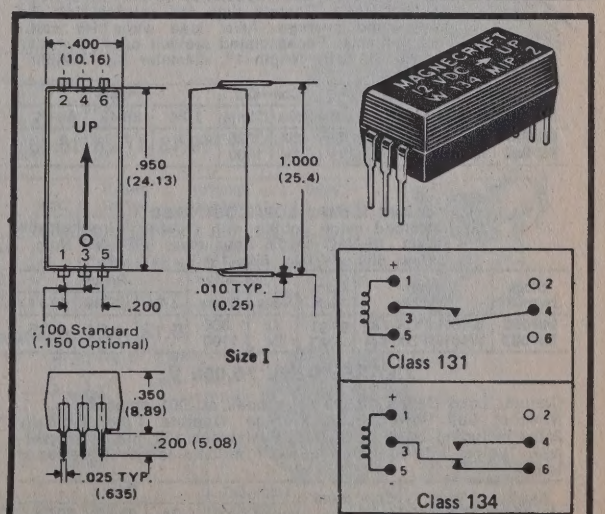
Stock No.	Type	Coil Volts	Coil Ohms	1-24	25-49	50-74	75-99
12F1080	W131MIP-1	5	80	7.54	6.79	6.41	6.03
12F1081	W131MIP-2	12	330	7.56	6.80	6.43	6.05
12F1082	W131MIP-3	24	1400	7.66	6.89	6.51	6.13

CLASS W134, 1 FORM C

12F1083	W134MIP-1	5	80	15.70	14.13	13.35	12.56
12F1084	W134MIP-2	12	330	15.74	14.17	13.38	12.59
12F1085	W134MIP-3	24	1400	15.82	14.24	13.45	12.66







Magnecraft® reed relays

CLASS 101M AXIAL LEAD 1 FORM A

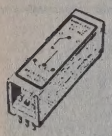
Low cost reed relays give optimum reliability and fast operation. Specifications: Miniature: SPST-NO (1 Form A) contacts rated 10 VAC max. at 0.5 A max. or 200 VDC max. resistive. Coil 600 mW nominal. Cap. 0.5pF avg. between contacts. Life: 5 million operations typical. Size 2¼" lg. x ½" w. x 7/16" h. including leads. *IC Compatible.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F976	W101MX-35*		——	3	250	4.62	4.16	3.93
56F975	W101MX-41*		——	5	500			
56F910	W101MX-2	SPST	——	12	250	4.54	4.09	3.86
56F911	W101MX-3	—NO	——	24	500			
56F912	W101MX-4		9MA	——	2500	5.02	4.52	4.27

CLASS 104M AXIAL LEAD 1 FORM C

Low cost reed relays give optimum reliability and fast operation. Specifications: Miniature: SPDT (1 Form C) contacts rated 8 VAC max. at 0.25 A max. or 100 VDC max. resistive. Coil 600 mW nominal. Cap. 2pF avg. across contacts. Life: 10 million operations typ. Size: 2¼" l x 7/16" h x ½" w incl. leads. *IC Compatible.

Stock Number	Type Number	Contacts	MA	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F978	W104MX-9*	SPDT	——	5	500	7.36	6.62	6.26
56F914	W104MX-2		——	12	250	7.36	6.62	6.26



MINIATURE MODULAR PC REEDS

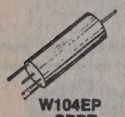
Contact Resistance: 150 milliohms avg. Life: W101 5 million cycles at rated load; W104, 10 million cycles. Rating: W101, 10VAC, 500mA max. or 200 VDC max., non-inductive; W104, 8 VAC, 250 mA max. or 100 VDC max., non-inductive. Size 1: Single Form A or C, 3/8" h. x 13/32" w. x 1⅛" lg.; requires 500 mWDC pomer. Weight: 1 oz. Size 2. Three Form A or two Form C, 3/8" x 3¾" w x 1⅛" lg.; requires 700 mWDC power. Weight: 1 oz. *IC Compatible.

W101M FORM A

Stock Number	Type Number	Contacts	Coil DC Volts	Coil DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F977	W101MPCX-104	*SPST-NO	5	450	4.82	4.34	4.10
56F317	W101MPCX-2		12	300	4.84	4.36	4.11
56F318	W101MPCX-3		24	1100			
56F321	W101MPCX-6	3PST—NO	12	220	8.18	7.36	6.95

W104M FORM C

Stock Number	Type Number	Contacts	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F960	W104MPCX-46		5	300	6.98	6.28	5.93
56F325	W104MPCX-2	SPDT	12	300	6.46	5.81	5.49
56F326	W104MPCX-3		24	1100			
56F329	W104MPCX-6	DPDT	12	220	10.58	9.52	8.99
56F330	W104MPCX-7		24	850			

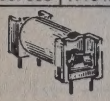


W104EP SPDT

ENCAPSULATED AXIAL LEAD RELAYS

W104EP: SPDT rated at 8 VAC at .250 amps or 100 VDC maximum. Life expectancy 10 million cycles at rated load. Operate time and release time 1 millisecond average. Axial lead wires for coil and contacts. Encapsulated molded case. Overall length 3", body length 1", diameter 7/16". Weight 1 ounce.

Stock Number	Type Number	Contacts	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F387	W104EPX-3	SPDT	12V	225	19.18	17.26	16.30
56F388	W104EPX-4		24V	1000			



CLASS 101MPC LOW COST REED

Molded nylon bobbin with electrical insulation. Con. 10 VAC @ 0.5 Amp. max. SPST-NO Nom. Pow. 500 mW Min. Size 1⅛" x 3/8" x 3/8".

Stock Number	Type Number	Contacts	Coil DC Volts	Coil DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F982	W101MPCX-123	SPST	12	300	5.12	4.61	4.35
56F983	W101MPCX-124	—NO	24	1100			

CLASS 102HV 10,000 V

Contact Load Rating 10,000 volts peak at .001 amperes; Nominal Coil Power, 1.5W average. Operate Time, typically 25ms including bounce. Contact Resistance 150 milliohms average. Typical Life at Rated Load, 1 million—longer at reduced loads.

Stock Number	Type Number	Contacts	Nom. Pwr.	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F291	W102HVX2	SPST	1.5	12	100	47.10	42.39	40.04
56F292	W102HVX3	NO	1.5	24	400			

CLASS 102V 5,000 VOLT REED

Operate, in any position. Size: 4½"x15/16" x 7/8". Wt., 3 oz. Contact Load Rating: 50VAC @ 3 Amps max. or 5000 Volts peak, max. resis. Nominal Coil Power: SPST-NO, 500 mW; SPST-NC, 200 mW. Operation Time: 3 ms. average; Release Time: 2 ms. average. Contact Bounce: 1.5 ms. average. Contact Resistance: 150 milliohms average. Capacitance Across Contacts: 1.0 pF average. Life at Rated Load: 10 million operations, longer at reduced loads.

Stock Number	Type Number	Contacts*	Coil-DC Volts	Coil-DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74	Prices 75-99
28F1380	W102VX-49	SPST —NO	6	70	38.36	34.52	32.61	30.69
56F1031	W102VX-50		12	250	38.36	34.52	32.61	30.69
56F1032	W102VX-51		24	1000	38.36	34.52	32.61	30.69
28F1381	W102VX-55	SPST—NO	24	2900	43.84	39.46	37.26	35.07

CLASS 102RM 3 AMP POWER REED

Low profile, printed circuit mounted relay with contact rating formerly available only in general purpose or telephone type relays. Contact Load Rating, 100VAC @ 3 Amps max. or 250 VDC max. Operate Time, 1.5 ms. average. Release Time, 1 ms. average. Contact Bounce, 1 ms. average. Operating Position, any. Size: 3¼" lg. (incl. leads) x 19/32"w. x ½" h.

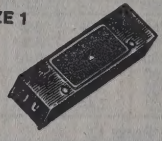
Stock Number	Type Number	Contacts	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F296	W102RMX-5	SPST—NO	6	200	7.82	7.04	6.65
56F297	W102RMX-6		12	500			
56F298	W102RMX-7		24	2000			

CLASS 103M STD AXIAL LEAD FORM C

Operate, 2 ms. aver. Release, ½ ms. aver. Contact bounce 4 ms. aver. Contact load rated 10VAC at 0.5 amp max. or 250 VDC resistive max. Contact resistance 100 milliohms aver. Long life 25 million cycles at full load; 50 million at ½ load. Capacitance across contacts 4.0 pF. aver. Operating position, any. Size: 3-7/16" x 19/32" w x ½" h.

Stock Number	Type Number	Contacts	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F905	W103MX-1	SPDT	6	200	9.04	8.14	7.68
56F906	W103MX-2		12	500			

SIZE 1



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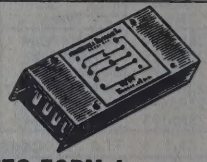


CLASS 102MPC STD MTG FORM A

Modular-packaged dry reed relays ideal for printed circuit applications. Operate 3 ms aver. Release, ½ ms aver. Contact load rated 15 VAC at 1 amp max. or 250 VDC resistive max. Contact resistance, 200 milliohms aver. Long life, 20 million cycles at full load; 100 million at ½ load. Capacitance across contacts 1.0 pF aver. Operating position any. Sizes: All lengths 2⅝"; all heights 4/64". Only variation is in width: Size 1—¾"; Size 2—1 3/16".

Stock Number	Type Number	Contacts	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F417	W102MPCX-7	SPST—NO	12	250	5.88	5.29	5.00
56F418	W102MPCX-8		24	1000			

CLASS 103MPC STD PC MTG FORM C

Operate, 2 ms. aver. Release, ½ ms. aver. Contact bounce 4 ms. aver. Contact load rated 10 VAC @ 0.5 amp max. or 250 VDC resistive max. Contact resistance 200 milliohms aver. Long life 25 million cycles at full load; 50 million at ½ load. Capacitance across contacts 4.0 pF aver. Operating position, any. Sizes: all lengths 2⅝"; all heights 4/64". Only variation is in width: Size 1—¾"; Size 2—1 3/16".

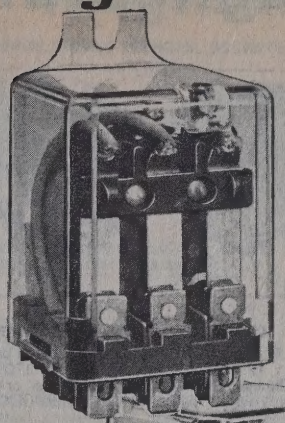
Stock Number	Type Number	Contacts	Coil—DC Volts	Coil—DC Ohms	Prices 1-24	Prices 25-49	Prices 50-74
56F423	W103MPCX-3	SPDT	12	250	7.64	6.88	6.49
56F309	W103MPCX-31	DPDT	12	175	11.24	10.12	9.55
56F310	W103MPCX-32		24	750			
56F314	W103MPCX-36	4	24	375	18.72	16.85	15.91

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

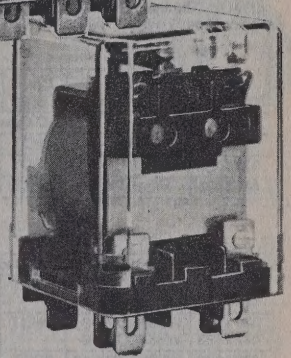
POWER & MIN. P.C. RELAYS

Magnecraft

Class 389 relays are high quality inexpensive general purpose relays, designed to switch larger contact loads without increasing overall size. They are fashioned after the popular and proven design of the Magnecraft Class 388 relays. Single make contact types are available with one, two or three poles. Double make and double break types are available only with one, two or three poles. Double make and double break types are available only with one pole but are capable of switching still larger loads and are especially suited for switching motor loads. Few relays are available in this size for the 15 to 30 amp range. The Class 389 is intended to fill this gap in availability for the design engineer. Open and enclosed flange styles. Comes in SPDT-DPDT-3PDT action. With a contact rating of 20 amps. 3/4 HP at 120 VAC. 1 HP at 240 VAC (1 & 2 Pole). 1/4" quick-connect terminals suitable for soldering.



Class 389



Class 389D

8

CLASS 389 RELAYS

Stock standard relays; SPDT-DPDT-3PDT contacts; open and closed styles; with flange mount cover.

Stock No.	Type W389-	Contacts	Coil †Volts	Coil *Ohms	Coil Nom. Power	1-9	10-24	25-49	50-99
			AC Voltage Operated 50/60Hz						
81F1284	ACX-4	SPDT	120VAC	2.75VA		8.35	7.93	7.52	7.10
81F1285	ACX-8	DPDT	24VAC		2.75VA	11.07	10.52	9.96	9.41
81F1286	ACX-9	DPDT	120VAC		2.75VA	11.07	10.52	9.96	9.41
81F1287	ACX-14	3PDT	120VAC		3.5VA	13.17	12.51	11.85	11.19
			DC Voltage Operated						
81F1288	CX-2	SPDT	12VDC	100	1.5W	7.78	7.39	7.00	6.61
81F1289	CX-3	SPDT	24VDC	400	1.5W	7.78	7.39	7.00	6.61
81F1290	CX-7	DPDT	12VDC	100	1.5W	10.17	9.66	9.15	8.64
81F1291	CX-8	DPDT	24VDC	400	1.5W	10.17	9.66	9.15	8.64
81F1292	CX-12	3PDT	12VDC	100	1.5W	12.37	11.75	11.13	10.51
81F1293	CX-13	3PDT	24VDC	400	1.5W	12.37	11.75	11.13	10.51

CLASS 389D RELAYS

Stock standard relays; double make/double break contacts; enclosed with flange mount cover.

Stock No.	W389								
			AC Voltage Operated 50/60Hz						
81F1277	ADCX-4	SPST-NO-DM	120VAC		3.5VA	8.34	7.93	7.52	7.10
81F1278	ADZCX-3	SPDT-NC-NO (DB-DM)	24VAC	3.5VA		10.37	9.85	9.33	8.81
81F1279	ADZCX-4	SPDT-NC-NO (DB-DM)	120VAC	3.5VA		10.37	9.85	9.33	8.81
81F1280	DCX-2	SPST-NO-DM	12VDC	100	1.5W	7.88	7.49	7.09	6.70
81F1281	DCX-3	SPST-NO-DM	24VDC	400	1.5W	7.88	7.49	7.09	6.70
81F1282	DZCX-2	SPDT-NC-NO (DB-DM)	12VDC	100	1.5VA	9.88	9.39	8.89	8.40
81F1283	DZCX-3	SPDT-NC-NO	24VDC	400	1.5VA	9.88	9.39	8.89	8.40

* Resistance values ±10% measured at 25° C.
† Voltage specified relays pull in at 80% of nominal or less for DC relays and 85% of nominal or less for AC relays, at 25° C.
Note: 3PDT uses 15 Amps at 250 volts.

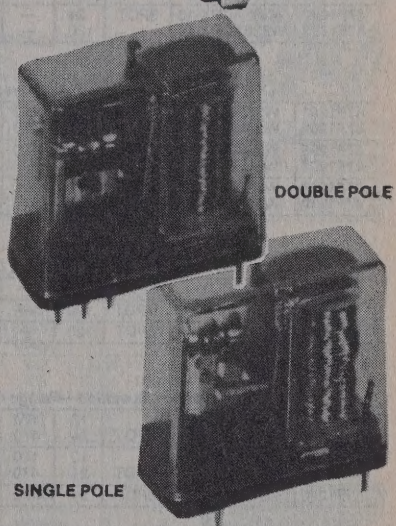
CLASS 76

6 and 10 amp, general purpose, high current, printed circuit relays. They are versatile, provide long life and reliable performance.

Features:
- Designed for continuous duty operation
- Dust proof cover
- Single and double pole versions
- Very little P.C. Board Area
- UL Recognized/CSA Certified
- 76UR Single Pole is TV3 Rated Per UL
- DC operation only

UL RECOGNIZED FILE NO. E43641

CSA CERTIFIED FILE NO. LR20690



DOUBLE POLE

SINGLE POLE

SINGLE POLE CLASS 76 RELAYS

Stock No.	Type No.W76-	Action	Coil Cont. Rating	Coil Volt (DC)	Coil Resist. (ohms)	1-9	10-24	25-49	50-99
81F1267	URCPCX-14	SPDT	10amp	4.5	32	3.72	3.53	3.35	3.16
81F1268	URCPCX-15	SPDT	10amp	6	75	3.72	3.53	3.35	3.16
81F1269	URCPCX-16	SPDT	10amp	12	280	3.72	3.53	3.35	3.16
81F1270	URCPCX-17	SPDT	10amp	24	1100	3.72	3.53	3.35	3.16
81F1271	URCPCX-18	SPDT	10amp	48	3500	3.91	3.71	3.52	3.32

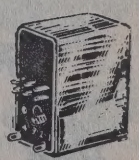
DOUBLE POLE CLASS 76 RELAYS

81F1272	URCPCX-32	DPDT	6amp	4.5	32	6.99	6.64	6.29	5.94
81F1273	URCPCX-33	DPDT	6amp	6	76	6.99	6.64	6.29	5.94
81F1274	URCPCX-34	DPDT	6amp	12	280	6.99	6.64	6.29	5.94
81F1275	URCPCX-35	DPDT	6amp	24	1100	6.99	6.64	6.29	5.94
81F1276	URCPCX-36	DPDT	6amp	45	3500	7.17	6.81	6.45	6.09

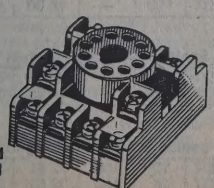
CLASS 67 MIN. PLUG-IN TIME DELAY

DPDT 5 amp contacts. Reset Time and Recycle Time: Typically 100 ms. Twice nominal input for 1 millisecond. Polarity Protection: Standard. Temperature Range: Operate —10° to 55° C. Storage, —50° to 65° C. Time Delay on operate. Size 1.374 x 1.358 x .734

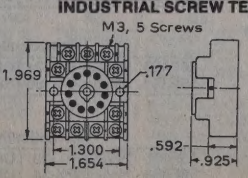
Stock Number	Type Number	VDC	Timing Range	External Resistance	Prices 1-9	Prices 10-24
		Adjustable—DC Voltage				
56F1000	W67CP5SOX-1	12	1-30 sec.	Internal	30.53	29.00
56F1001	W67CPSOX-2	24	1-30 sec.	Potentiometer	30.53	29.00
56F1002	W67CPSOX-3	12	1-240 sec.	Adjusted	44.44	42.22
56F1003	W67CPSOX-4	24	1-340 sec.		44.44	42.22

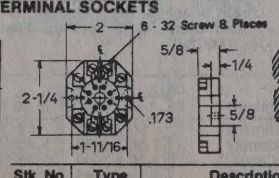


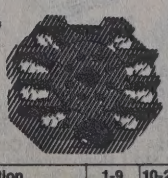
INDUSTRIAL SCREW TERMINAL SOCKETS



UL Recognized File No. 543641





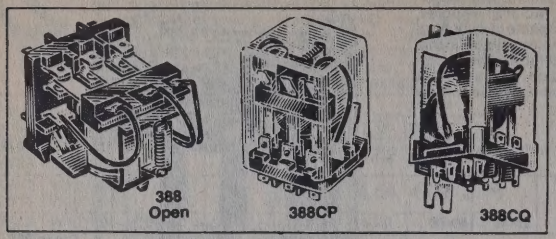


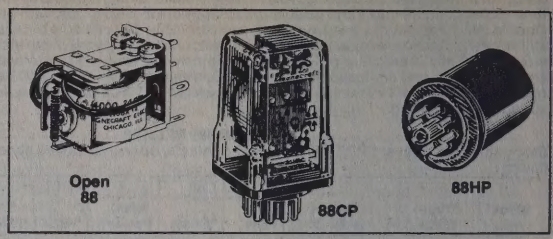
UL Recognized File No. 843631

These heavy duty molded termo plastic screw terminal sockets are rated at 10 amperes. Closed back construction requires no installation.

Stk. No.	Type	Description	1-9	10-24	25-49	50-99
47F1247	70-170-1	Screw Terminal 11 pin Octal	5.74	5.45	5.17	4.88
47F1248	70-169-1	Screw Terminal 8 pin Octal	3.35	3.18	3.02	2.85

Magnecraft General Purpose Relays

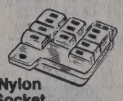




CLASS 388 SQUARE BASE UL RECOGNIZED

Low cost, UL recognized, CSA certified general purpose relay. AC and DC operated, 11, 12 & 13 Amps SPST, DPDT, or 3PDT silver alloy, gold flashed contacts. Terminals are 3 way for plug-in, solder, or 3/16" quick connect. Plug-in version size: 1 17/32 x 1 13/32 x 2 9/16 high overall. UL/CSA; E43641/LR37547.

Stock Number	Type Number	Cont. Comb.	Coil Volts	Coil Ohms	Prices 1-9	Prices 10-24	Prices 25-49
		AC Open Relays					
47F1222	W388AX-4	SPDT	120	—	6.11	5.80	5.50
47F1228	W388AX-9	DPDT	120	—	7.63	7.25	6.87
47F1225	W388AX-14	3PDT	120	—	9.43	8.96	8.49
		AC Voltage Specified—Dust Cover Plug-in					
47F1187	W388ACPX-3	SPDT	24	—	6.39	6.07	5.75
47F1188	W388ACPX-4		120	—			
47F1192	W388ACPX-8	DPDT	24	—	7.87	7.48	7.08
47F1193	W388ACPX-9		120	—			
47F1197	W388ACPX-13	3PDT	24	—	9.61	9.13	8.65
47F1198	W388ACPX-14		120	—			
		DC Voltage Specified—Dust Cover Plug-in					
47F1201	W388CPX-2	SPDT	12	120	5.76	5.47	5.18
47F1202	W388CPX-3		24	470			
47F1205	W388CPX-6	DPDT	12	120	7.09	6.74	6.38
47F1206	W388CPX-7		24	470			
47F1209	W388CPX-10	3PDT	12	120	8.78	8.34	7.90
47F1210	W388CPX-11		24	470			
		AC Voltage Specified—Flange Cover					
56F602	W388ACQX-4	SPDT	120	—	6.39	6.07	5.75
56F605	W388ACQX-9	DPDT	120	—	7.87	7.48	7.08
56F606	W388ACQX-14	3PDT	120	—	9.61	9.13	8.65
		DC Voltage Specified—Flange Cover					
56F615	W388CQX-2	SPDT	12	120	5.76	5.47	5.18
56F616	W388CQX-3		24	470			
47F1215	W388CQX-6	DPDT	12	120	7.09	6.74	6.38
47F1216	W388CQX-7		24	470			
47F1219	W388CQX-11	3PDT	24	470	8.78	8.34	7.90



UL Recognized File E43641

CLASS 388 SOCKETS

Heavy duty molded thermoplastic screw terminal socket has closed back construction that requires no insulation. Nylon sockets offer choice of solder, quick connect, or printed circuit. CSA certified. File No. LR37547.

Stock Number	Type Number	Description	Prices 1-9	Prices 10-24	Prices 25-49
47F1244	70-124-1	Nylon Solder Terminal	.96	.91	.86
47F1245	70-124-2	Nylon Quick Connect	1.39	1.32	1.25
47F1246	70-178-1	Nylon Printed Circuit	1.09	1.04	.98
47F1249	70-233-1	Screw Terminal 11 Pin accepts all Class 388 relays	7.22	6.86	6.50

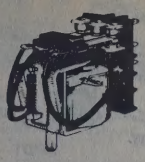
CLASS 88 OPEN & OCTAL BASE

High reliability general purpose relay has glass melamine insulation for high dielectric strength and resistance to humidity or temperature change. Molded nylon bobbin. Hinge-pin armature. Contacts SPDT, DPDT, or 3PDT rated 10 amps. Open styles have tinned solder terminals. Plug-in versions have 8-pin octal or 3PDT 11-pin octal base. Plug-in version size: 1 3/8 x 1 3/8 x 2 9/16 high.

Stock Number	Type Number	Cont	Coil Volts or mA	Coil Ohms	Prices 1-9	Prices 10-24	Prices 25-49
		AC Voltage Specified—Open Style					
47F1053	W88AX-4	SPDT	120	—	7.09	6.74	6.38
47F1056	W88AX-7	DPDT	24	—	8.74	8.30	7.87
56F511	W88AX-8		120	—			
56F519	W88AX-12	3PDT	120	—	11.07	10.52	9.96
		DC Voltage Specified —Open Style					
56F525	W88X-3	SPDT	12	100	6.80	6.46	6.12
56F533	W88X-7	DPDT	12	100	8.52	8.09	7.67
56F534	W88X-8		24	400			
56F541	W88X-11	3PDT	12	100	10.54	10.01	9.49
56F542	W88X-12		24	400			
		DC Current Specified—Open Style					
56F629	W88X-14	SPDT	7.2	2500	8.52	8.09	7.67
56F554	W88X-17	DPDT	10	2500	10.13	9.62	9.12
		88 Plug-In AC Voltage Dust Cover					
47F1076	W88ACPX-4	SPDT	120	—	10.74	10.20	9.67
47F1079	W88ACPX-7	DPDT	24	—	12.61	11.98	11.35
56F515	W88ACPX-8		120	—			
47F1082	W88ACPX-11	3PDT	24	—	15.72	14.93	14.15
56F523	W88ACPX-12		120	—			
		88 Plug-In DC Voltage Dust Cover					
47F1063	W88CPX-2	SPDT	12	100	10.41	9.89	9.37
56F537	W88CPX-6	DPDT	12	100	12.37	11.75	11.13
56F538	W88CPX-7		24	400			
56F545	W88CPX-10	3PDT	12	100	15.17	14.41	13.65
56F546	W88CPX-11		24	400			
		DC Current Specified—Plug-In Dust Cover					
47F1072	W88CPX-18	DPDT	5.0	10000	14.89	14.15	13.40
		Plug-In W/Neon "On" Light Dust Cover					
56F344	W88ANCPX-2	DPDT	120	3	15.20	14.44	13.68
47F1086	W88ANCPX-3	3PDT	120	—	18.30	17.39	16.47
		Hermetically Sealed AC Voltage Plug-In					
56F403	W88AHPX-24	DPDT	120	—	33.07	31.42	29.76
56F354	W88AHPX-36	3PDT	120	—	41.33	39.26	37.20
		Hermetically Sealed DC Voltage Plug-In					
56F405	W88HPX-33	DPDT	12	100	32.61	30.98	29.35
56F406	W88HPX-34	DPDT	24	400	32.61	30.98	29.35
56F355	W88HPX-51	3PDT	24	400	40.50	38.48	36.45

General Purpose Relays

Magnecraft



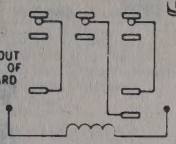
Class 250

CSA FILE LR26560

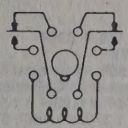
UL FILE E43641

Class 250 CP

WIRING LAYOUT FROM FRONT OF LAYOUT BOARD



SPDT



DPDT

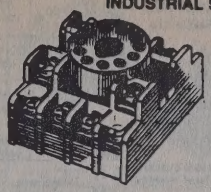
3PDT

CLASS 250 OPEN OR PLUG-IN UL RECOGNIZED

Class 250 low cost UL recognized continuous duty general purpose relays. Contacts are silver alloy, gold flashed. Plug-in version size: 1⅜x1⅜x2⅛ high. CSA certified. Open-type relays rated 10A @ 120VAC. Plug-in relays rated 8A @ 120VAC.

Stock Number	Type	Contacts	Coil Volts	Coil Ohms	1-9	10-24	25-49	50-99
OPEN RELAYS—AC VOLTAGE								
29F2423	W250AX-9	DPDT	120	.....	8.74	8.30	7.87	7.43
PLUG-IN RELAYS—AC VOLTAGE								
29F2433	W250ACPX-4	SPDT	120	.....	10.74	10.20	9.67	9.13
20F2435	W250ACPX-9	DPDT	120	.....	12.61	11.98	11.35	10.72
29F2436	W250ACPX-13	3PDT	24	.....	15.72	14.93	14.15	13.36
29F2437	W250ACPX-14	3PDT	120	.....	15.72	14.93	14.15	13.36
PLUG-IN RELAYS—DC VOLTAGE								
29F2438	W250CPX-2	SPDT	12	150	10.41	9.89	9.37	8.85
29F2440	W250CPX-6	DPDT	12	150	12.37	11.75	11.13	10.51
20F2441	W250CPX-7	DPDT	24	600	12.37	11.75	11.13	10.51
29F2443	W250CPX-11	3PDT	24	600	15.17	14.41	13.65	12.89

INDUSTRIAL SCREW TERMINAL SOCKETS

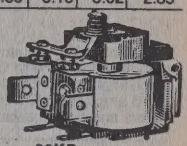


These heavy duty molded thermo plastic screw terminal sockets are rated at 10 amperes. Closed back construction requires no insulation.

Stock No.	Type No.	Description	Prices 1-9	10-24	25-49	50-99
47F1247	70-170	Screw Terminal 11 pin Octal	5.74	5.45	5.17	4.88
47F1248	70-169	Screw Terminal 8 pin Octal	3.35	3.18	3.02	2.85

CLASS 88KD LOW COST SPST-NO-DM-30 AMP

Silver alloy, gold flashed contacts for power switching. Terminal boards designed to accept AMP Faston "250" series receptacles on contacts, or .187 series receptacle on coil. Tapped with one 6-32 mounting hole and locating boss. Size 1 1⁵⁄₁₆ x 1⁵⁄₃₂ x 1½". Wt. 3 oz. Contacts 30 amps SPST-NO-DM.

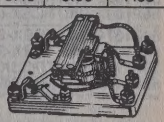


88KD
SPST-NO-DM

Stock Number	Type	Cont. 10 Amps	Coil Volts	Coil Ohms	Prices 1-9	10-24	25-49
DC VOLTAGE							
56F945	W88KDX-2	SPST	12	100	8.24	7.83	7.42
56F946	W88KDX-3	SPST	24	400	8.24	7.83	7.42
AC VOLTAGE							
56F947	W88KADX-1	SPST	24	—	8.48	8.06	7.63
56F948	W88KADX-2	SPST	120	—	8.48	8.06	7.63

CLASS 155 HIGH VOLTAGE RELAYS

The Class 155 Relay is designed for switching high voltage industrial and radio frequency loads. Rated at 1 Kw. Size: 3 19⁄32L x 2 25⁄32W x 1 21⁄32H.



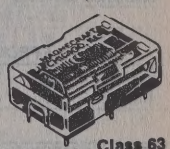
Stock Number	Type	Contacts	Coil Volts	Coil Ohms	Prices 1-9	10-24	25-49	50-99
AC VERSION								
56F251	W155AX-1	DPDT	115VAC	.1000	90.96	86.41	81.86	77.32

LOW PROFILE RELAYS

CLASS 63 DPDT LOW PROFILE P. C. BOARD RELAY

Designed as a compact, low cost printed circuit board relay. Height is .4" above the P. C. board. DPDT contacts rated at 2 amps, with low coil power consumption. Suited for applications where multiple switching functions are needed. Bifurcated contacts. DC operation only.

Stk. No.	Type No.	Coil Nom. Volts	Coil Ohms	Coil Max. Volts	Must Operate Voltage	1-9	10-24
28F1660	W63TPCX-1	6	81	11	4.2	12.06	10.85
28F1661	W63TPCX-2	12	322	22	8.3	12.06	10.85
28F1662	W63TPCX-3	24	1045	44	17.0	12.06	10.85
28F1663	W63TPCX-4	48	5350	88	32.8	16.23	14.61
12F1010	W63TPCX-12	5	55	9.2	3.5	12.06	10.85

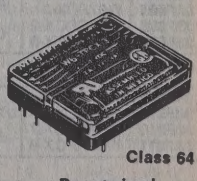


Class 63

CLASS 64 4PDT LOW PROFILE P. C. BOARD RELAY

Height of .4" above the P. C. board permits minimum center-to-center P. C. board spacing. Bifurcated contacts are rated at 2 amps. Base design protects against flux or solder entering relay, allowing automated wave soldering processes for simplification and economy. DC operation only.

Stk. No.	Type No.	Coil Nom. Volts	Coil Ohms	Coil Max. Volts	Must Operate Voltage	1-9	10-24
28F1664	W64TPCX-1	6	50	12.4	3.9	10.37	9.33
28F1665	W64TPCX-2	12	185	24.0	7.8	10.37	9.33
28F1666	W64TPCX-3	24	730	47.0	15.5	10.37	9.33
28F1667	W64TPCX-4	48	2700	88.0	32.8	10.37	9.33
12F1011	W64TPCX-52	5	30	9.5	3.0	10.37	9.33



Class 64

Recognized
File No. E52197
CSA Certified
File No. LR41729

CLASS 65 SPDT-10 AMPS MINIATURE P. C. BOARD POWER RELAY

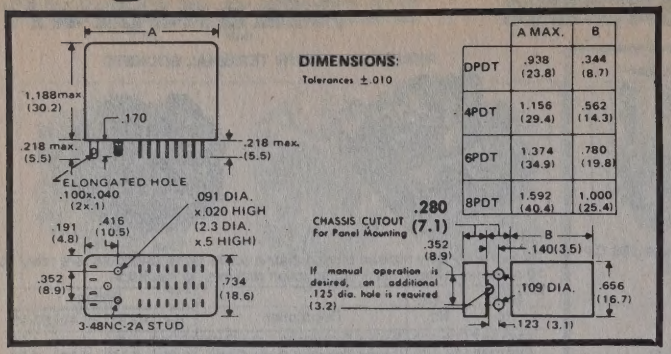
Low cost power relay used to switch heavy current loads at lower coil power. SPDT contacts rated at 10 amps. Thin pack horizontal and vertical styles are important to a design when space is factor. Dust proof cover. Standard .1" grid spacing for terminals. Types W65RPCX-1 through W65RPCX-34 are flatpacks, types W65RPCX-201 through W65RPCX-235 are uprights.

Stk. No.	Type No.	Coil Volts Nom.	Coil Volts Max.	Coil Ohms	Must Operate Voltage	1-9	10-24
28F1668	W65RPCX-1	6	10.6	60	4.8	4.96	4.46
28F1669	W65RPCX-2	12	21.5	230	9.6	4.96	4.46
28F1670	W65RPCX-3	24	40.0	920	19.2	4.96	4.46
28F1671	W65RPCX-4	48	79.0	3800	38.4	7.17	6.45
12F1021	W65RPCX-34	5	9.0	45	4.0	4.96	4.46
28F1672	W65RPCX-201	6	10.6	60	4.8	4.96	4.46
28F1673	W65RPCX-202	12	21.5	230	9.6	4.96	4.46
28F1674	W65RPCX-203	24	40.0	920	19.2	4.96	4.46
28F1675	W65RPCX-204	48	79.0	3800	38.4	7.17	6.45
12F1012	W65RPCX-235	5	9.0	45	4.0	4.96	4.46

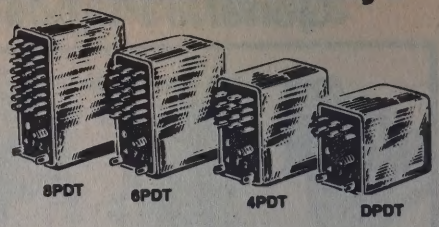
Class 65

File No. E43641
CSA Certified
File No. LR41729

Miniature Industrial Relays



	A MAX.	B
DPDT	.938 (23.8)	.344 (8.7)
4PDT	1.156 (29.4)	.562 (14.3)
6PDT	1.374 (34.9)	.780 (19.8)
8PDT	1.592 (40.4)	1.000 (25.4)



File No. E52197
File No. LR41729

CLASS 67 ENCLOSED PLUG-IN OR PANEL MOUNT RELAYS 3 OR 5 AMP 2 TO 8 FORM C REGULAR OR BIFURCATED CONTACTS

The Class 67 miniature industrial relays are designed for applications requiring 2 to 8 Form C contacts where space, weight and low cost are of prime importance. Single and bifurcated crossbar contacts of silver alloy rated 3 to 5 amps at 32VDC or 120VAC resistive load. All relays feature plastic dust covers and combination solder plug-in terminals with 3-48 NC stud. Voltage specified relays pull-in at 80% of nominal or less for DC relays and 85% of nominal or less for AC relays at 25°C. Resistance values + 10% measured at 25°C. Size: 2 Form C, 0.734" x 0.938" x 1.188"; 4 Form C, 0.734" x 1.156" x 1.188"; 6 Form C, 0.734" x 1.375" x 1.188"; 8 Form C, 0.734" x 1.592" x 1.188". UL File No. E52197. CSA File No. LR41729.

Stk. No.	Type No.	Contact Rating	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
		2 FORM C						
56F1033	W67CSX-1	3 Amps	6	52	5.52	4.97	4.69	4.14
56F1034	W67CSX-2		12	185	5.52	4.97	4.69	4.14
56F1035	W67CSX-3		24	700	5.52	4.97	4.69	4.14
56F1036	W67CSX-4		48	2,500	6.04	5.44	5.13	4.53
56F1037	W67CSX-5		115	15,000	8.44	7.60	7.17	6.33
56F1053	W67RCSX-1	5 Amps	6	52	5.58	5.02	4.74	4.19
56F1054	W67RCSX-2		12	185	5.58	5.02	4.74	4.19
56F1055	W67RCSX-3		24	700	5.58	5.02	4.74	4.19
56F1056	W67RCSX-4		48	2,500	6.10	5.49	5.19	4.58
56F1057	W67RCSX-5		115	15,000	8.86	7.97	7.53	6.65
56F1074	W67TCSX-2	3* Amps	12	185	6.84	6.16	5.81	5.13
56F1075	W67TCSX-3		24	700	6.84	6.16	5.81	5.13
56F1101	W67TRCSX-2	5* Amps	12	185	5.58	5.02	4.74	4.19
56F1102	W67TRCSX-3		24	700	5.58	5.02	4.74	4.19
		6 FORM C						
56F1044	W67CSX-12	3 Amps	12	90	9.18	8.26	7.80	6.89
56F1045	W67CSX-13		24	430	9.18	8.26	7.80	6.89
56F1064	W67RCSX-12	5 Amps	12	90	9.36	8.42	7.96	7.02
56F1065	W67RCSX-13		24	430	9.36	8.42	7.96	7.02
56F1084	W67TCSX-12	3* Amps	12	90	11.00	9.90	9.35	8.25
56F1085	W67TCSX-13		24	430	11.00	9.90	9.35	8.25
56F1111	W67TRCSX-12	5* Amps	12	90	11.32	10.19	9.62	8.49
56F1112	W67TRCSX-13		24	430	11.32	10.19	9.62	8.49

*Bifurcated Contacts

Stk. No.	Type No.	Contact Rating	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
		4 FORM C						
56F1038	W67CSX-6	3 Amps	6	52	7.28	6.55	6.19	5.46
56F1039	W67CSX-7		12	185	7.28	6.55	6.19	5.46
56F1040	W67CSX-8		24	700	7.28	6.55	6.19	5.46
56F1058	W67RCSX-6	5 Amps	6	52	7.40	6.66	6.29	5.55
56F1059	W67RCSX-7		12	185	7.40	6.66	6.29	5.55
56F1060	W67RCSX-8		24	700	7.40	6.66	6.29	5.55
56F1061	W67RCSX-9		48	2,500	7.94	7.15	6.75	5.96
56F1062	W67RCSX-10		115	15,000	9.88	8.89	8.40	7.41
56F1106	W67TRCSX-7	3* Amps	12	185	8.88	7.99	7.55	6.66
56F1107	W67TRCSX-8		24	700	8.88	7.99	7.55	6.66
		8 FORM C						
56F1049	W67CSX-17	3 Amps	12	72	12.86	11.57	10.93	9.65
56F1050	W67CSX-18		24	350	12.86	11.57	10.93	9.65
56F1070	W67RCSX-18	5 Amps	24	350	13.10	11.79	11.14	9.83
56F1089	W67TCSX-17	3* Amps	12	72	15.24	13.72	12.95	11.43
56F1090	W67TCSX-18		24	350	15.24	13.72	12.95	11.43
56F1117	W67TRCSX-18	5* Amps	24	350	15.66	14.09	13.31	11.75

* Bifurcated Contacts

CLASS 67PC DC VOLTAGE SPECIFIED PRINTED CIRCUIT VERSION

Stk. No.	Type No.	Contact Rating	Coil DCV	Coil Ohms	1-9	10-24	25-49	50-99
		DPDT						
03F804	W67PCX-2	3 Amps	12	185	5.52	4.97	4.69	4.14
03F805	W67PCX-3		24	700	5.52	4.97	4.69	4.14
03F806	W67RPCX-2	5 Amps	12	185	5.58	5.02	4.74	4.19
03F807	W67RPCX-3		24	700	5.58	5.02	4.74	4.19
		4DPT						
03F808	W67PCX-7	3 Amps	12	185	7.28	6.55	6.19	5.46
03F809	W67PCX-8		24	700	7.28	6.55	6.19	5.46
03F810	W67RPCX-7	5 Amps	12	185	7.40	6.66	6.29	5.55
03F811	W67RPCX-8		24	700	7.40	6.66	6.29	5.55

CLASS 67PC DC VOLTAGE SPECIFIED PRINTED CIRCUIT VERSION

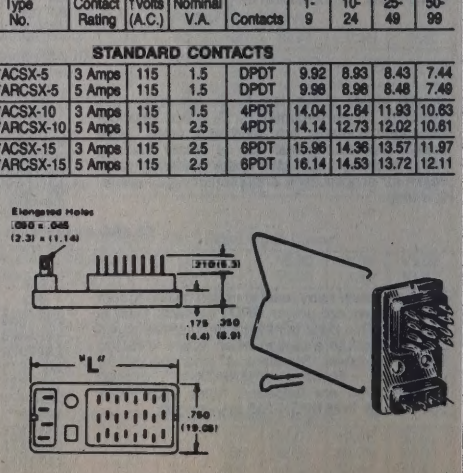
CLASS 67ACS AC OPERATED RELAYS SOLDER TERMINAL OR PLUG-IN VERSION AC RELAYS 50/60 Hz

Stock No.	Type No.	Coil Contact Rating	Coil †Volts (A.C.)	Nominal V.A.	Contacts	1-9	10-24	25-49	50-99
		STANDARD CONTACTS							
81F4507	W67ACSX-5	3 Amps	115	1.5	DPDT	9.92	8.93	8.43	7.44
81F4508	W67ARCSX-5	5 Amps	115	1.5	DPDT	9.98	8.98	8.48	7.49
81F4509	W67ACSX-10	3 Amps	115	1.5	4PDT	14.04	12.64	11.93	10.53
81F4510	W67ARCSX-10	5 Amps	115	2.5	4PDT	14.14	12.73	12.02	10.61
81F4511	W67ACSX-15	3 Amps	115	2.5	6PDT	15.96	14.36	13.57	11.97
81F4512	W67ARCSX-15	5 Amps	115	2.5	6PDT	16.14	14.53	13.72	12.11

CLASS 67 SOCKETS

Fit all Class 67 relays from 2 to 8 Form C contacts. Available in both PC and Solder Terminal Versions. Retaining and grounding clips included.

Stk. No.	Type No.	Description	Dim. "L"	1-9	10-24	25-49	50-99
56F1120	70-303	2 Pole Solder Terminal	.959	1.39	1.25	1.18	1.04
56F1121	70-304	2 Pole PC Terminal	1.047	1.23	1.11	1.05	.92
56F1122	70-305	4 Pole Solder Terminal	1.170	2.01	1.81	1.71	1.51
56F1123	70-306	4 Pole PC Terminal	1.280	1.94	1.75	2.23	1.97
56F1124	70-307	6 Pole Solder Terminal	1.385	2.62	2.36	2.23	1.97
56F1125	70-308	6 Pole PC Terminal	1.516	2.68	2.41	2.28	2.01
56F1126	70-309	8 Pole Solder Terminal	1.596	4.66	4.19	3.96	3.50
56F1127	70-310	8 Pole PC Terminal	1.596	4.66	4.19	3.96	3.50



Heavy duty power relays

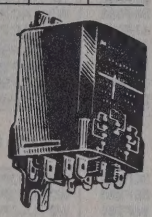
Magnecraft

CLASS 67 MIN. PLUG-IN TIME DELAY

DPDT 5 amp contacts. Reset Time and Recycle Time: Typically 100 ms. Twice nominal input for 1 millisecond. Polarity Protection: Standard. Temperature Range: Operate −10° to 55° C, Storage −50° to 85° C. Time Delay on operate. Size: 1.374 x 1.358 x .734.

Stock Number	Type Number	VDC	Timing Range	External Resistance	Prices 1-9	Prices 10-24
Adjustable—DC Voltage						
56F1000	W67CPSOX-1	12	.1-30 sec.	Internal	30.53	29.00
56F1001	W67CPSOX-2	24	.1-30 sec.	Potentiometer	30.53	29.00
56F1002	W67CPSOX-3	12	1-240 sec.	Adjusted	44.44	42.22
56F1003	W67CPSOX-4	24	1-240 sec.		44.44	42.22

CLASS 368 LOW COST TIME DELAY



Contacts: DPDT 12 amps @ 28VDC or 115 VAC, res. Steady State Current: 20 ma @ 120 VAC 75 ma @ 24VDC. Delay on operate. Temp. Range: −10° C to 55° C operating; −55° C to 85° C storage. Reset and Recycle time: Less than 100 ms. Size: Flange-Mount—$1\frac{17}{32}$" w. x $1\frac{13}{32}$" d. x $2\frac{29}{32}$" h.; Plug-in — $1\frac{17}{32}$" w. x $1\frac{13}{32}$" d. x $1\frac{29}{32}$" h. overall. Weight: 3 oz. approx.

UL E43641

Stock Number	Type Number	Input Voltage	Timing Range Seconds	External Resistor	Prices 1-9	Prices 10-24
Plug-In						
47F1236	W388ACPSOX-1	120VAC	1-10	200K	35.00	33.25
47F1237	W388ACPSOX-2	120VAC	1-120	2.4 MEG	35.00	33.25
47F1239	W388CPSOX-2	24VDC	1-120	2 MEG	33.00	31.35
Flange Mount						
47F1240	W388ACQSOX-1	120VAC	1-10	200K	34.75	33.01
47F1241	W388ACQSOX-2	120VAC	1-120	2.4 MEG	34.75	33.01

CLASS 214CP PLUG-IN HYBRID TIME DELAY

Solid state timing with ±2% repeat accuracy. Contacts: DPDT, 5 amps @ 28 VDC or 115 VAC resistive. Time Delay on operate. Size: $2\frac{1}{32}$" x $1\frac{3}{8}$" square. Weight: 3 oz. approximately.

Stock Number	Type Number	Input Volts	Timing Range	Prices 1-9	Prices 10-24
47F1179	W214ACPSOX-1	120VAC	3 to 30 sec.	51.25	48.69
47F1180	W214ACPSOX-2	120VAC	3 to 240 sec.		

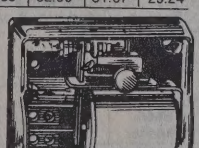
SPECIAL PURPOSE RELAYS

CLASS 120 MINIATURE COAXIAL RELAYS

The Class 120 is ideally suited for applications where space and weight must be kept to a minimum. SPDT contacts for switching RF circuits are silver alloy, gold flashed, conservatively rated 100 watts of RF power; impedance matched to 50 ohm cable. VSWR 1.25: 1 maximum from 0 to 470 megacycles. Size: $1\text{-}\frac{47}{64}$" x $\frac{43}{64}$" d x $1\frac{11}{16}$" h. Cables are RG58C/U 12" long, unterminated.

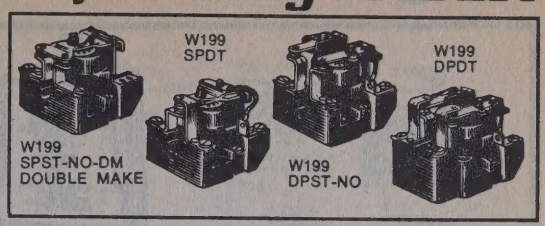
Stock Number	Type Number	Contacts	Coil Volts	Coil Ohms	Prices 1-9	Prices 10-24	Prices 25-49	Prices 50-99
57F1279	W120X-14	SPDT	12 VDC	100	36.55	32.90	31.07	29.24

CLASS 62, 5mW



The Class 62 is an ultra-sensitive, durable, dustite relay incomparable for use in any DC circuit restricted to a few thousandths of a watt power consumption. Mounting Data: 2 holes $\frac{9}{64}$" dia. Contacts. 1 amp resistive at 115 VAC or 28VDC. Size: $2\frac{1}{16}$" x $1\frac{9}{16}$" x $2\frac{5}{8}$".

Stock Number	Type Number	Coil Current	Coil Ohms	Prices 1-9	Prices 10-24	Prices 25-49	Prices 50-99
57F1289	W62SCX-2	2.25MA	1,000	46.38	41.7	39.42	37.10
57F1291	W62SCX-4	1.50MA	2,200	47.33	42.60	40.23	37.86
57F1297	W62SCX-10	0.50MA	20,000	55.35	49.82	47.05	44.28

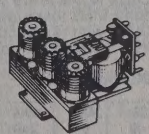


CLASS W199 SERIES

Dimensionally interchangeable with relays made by others and with Class 99. Superior quality hinge-pin design, molded nylon bobbin and adjustment stability features give it longer life. Standard dielectric strength: 1500 VAC, RMS. Screw type terminals and molded phenolic base. Contacts: Silver alloy, $\frac{5}{14}$" dia. gold flashed. Choice of SPDT, DPDT, DPST-NO, and SPST-NO-DM. Size: SPDT ($2\frac{7}{16}$"L. x $2\frac{1}{2}$"W. x $2\frac{3}{16}$"H.)-DPDT ($3\frac{1}{8}$"L. x $2\frac{1}{2}$"W. x $2\frac{5}{16}$"H.)—DPST-NO ($2\frac{7}{16}$"L. x $2\frac{1}{2}$"W. x $2\frac{1}{4}$"H.) SPST-NO-DM ($2\frac{7}{16}$"L. x $2\frac{1}{2}$"W. x $2\frac{3}{16}$"H.) UL Listed File No. 43641. CSA Certified File No. LR37547.

Stock No.	Type No.	Contacts	Coil Volts	Coil Ohms	1-9	10-24	25-49	50-99
AC VOLTAGE SPECIFIED—30 A CONTACTS								
56F955	W199AX-4	SPDT	120VAC	.....	10.42	9.90	9.38	8.86
56F956	W199AX-5	SPDT	240VAC	.....	10.75	10.21	9.68	9.14
DC VOLTAGE SPECIFIED—30 A CONTACTS								
56F957	W199X-2	SPDT	12VDC	70	1.06	9.56	9.05	8.55
28F1614	W199X-3	SPDT	24VDC	290	1.06	9.56	9.05	8.55
AC VOLTAGE SPECIFIED—30 A CONTACTS								
56F949	W199AX-8	DPST-NO	24VAC	.....	11.38	10.81	10.24	9.67
56F950	W199AX-9	DPST-NO	120VAC	.....	11.38	10.81	10.24	9.67
56F951	W199AX-10	DPST-NO	240VAC	.....	11.71	11.12	10.54	9.95
DC VOLTAGE SPECIFIED—30 A CONTACTS								
56F642	W199X-7	DPST-NO	12VDC	70	11.02	10.47	9.92	9.37
56F952	W199X-8	DPST-NO	24VDC	290	11.02	10.47	9.92	9.37
AC VOLTAGE SPECIFIED—30 A CONTACTS								
28F1617	W199AX-13	DPDT	24VAC	.....	14.42	13.70	12.98	12.26
56F971	W199AX-14	DPDT	120VAC	.....	14.42	13.70	12.98	12.26
56F972	W199AX-15	DPDT	240VAC	.....	14.73	13.99	13.26	12.52
DC VOLTAGE SPECIFIED—30 A CONTACTS								
56F641	W199X-12	DPDT	12VDC	70	14.08	13.38	12.67	11.97
56F973	W199X-13	DPDT	24VDC	290	14.08	13.38	12.67	11.97
56F974	W199X-14	DPDT	110VDC	6000	15.08	14.33	13.57	12.82
AC VOLTAGE SPECIFIED—30 A CONTACTS								
47F1103	W199ADX-4	SPST-NO-DM	120VAC	.....	9.71	9.22	8.74	8.25
DC VOLTAGE SPECIFIED—30 A CONTACTS								
47F1104	W199DX-2	SPST-NO-DM	12VDC	70	9.33	8.86	8.40	7.93
47F1105	W199DX-3	SPST-NO-DM	24VDC	290	9.33	8.86	8.40	7.93

CLASS 128 COAXIAL RELAY



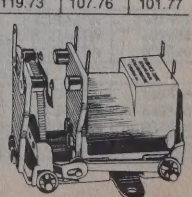
The coaxial contact structure is enclosed in a heavy duty precision machined aluminum cavity with removable plug for convenient inspection of contacts.

SPDT contacts for switching RF circuits are silver alloy, gold flashed, conservatively rated 500 watts of RF power; impedance matched to 50 ohm cable using standard type UHF connectors VSWR 1.25:1 max. from 0 to 1000 megacycles.

Stock No.	Type No.	Contacts	Coil Volts	Coil Ohms	1-9	10-24	25-49
WITHOUT AUXILIARY CONTACT							
56F244	W128X-9	SPDT	12VDC	100	106.47	95.82	90.50
WITH DPDT AUXILIARY CONTACT							
56F246	W128AX-11	SPDT	115VAC	.....	120.04	108.04	102.03
56F247	W128X-14	SPDT	12VDC	100	119.73	107.76	101.77
56F248	W128X-15	SPDT	24VDC	400	119.73	107.76	101.77

CLASS 158 HIGH VOLTAGE RELAY—5000V

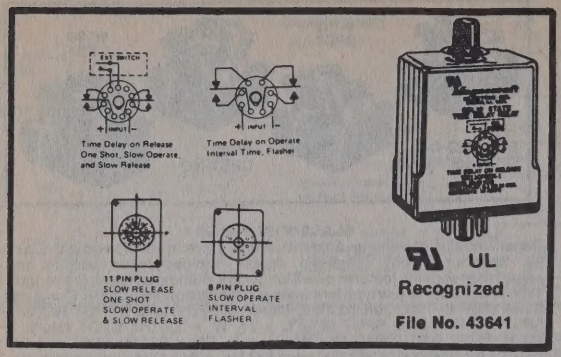
DC Voltage Specified								
Stk. No.	Type	Cont.	Coil volts	Coil ohms	1-9	10-24	25-49	50-99
57F1287	W158HVX-1		24	120	51.36	48.79	46.22	43.66
57F1287	W158HVX-2	DB-DM	110	3,000	53.60	50.92	48.24	45.56



The Class 158 Relay was developed especially for making and breaking high voltage circuit. The silver alloy contacts will break up to 5000 volts VDC. at 200 milliamps current. Size: $1\frac{29}{32}$" x $3\frac{1}{16}$" x $2\frac{7}{32}$".

PRICES SUBJECT TO CHANGE.

Magnecraft Extended Time Delay Relays


Time Delay on Release One Shot, Slow Operate, and Slow Release
Time Delay on Operate Interval Time, Flasher
11 PIN PLUG SLOW RELEASE ONE SHOT SLOW OPERATE & SLOW RELEASE
8 PIN PLUG SLOW OPERATE INTERVAL FLASHER
UL Recognized
File No. 43641

FEATURES

1. Available in 9 different timing ranges
2. AC or DC operation
3. Functions of delay on operate, delay on release
4. Plug in mounting
5. Knob adjustable timing
6. Nylon dust cover
7. Reverse polarity protection (DC Models)

SPECIFICATIONS

Repeat Accuracy: ±.1% of setting at nominal voltage at 25° C
Contact Combination. DPDT Standard
Reset Time: 100ms max.
Temperature Range: Operate −10° C to +55° C, storage −55° C to +85° C.
Transient protection of 2000V for 8MS standard on all models.
The Class 211CP Time Delay Relay makes use of Hybrid Circuitry, combining Solid State Circuitry for timing function with an EMR for DPDT 10 Amperes output switching.

CLASS 211CP PLUG-IN HYBRID TIME DELAY

Stock Number	Type Number	Time Delay	Coil Volts	Prices 1-9	10-24	25-49	50-99
Operate Delay DPDT Contacts 10 Amps							
56F958	W211ACPSOX-5	1-10	120VAC	35.50	33.73	31.95	28.40
56F959	W211ACPSOX-7	2-180	120VAC	35.50	33.73	31.95	28.40
56F960	W211ACPSOX-8	3-300	120VAC	35.50	33.73	31.95	28.40
47F1170	W211ACPSOX-18	.1-1	120VAC	35.50	33.73	31.95	28.40
56F962	W211CPSOX-3	2-180	24VDC	35.50	33.73	31.95	28.40
56F963	W211CPSOX-4	3-300	24VDC	35.50	33.73	31.95	28.40
28F1676	W211CPSOX-10	.1-1	24VDC	00.00	00.00	00.00	00.00
Release Delay DPDT Contacts 10 Amps.							
56F964	W211ACPSRX-5	1-10	120VAC	47.61	45.23	42.85	38.09
56F965	W211ACPSRX-7	2-180	120VAC	47.61	45.23	42.85	38.09
56F966	W211ACPSRX-8	3-300	120VAC	47.61	45.23	42.85	38.09
47F1172	W211ACPSRX-1.4	.1-1	120VAC	47.61	45.23	42.85	38.09
56F967	W211CPSRX-1	1-10	24VDC	47.61	45.23	42.85	38.09
56F968	W211CPSRX-3	2-180	24VDC	47.61	45.23	42.85	38.09
56F969	W211CPSRX-4	3-300	24VDC	47.61	45.23	42.85	38.09
28F1677	W211CPSRX-9	.1-1	24VDC	00.00	00.00	00.00	00.00

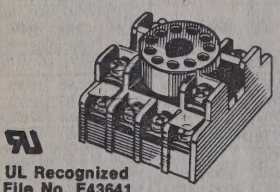
Time in seconds

CLASS 211CP EXTENDED TIME DELAY RELAY

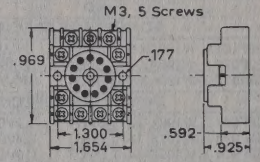
Stock Number	Type Number	Time Delay	Coil Volts	Prices 1-9	10-24	25-49	50-99
SLOW OPERATE							
56F259	W211ACPSOX-60	1-15	120VAC	44.42	42.20	39.98	35.54
56F260	W211ACPSOX-61	2-30	120VAC	44.42	42.20	39.98	35.54
56F261	W211ACPSOX-62	4-60	120VAC	44.42	42.20	39.98	35.54
56F263	W211ACPSOX-63	8-120	120VAC	44.42	42.20	39.98	35.54
56F264	W211CPSOX-40	1-15	24VDC	44.42	42.20	39.98	35.54
56F265	W211CPSOX-41	2-30	24VDC	44.42	42.20	39.98	35.54
56F266	W211CPSOX-42	4-60	24VDC	44.42	42.20	39.98	35.54
56F267	W211CPSOX-43	8-120	24VDC	00.00	00.00	00.00	00.00
SLOW RELEASE							
56F268	W211ACPSRX-60	1-15	120VAC	49.65	47.17	44.69	39.72
56F269	W211ACPSRX-61	2-30	120VAC	49.65	47.17	44.69	39.72
56F270	W211ACPSRX-62	4-60	120VAC	49.65	47.17	44.69	39.72
56F271	W211ACPSRX-63	8-120	120VAC	49.65	47.17	44.69	39.72

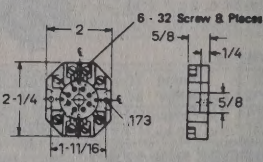
Time in minutes

INDUSTRIAL SCREW TERMINAL SOCKETS



UL Recognized
File No. E43641





UL Recognized
File No. E43641

These heavy duty molded thermo plastic screw terminal sockets are rated at 10 amperes. Closed back construction requires no insulation.

Stock No.	Type	Description	1-9	10-24	25-49	50-99
47F1247	70-170	Screw Terminal 11 pin Octal	5.74	5.45	5.17	4.88
47F1248	70-169	Screw Terminal 8 pin Octal	1.09	1.04	.98	.93

UL Recognized

General Purpose Relays

CLASS 78 GENERAL PURPOSE INDUSTRIAL RELAY

FEATURES
- DPDT or 4PDT
- 3-10 Amp Contacts
- Plug-in, Q.C. or P.C. terminal
- Dust proof enclosure

CSA CERTIFIED LR40304

UL Recognized

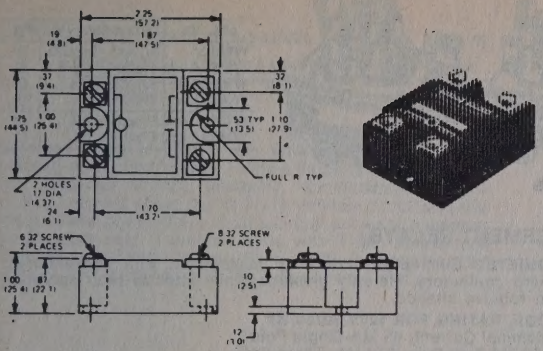
Class 78 relays are most widely used of all general purpose industrial relays. Slightly larger than one cubic inch, these relays are interchangeable with all comparable types. 4PDT with 3 amp contacts or DPDT with 10 amp contacts. Plug-in, printed circuit, or quick connect terminal. Dimensions: 1.4" x 1.1" x .86". Dust proof enclosure. UL recognized.

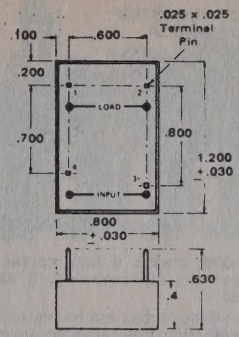
Stock Number	Type Number	Volts	Ohms	1-24	25-49	50-99	100-249
AC Coil—Solder Lug/Plug-in Version							
28F1678	W78ACSX-2	12	42	6.89	6.55	6.20	5.03
56F280	W78ACSX-3	24	157	6.89	6.55	6.20	5.03
56F281	W78ACSX-5	115	3,500	6.89	6.55	6.20	5.03
DC Coil—Solder Lug/Plug-in Version							
56F277	W78CSX-2	12	160	6.45	6.13	5.81	4.71
56F278	W78CSX-3	24	650	6.45	6.13	5.81	4.71
56F279	W78CSX-4	110	11,000	6.45	6.13	5.81	4.71
AC Coil—Printed Circuit Version							
27F1679	W78APCX-2	12	42	6.89	6.55	6.20	5.03
56F288	W78APCX-3	24	157	6.89	6.55	6.20	5.03
56F289	W78APCX-5	110	3,500	6.89	6.55	6.20	5.03
DC Coil—Printed Circuit Version							
56F284	W78PCX-2	12	160	6.45	6.13	5.81	4.71
56F285	W78PCX-3	24	650	6.45	6.13	5.81	4.71
56F286	W78PCX-4	48	655	6.45	6.13	5.81	4.71
56F287	W78PCX-6	110	11,000	7.91	7.51	7.12	5.77

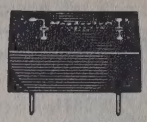
Stock Number	Type Number	Volts	Ohms	1-24	25-49	50-99	100-249
AC Operated-Solder Lug/Quick Connect 10 Amp Direct Mount							
28F1686	W78ARCSX-8	12	42	6.45	6.13	5.81	4.71
28F1687	W78ARCSX-9	24	157	6.45	6.13	5.81	4.71
28F1688	W78ARCSX-11	115	3,500	6.45	6.13	5.81	4.71
DC Operated-Solder Lug/Quick Connect 10 Amp Direct Mount							
28F1689	W78RCSX-7	12	160	6.05	5.75	5.45	4.42
28F1690	W78RCSX-8	24	650	6.05	5.75	5.45	4.42
28F1691	W78RCSX-10	110	11,000	0.00	0.00	0.00	0.00
AC Coil-Printed Circuit 10 Amp							
28F1680	W78ARPCX-2	12	42	6.45	6.13	5.81	4.71
28F1681	W78ARPCX-3	24	157	6.45	6.13	5.81	4.71
28F1682	W78ARPCX-5	115	3,500	6.45	6.13	5.81	4.71
DC Coil-Printed Circuit 10 Amp							
28F1683	W78RPCX-2	12	160	6.05	5.75	5.45	4.42
28F1684	W78RPCX-3	24	650	6.05	5.75	5.45	4.42
28F1685	W78RPCX-5	110	11,000	0.00	0.00	0.00	0.00

Solid State Relays

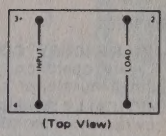
Magnecraft







W3PCX



All items are UL recognized (E50015)

CSA certified (LR32053)

Magnecraft's family of 24 solid state relays provide current ratings that range from 2.5 to 40 amps, with switching capacity up to 480 VAC. All models incorporate opto-isolation between input and output, and zero-voltage switching.

Screw type clamps are available.

Output switching reflects the latest state-of-the-art technology. Both high-reliability dual SCR and Triac approaches are available. All units have same dimensions or smaller . . . 1¾" wide x 2¼" long and 1" high.

High Transient Capability
High Dielectric Isolation Between Input & Output
Photo-Isolated, Zero Voltage Switching

8

Stock Number	Type Number	AC Load Voltage	Max. Load Current	Control Signal Range	Input Impedance	Prices 1-9	10-24	25-49	50-99
SCR OUTPUT—DC CONTROLLED									
56F221	W6102DSX-1	20-140 VAC	2.5A	3-32 VDC	1500 Ohms Min	20.47	19.45	18.42	16.38
56F222	W6110DSX-1	20-140 VAC	10A	3-32 VDC	1500 Ohms Min	30.44	28.92	27.40	24.35
56F223	W6125DSX-1	20-140 VAC	25A	3-32 VDC	1500 Ohms Min	31.49	29.92	28.34	25.19
56F224	W6140DSX-1	20-140 VAC	40A	3-32 VDC	1500 Ohms Min	37.05	35.20	33.35	29.64
56F225	W6202DSX-1	40-280 VAC	2.5A	3-32 VDC	1500 Ohms Min	21.24	20.18	19.12	16.99
56F226	W6210DSX-1	40-280 VAC	10A	3-32 VDC	1500 Ohms Min	31.04	29.49	27.94	24.83
56F227	W6225DSX-1	40-280 VAC	25A	3-32 VDC	1500 Ohms Min	32.09	30.49	28.88	25.67
56F228	W6240DSX-1	40-280 VAC	40A	3-32 VDC	1500 Ohms Min	37.67	35.79	33.90	30.14
56F229	W6408DSX-1	340-480 VAC	8A	3-32 VDC	1500 Ohms Min	37.96	36.06	34.16	30.37
56F230	W6412DSX-1	340-480 VAC	12A	3-32 VDC	1500 Ohms Min	38.87	36.93	34.98	31.10
SCR OUTPUT—AC CONTROLLED									
56F231	W6102ASX-1	20-140 VAC	2.5A	90-280 VAC 80-140 VDC	60K Ohms Typ	22.13	21.02	19.92	17.70
56F232	W6110ASX-1	20-140 VAC	10A	90-280 VAC 80-140 VDC	60K Ohms Typ	31.93	30.33	28.74	25.54
56F233	W6125ASX-1	20-140 VAC	25A	90-280 VAC 80-140 VDC	60K Ohms Typ	32.98	31.33	29.68	26.38
56F234	W6140ASX-1	20-140 VAC	40A	90-280 VAC 80-140 VDC	60K Ohms Typ	39.47	37.50	35.52	31.58
56F235	W6202ASX-1	40-280 VAC	2.5A	90-280 VAC 80-140 VDC	60K Ohms Typ	22.89	21.75	20.60	18.31
56F236	W6210ASX-1	40-280 VAC	10A	90-280 VAC 80-140 VDC	60K Ohms Typ	32.55	30.92	29.30	26.04
56F237	W6225ASX-1	40-280 VAC	25A	90-280 VAC 80-140 VDC	60K Ohms Typ	33.60	31.92	30.24	26.88
56F238	W6240ASX-1	40-280 VAC	40A	90-280 VAC 80-140 VDC	60K Ohms Typ	40.98	38.93	36.88	32.78
56F239	W6408ASX-1	340-480 VAC	8A	90-180 VAC 80-180 VDC	60K Ohms Typ	39.78	37.79	35.80	31.82
56F240	W6412ASX-1	340-480 VAC	12A	90-180 VAC 80-180 VDC	60K Ohms Typ	38.87	36.93	34.98	31.10
TRIAC OUTPUT									
56F241	W6110DTX-1	20-140 VAC	10A	3-32 VDC	1500 Ohms Min	23.49	22.32	21.14	18.79
56F242	W6210DTX-1	40-280 VAC	10A	3-32 VDC	1500 Ohms Min	24.40	23.18	21.96	19.52
SOLID STATE RELAYS—TRIAC OUTPUT									
23F5482	W3PCX-1	20-140 VAC	2A	3.5-8 VDC	225 Ohms Typ	16.20	15.39	14.58	12.96
23F5483	W3PCX-2	40-280 VAC	2A	3.5-8 VDC	225 Ohms Typ	16.78	15.94	15.10	13.42

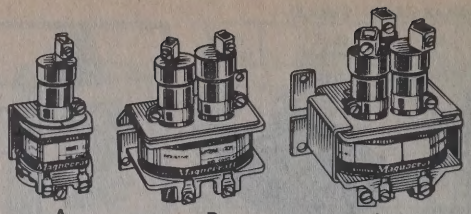
CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

Magnecraft Relays

- CLASS WH25 FOR ALL LOAD TYPES AND D.C. POWER
- CLASS WM35 & WM60 FOR TUNGSTEN & RESISTIVE LOADS, AC POWER
- STEEL TUBE DESIGN
- HIGH INRUSH CAPACITY
- A.C. RELAYS 50/60HZ

FILE NO.
E52197, E43641

CSA App. FILE NO. 27611, 38337



Stk. No.	Dimensions (in.)	Fig.
WM60A	5-1/16x1-15/16x2 3/8	A
WM35A	4 7/8x1-15/16x2 3/8	A
WM60AA	5 1/16x3 1/2x2 1/2	B
WM35AA	4 7/8x3 1/2x2 1/2	B
WM60AAA	5 1/16x3 3/4x3 1/4	C
WM35AAA	4 7/8x3 3/4x3 1/4	C

MERCURY DISPLACEMENT RELAYS

FEATURES

LIQUID MERCURY CONTACTS means a new contact surface after every operation. Perpetually self-renewing, it cannot pit, weld, disintegrate, or oxidize.

HERMETICALLY SEALED Contactor tubes are hermetically sealed to provide maximum life, protection from adverse environments, and user protection from arcing and hazards of switching heavy loads.

QUIETER Eliminates "knocking" associated with conventional hard contactors. Mercury displacement contactor tube operates in relative silence.

COIL RATING FOR 120V 50/60 Hz
Nominal Current: 65 MA-Single Pole
150 MA-Two Pole, 272 MA- Three Pole
Pull In Voltage: 96V typical
Drop Out Voltage: 93V typical

Voltage	120 VAC		240 VAC		480 VAC		600 VAC		24 VDC	48 VDC	125 VDC	250 VDC
Phase	10	30	10	30	10	30	10	30	D.C.	D.C.	D.C.	D.C.
H.P.	3	5	5	7.5	5	10	5	10	½**	½**	½	½
††Motor (Amps) (Amps)	34	30.4	28	19	14	14	11.2	11.0	** 27	** 13.5	5.2	2.6
Resistive (Amps)	35	35	35	35	35	35	25†	25†	35	35	16	12
Tungsten Lamp (Amps)	35	35	** 17	** 17	** 9	** 9	** 7	** 7	35	35	16	12

†Motor running current
**Not UL or CSA ratings
†CSA rating only

Frequency of Operation: 60 per min.
Pull-in Voltage: 80% of rated voltage, typical AC & DC.
Drop-out Voltage: 78% of rated voltage typical AC; 65% of rated voltage typical of DC.
Operate Time: 50 milliseconds typical.
Release Time: 80 milliseconds typical.
Temp. Range: –35°C to 60°C amb.
Dielectric Withstand: 2500 volts RMS
Insulation Materials: Class B-130°C

Single Pole Dimensions

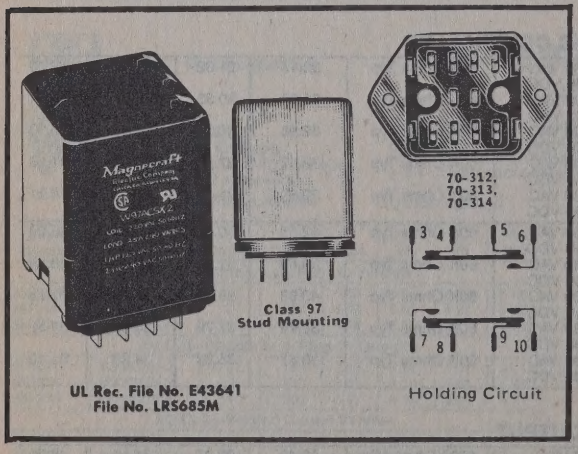
1 3/8" Center of upper mtg. hole to tip of upper terminal.
1 7/8" Center of lower mtg. hole to tip of lower terminal.

Type	Load	AC Volts 120	240	480	600
WM60	Res. (A)	60*	60*	60*	50**
	Inc. (A)	60*	30	25	12

(*) UL and CSA ratings (**) CSA ratings

M60B Single Pole Dimensions

1 7/16" Center upper mtg. hole to tip of upper terminal.
2" Center lower mtg. hole to tip of lower terminal.



UL Rec. File No. E43641
File No. LRS685M

HYBRID TIME DELAY MDR

PACKAGES AVAILABLE

Stock Number	Type Number	Contacts	Coil Volts 50/60 Hz	Prices 1-9	10-49	50-Up
03F787	WM35A-24A	SPST-NO	24 VAC	22.98	20.68	19.53
57F1325	WM35A-120A	SPST-NO	120 VAC	22.98	20.68	19.53
57F1327	WM35B-120A	SPST-NC	120 VAC	26.07	23.46	22.16
57F1326	WM35A-240A	SPST-NO	240 VAC	24.00	21.60	20.40
03F788	WM35AA-24A	DPST-NO	24 VAC	39.56	35.60	33.63
57F1328	WM35AA-120A	DPST-NO	120 VAC	39.56	35.60	33.63
03F790	WM35AA-240A	DPST-NO	240 VAC	40.82	36.74	34.70
03F789	WM35AAA-24A	3PST-NO	24 VAC	61.96	55.76	52.67
57F1329	WM35AAA-120A	3PST-NO	120 VAC	61.96	55.76	52.67
03F791	WM35AAA-240A	3PST-NO	240 VAC	62.91	56.62	53.47
56F216	WM60A-120A	SPST-NO	120 VAC	34.67	31.20	29.47
56F217	WM60B-120A	SPST-NC	120 VAC	39.60	35.64	33.66
56F218	WM60A-240A	SPST-NO	240 VAC	35.93	32.34	30.54
03F798	WM60A-24D	SPST-NO	24VDC	34.67	31.20	29.47
03F793	WM60AA-24A	DPST-NO	24 VAC	00.00	00.00	00.00
56F219	WM60AA-120A	DPST-NO	120 VAC	61.62	55.46	52.38
03F794	WM60AAA-24A	3PST-NO	24 VAC	00.00	00.00	00.00
56F220	WM60AAA-120A	3PST-NO	120 VAC	90.20	81.18	76.67
03F800	WM60AAA-24D	3PST-NO	24 VAC	90.20	81.18	76.67

STUD MOUNTING RELAYS

Stock Number	Type Number	Coils Volts	Coils Ohms	Prices 1-9	10-24	25-49
56F778	W97ACSX-3	115 VAC	265	29.88	26.89	25.40

PLUG-IN RELAYS

56F783	W97ACPX-2	24 VAC	13.2	28.42	25.58	24.16
56F784	W97ACPX-3	115 VAC	265	28.42	25.58	24.16
56F787	W97CPX-2	24 VDC	220	27.86	25.07	23.68

SOCKETS

67F253	70-312 Without Ground Lug	4.78	4.30	4.06

CLASS 97 ENCLOSED 25 AMP RELAYS UL RECOGNIZED

The Class 97 is a low cost 25 amp relay for 1 and 2 pole, 120/240. It is available with socket for plug-in applications or for use with standard quick-connect terminals for simplicity and ease in wiring. The Class 97 relay offers high quality, dependable performance and long life. Size: 1 29/32" x 1 9/16"

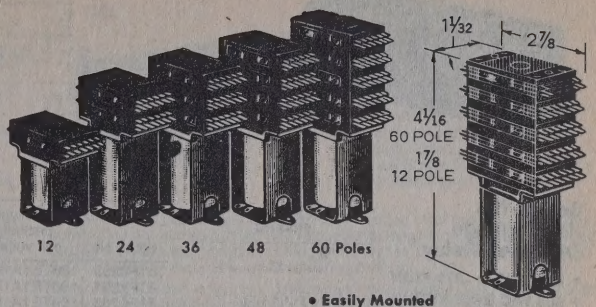
Multipole, Hi-Density Switching Relays

T-bar INCORPORATED
SWITCHING COMPONENTS DIV.

GENERAL PURPOSE LO-LEVEL LATCHING RELAYS

- **Stack-up Contact Wafers Switch From 12 to 60 Circuits**
- **Easily-Wired Snap-on Crimp Terminals Fit Into 6-pole Connectors**

Solenoid actuated relays with unique design employing stacked-up enclosed contact wafers for up to 60-pole switching. Ideal for aircraft, telemetry, communications, computers. Latching series has ability to maintain circuit stability. Ideal where power drain strains circuit power or generates undesirable heat. Terminals mate with T-Bar Connectors. Contact assemblies in dust-tight plastic enclosures 1 1/32" wide by 2 3/8" long; height is 1 3/32" per 12 pole wafer.



- **Easily Mounted Only 2 Screws**
- **Mount In Any Position**

Type	Application	No. of Poles	Contact Forms	Latching/Non-Latching	Coil Voltage
801	Gen. Purpose	4 to 48	"A" or "C"	Non-Latching	12, 24, 28
901	Low-Level	60 pole unit "A" form only			48, 110 VDC 115 VAC
907	Low-Level	36 to 48	"C"	Latching	24, 28 VDC

Series 800—30,000,000 mechanical (latching limited to 1,000,000) 20,000,000 @ 100 mw 100,000 @ 5 amps 28 VDC.

Series 900—30,000,000 mechanical 20,000,000 @ 100 mw 100,000 @ 1 amp at 28 VDC.

Contacts: Series 800—general purpose gold plated. Series 900—low-level bifurcated gold plated.

Contact Rating: Series 800—5 amps max. resistive to 150 watts. Series 900—1 amp max. resistive to 50 watts.

Contact Resistance: 20 milliohms typical
Ambient Temperatures: —55° to plus 85°C
Terminals: Mate with T-Bar Connectors
Dielectric Strength: 1000 VRMS @ 60 cycles/sec.
Insulation Resistance: 5000 megohms min.

TYPE 801 DC RELAYS

Stock No.	Type	Action	Coil VDC	1-24	25-99	100-249
59F700	801-4C24	4PDT	24	20.18	19.19	16.64
59F701	801-8C24	8PDT	24	27.77	26.42	22.93
59F766	801-12A28	12PST	28	29.85	28.39	24.65
59F702	801-12C12	12PDT	12	34.79	33.05	28.70
59F703	801-12C24	12PDT	24	31.77	30.21	26.21
59F750	801-12C28	12PDT	28	31.77	30.21	26.21
59F705	801-12C110	12PDT	110	34.79	33.07	28.70
59F769	801-24A12	24PST	12	55.48	52.73	45.81
59F770	801-24A24	24PST	24	50.86	48.36	41.96
59F751	801-24C12	24PDT	12	62.92	59.80	51.95
59F712	801-24C24	24PDT	24	57.72	54.86	47.63
59F752	801-24C28	24PDT	28	57.72	54.86	47.63
59F775	801-36A24	36PST	24	68.22	64.84	56.32
59F753	801-36C12	36PDT	12	85.49	81.22	70.56
59F721	801-36C24	36PDT	24	78.31	74.41	64.64
59F754	801-36C28	36PDT	28	78.31	74.41	64.64
59F755	801-48C12	48PDT	12	99.06	94.12	81.74
59F756	801-48C24	48PDT	24	99.06	94.12	81.74

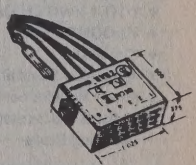
TYPE 801 VAC RELAYS

Stock No.	Type	Action	1-24	25-99	100-249
59F790	801-8C115	8PDT	35.62	33.85	29.38
59F791	801-12A115	12PST (NO)	37.44	35.57	30.89
59F792	801-12C115	12PDT	39.31	37.39	32.45
59F793	801-24A115	24PST (NO)	59.07	56.11	48.72
59F794	801-24C115	24PDT	65.88	62.61	54.39
59F795	801-36A115	36PST (NO)	82.52	78.42	68.07
59F796	801-36C115	36PDT	86.58	82.26	71.45
59F798	801-48C115	48PDT	30.11	28.60	24.86
59F799	801-60A115	60PST (NO)	115.91	110.14	95.67

TYPE 901 DC RELAYS

59F1665	901-12C12	12PDT	12	34.79	33.05	28.70
59F1666	901-12C24	12PDT	24	31.77	30.21	26.21
59F1668	901-24C12	24PDT	12	62.92	59.80	51.95
59F1669	901-24C24	24PDT	24	57.72	54.86	47.63
59F1670	901-24C110	24PDT	110	62.92	59.80	51.95
59F1671	901-36C24	36PDT	24	78.31	74.41	64.64

T-BAR CONNECTOR



Model 88601. T-Bar Connector. For connecting wires to T-Bar switches or terminals. Nylon terminal block pushes onto wafer terminals. Wires are first crimped to snap-in terminal using the crimping tool below. Accommodates #18 to 26 stranded wire with max. insulation diameter of .074". Each connector handles 6 poles, single or double throw (18 terminals) consists of 1 connector-block, 20 crimp contacts, 2 labels and 1 retaining clip. (see index).

59F741. 1-99. NET 2.08

CRIMPING TOOLS

Model 8601-51 Crimping Tool. For use with T-Bar connector. Crimps wire and insulation to snap-in terminals.
59F742. NET 148.72

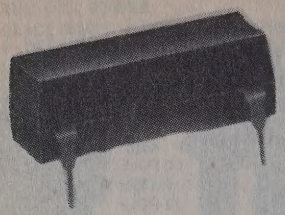
Model 8601-61. Extraction Tool. Removes snap-in terminal from connector block.
59F743. NET 14.56

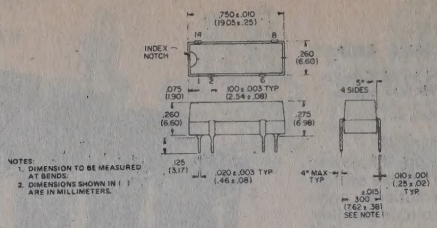
Model 8601-71. Connector Tong. For pushing on or withdrawing connectors from wafer terminals.
59F739. NET 2.08

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

SIGMA Sigma High Voltage Reed Relays

DRY REED



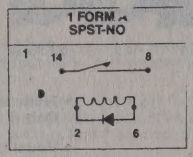


The Series 186TE is a high voltage, dual in-line reed relay designed for applications needing high voltage, low current switching. These molded reed relays are designed for harsh environments and exposure to cleaning solvents, but are excellent for low level to 0.5 ampere switching. Specially constructed reed capsule and offset terminal placement provide isolation of 600 volts AC between contacts and 1000 volts AC between other mutually conductive parts.

The Series 186TE is particularly well-suited for applications requiring protection against high voltage line transients.

Series 186 High Voltage DIP Reed Relay

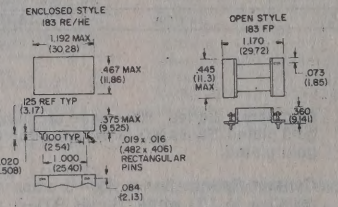
- SPST-NO • .275 HIGH
- 600 VAC BREAKDOWN
- Dual-in-line 4 terminals
- Low Level to .05 Amp
- Molded Construction

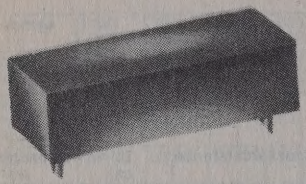


Stock No.	Part Number (including coil voltage)	Contacts: Arrangement	Contacts: Wiring Diagram	Options	Coil Resistance (OHMS)	1-49	50-74	75-99	100-249
81F2253	186TE1A1L-5G	1A	1	N	205	6.85	6.51	6.17	5.48
81F2254	186TE1A1L-12G	1A	1	N	780	6.85	6.51	6.17	5.48
81F2255	186TE1A1L-24G	1A	1	N	1870	6.85	6.51	6.17	5.48
81F2256	186TE1A2L-5G	1A	1	D	205	7.15	6.80	6.44	5.72
81F2257	186TE1A2L-12G	1A	1	D	780	7.15	6.80	6.44	5.72
81F2258	186TE1A2L-24G	1A	1	D	1870	7.15	6.80	6.44	5.72

N = None. D = Diode

Mechanical Data

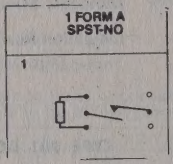




The Series 183 is a miniature size, printed circuit, high voltage reed relay capable of switching up to 500 volts and offering dielectric strength of 1200 VAC between all mutually conductive parts. Terminals are placed on popular 1" centers with grid spacing of .150". This rugged and reliable relay is available with a steel dust cover for added protection and magnetic shielding.

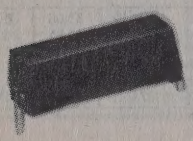
Series 183 Miniature High Voltage Reed Relay

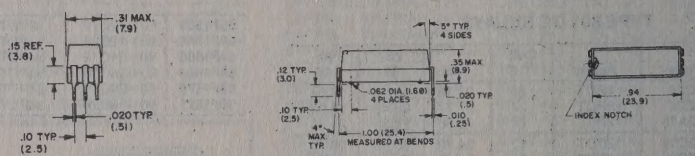
- SPST-NO
- 1200 VAC BREAKDOWN
- Magnetic Shield
- .150" x 1.00" Grid Spacing
- Low Cost Open Style



Stock No.	Part Number (Including Coil Voltage)	Contacts: Arrangement	Contacts: Wiring Diagram	Options	Coil Resistance (OHMS)	1-49	50-74	75-99	100-249
81F2259	183RE1A3G-5G	1A	1	M.S.	500	8.30	7.89	7.47	6.64
81F2260	183RE1A3G-12G	1A	1	M.S.	965	8.30	7.89	7.47	6.64
81F2261	183RE1A3G-24G	1A	1	M.S.	4200	8.30	7.89	7.47	6.64
81F2262	183RE1A3G-48G	1A	1	M.S.	7385	8.50	8.08	7.65	6.80

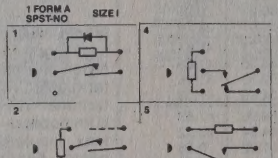
Mechanical Data





SERIES 198

- MOLDED CONSTRUCTION
- 1 TO 4 SWITCH CAPACITY
- 1C COMPATIBLE
- 1" x .100
- Immersion Resistant
- Power Requirements as low as 50 mw
- Optional Electrostatic Shielding and Clamping Diode



The Series 198TE reed relay features single-pole switching capability in the popular 1.0" x .100" pin spacing centers. Its compact molded construction provides immersion resistance to cleaning solvents with direct interchangeability to other open style reed relays. The Series 198TE may be ordered with an internal clamping diode for suppression of voltage transients or electrostatic shield. These relays establish new industry standards for economical, high reliability in dry reed switching. Contact rating Form A (OVA, Form C *VA Dielectric Strength 500 VAC between insulated parts).

IN STOCK FOR IMMEDIATE DELIVERY—SERIES 198

Stock No.	Part Number (Including Coil Voltage)	Contacts: Arrangement	Contacts: Wiring Diagram	Term. Grid Spacing	Package Width	Options	Coil Resistance (OHMS)	Each: 1-49	Each: 50-74	Each: 75-99	Each: 100-249
81F2238	198TE1A1D-5S	1A	1	.100	.310	N	500	4.55	4.33	4.10	3.64
81F2239	198TE1A1D-12G	1A	1	.100	.310	N	1400	4.25	4.04	3.83	3.40
81F2240	198TE1A1D-24G	1A	1	.100	.310	N	3400	4.25	4.04	3.83	3.40
81F2241	198TE1A2D-5S	1A	1	.100	.310	D	500	4.85	4.61	4.37	3.88
81F2242	198TE1A2D-12G	1A	1	.100	.310	D	1400	4.55	4.33	4.10	3.64
81F2243	198TE1A2D-24G	1A	1	.100	.310	D	3400	4.55	4.33	4.10	3.64
81F2244	198TE1A1F-5S	1A	2	.100	.310	N	500	4.55	4.33	4.10	3.64
81F2245	198TE1A1F-12G	1A	2	.100	.310	N	1400	4.25	4.04	3.83	3.40
81F2246	198TE1A1F-24G	1A	2	.100	.310	N	3400	4.25	4.04	3.83	3.40
81F2247	198TE1C1F-5S	1C	4	.100	.310	N	340	5.80	5.51	5.22	4.64
81F2248	198TE1C1F-12G	1C	4	.100	.310	N	900	5.50	5.23	4.95	4.40
81F2249	198TE1C1F-24G	1C	4	.100	.310	N	3400	5.50	5.23	4.95	4.40
81F2250	198TE1C1H-5S	1C	5	.100	.310	N	340	5.80	5.51	5.22	4.64
81F2251	198TE1C1H-12G	1C	5	.100	.310	N	900	5.50	5.23	4.95	4.40
81F2252	198TE1C1H-24G	1C	5	.100	.310	N	3400	5.50	5.23	4.95	4.40

N = None D = Diod

Reed Relay Market

SIGMA

SIGMA MERCURY WETTED REED RELAYS

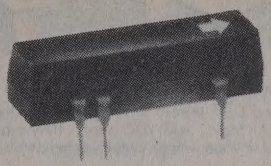
SERIES 181
MERCURY WETTED
REED RELAY
• SPST-NO • SPDT

- No Contact Bounce
- Position Sensitive
- Low Level to 2.0 Amp
- 1″ × .100
- Low Stable Contact Resistance

The Series 181 is a miniature, position sensitive, mercury-wetted reed relay designed for applications requiring long life, bounce-free contact operation. Terminals are placed on popular 1″ centers with grid spacing of .100″. This rugged and reliable relay is available in a low cost, open style, or with a steel dust cover for added protection and magnetic shielding.

Stock No.	Part Number (Including) Coil Voltage)	CONTACTS Arrangement	Options	Coil Resistance (OHMS)	Net 1-49	50-74	75-99	100-249
81F2269	181RE1A3D-5G	1A	M.S.	86	6.25	5.94	5.63	5.00
81F2270	181RE1A3D-12G	1A	M.S.	500	6.35	6.04	5.72	5.08
81F2271	181RE1A3D-24G	1A	M.S.	1880	6.45	6.13	5.81	5.16
81F2272	181RE1C3D-5G	1C	M.S.	86	12.15	11.55	10.94	9.72
81F2273	181RE1C3D-12G	1C	M.S.	500	12.25	11.64	11.03	9.80
81F2274	181RE1C3D-24G	1C	M.S.	1880	12.35	11.74	11.12	9.88

M.S. Magnetic Shield



SERIES 184
MERCURY WETTED
DIP REED RELAY
• SPST-NO • SPDT

- Dual-In-Line 6 Terminals
- No Contact Bounce
- Position Sensitive
- Low Level to 2.0 Amp
- High Dielectric Strength
- Low Stable Contact Resistance
- Molded Construction

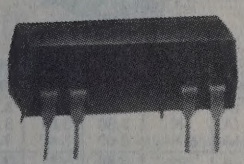
The Series 184 position sensitive, mercury-wetted reed relay combines high current, no bounce switching, and exceptional long life in a compact molded dual-in-line package capable of being immersed and cleaned with other products during their automatic wave soldering process.

These rugged reed relays are designed for harsh environment, yet provide versatile signal handling capability for low level switching applications.

Stk. No.	Part No. (Including Coil Voltage)	CONTACTS Arrangement	Options	Coil tance (OHMS)	1-49	50-74	75-99	100-249
81NF2263	184TE1A1E-5G	1A	N	72	7.50	7.13	6.75	6.00
81NF2264	184TE1A1E-12G	1A	N	415	7.60	7.22	6.84	6.08
81NF2265	184TE1A1E-24G	1A	N	1660	7.70	7.32	6.93	6.16
81NF2266	184TE1C1J-5G	1C	N	67	13.30	12.64	11.97	10.64
81NF2267	184TE1C1J-12G	1C	N	384	13.50	12.83	12.15	10.80
81NF2268	184TE1C1J-24G	1C	N	1536	13.70	13.02	12.33	10.96

8

SIGMA MERCURY WETTED REED RELAYS NON-POSITION SENSITIVE



SERIES 185
MERCURY WETTED
DIP REED RELAY
•SPST-NO

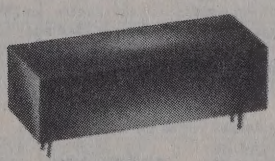
- Non Position Sensitive
- No Contact Bounce
- Low Level to 0.1 Amp
- Dual-In-Line 8 Terminals
- Molded Construction

The Series 185TE is a non-position, sensitive dual-in-line mercury-wetted reed relay designed for applications needing no bounce contact characteristics plus the capability of being physically mounted in any plane.

Specially constructed single pole, single throw reed capsules provide reliable, long life switching up to 3VA at 0.1 ampere. These molded reed relays are designed for harsh environments and are capable of being immersed and cleaned with other electronic products during their automatic wave soldering process.

Stock No.	Part Number (Including Coil Voltage)	CONTACTS Arrangement	Options	Coil Resistance (OHMS)	Net 1-49	50-74	75-99	100-249
81F2275	185TE1A1E-5G	1A	N	85	10.05	9.55	9.05	8.04
81F2276	185TE1A1E-12G	1A	N	488	10.05	9.55	9.05	8.04
81F2277	185TE1A1E-24G	1A	N	1952	11.50	10.93	10.35	9.20

N = None



SERIES 182
MERCURY WETTED
REED RELAY
• SPST-NO
• NON-POSITION SENSITIVE

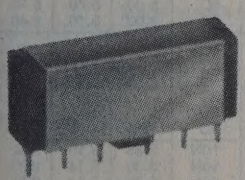
- No contact bounce
- Low level to 0.1 amp
- Low stable contact resistance
- 1.″ × .100

The Series 182 is a miniature, non-position sensitive, mercury-wetted reed relay featuring no bounce contact operation and is capable of being mounted in any plane. Enclosure is a steel dust cover for added protection and magnetic shielding.

Other styles include epoxy-filled versions which completely seal the coil and internal parts from harsh atmospheres. Terminals are placed on the popular 1″ centers with grid spacing of .100″

Stock No.	Part Number (Including) Coil Voltage)	CONTACTS Arrangement	Options	Coil Resistance (OHMS)	Net 1-49	50-74	75-99	100-249
81F2278	182RE1A3D-5G	1A	M.S.	190	9.65	9.17	8.69	7.72
81F2279	182RE1A3D-12G	1A	M.S.	965	9.65	9.17	8.69	7.72
81F2280	182RE1A3D-24G	1A	M.S.	4200	10.25	9.74	9.23	8.20

SIGMA DRY REED RELAYS



SERIES 187
SIP REED RELAY
• SPST-NO • SPST-NC
• DPST-NO • SPDT

- Designed for high density packaging
- 1 to 2 switch capacity
- Magnetic shielding
- Molded construction

The Series 187TS is a low cost, high reliability, single-in-line reed relay. It is designed for high density packaging permitting mounting of two double pole, single throw relays side by side within a single DIP socket. Magnetic shielding minimizes interaction between adjacent relays and other electronic components.

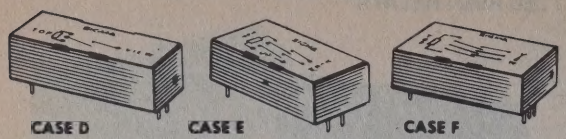
The Series 187TS features compact, molded construction providing immersion resistance to cleaning solvents

Stk. No.	Part Number (including Coil Voltage)	CONTACTS Arrangement	Options	Resistance (OHMS)	1-49	50-74	75-99	100-249
81F2281	187TS1A3-5S	1A	M.S.	330	3.50	3.33	3.15	2.80
81F2282	187TS1A3-12G	1A	M.S.	600	3.50	3.33	3.15	2.80
81F2283	187TS1A3-24G	1A	M.S.	2000	3.55	3.38	3.20	2.84
81F2284	187TS1B3-5G	1B	M.S.	360	4.20	3.99	3.78	3.36
81F2285	187TS1B3-12G	1B	M.S.	720	4.30	4.09	3.87	3.44
81F2286	187TS1B3-24G	1B	M.S.	1440	4.35	4.14	3.92	3.48
81F2287	187TS1C3-5G	1C	M.S.	200	5.60	5.32	5.04	4.48
81F2288	187TS1C3-12G	1C	M.S.	600	5.70	5.42	5.13	4.56
81F2289	187TS1C3-24G	1C	M.S.	2000	5.75	5.47	5.18	4.60
81F2290	187TS1C3M-5G	1C	M.S.	200	5.60	5.32	5.04	4.48
81F2291	187TS1C3M-12G	1C	M.S.	600	5.70	5.42	5.13	4.56
81F2292	187TS1C3M-24G	1C	M.S.	2000	5.75	5.47	5.18	4.60
81F2293	187TS2A3-5G	2A	M.S.	104	5.25	4.99	4.73	4.20
81F2294	187TS2A3-12G	2A	M.S.	600	5.35	5.09	4.82	4.28
81F2295	187TS2A3-24G	2A	M.S.	2400	5.40	5.13	4.86	4.32

M.S. Magnetic Shield

Reed Relays

SERIES 196 REED RELAYS



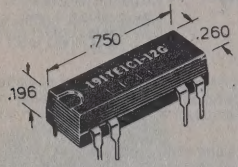
CASE D CASE E CASE F

The 196 series relays up to 3 Form A or 3 Form C with contacts enclosed in metal electromagnetic shield Standard 0.1" printed circuit board spacing. Contact Ratings: Form A or C 0.5 A. Max., 100 VDC max., 10W max. Pickup Voltage is 80% of nominal coil voltage with an operating temperature range of −40°C to +65°C.

Stk No.	Type	Case	Coil Ohms	Contacts	1-49	50-79	75-99
40F6450	196RE1A3D-5G	D	500	1A	5.35	5.09	4.82
40F6452	196RE1A3D-12G	D	965	1A	4.35	4.14	3.92
40F6453	196RE1A3D-24G	D	4200	1A	4.35	4.14	3.92
40F6454	196RE1C3K-5G	D	500	1C	8.30	7.89	7.47
40F6456	196RE1C3K-12G	D	965	1C	7.25	6.89	6.53
40F6457	196RE1C3K-24G	D	4200	1C	7.25	6.89	6.53
40F6458	196RE2A3D-5G	E	200	2A	5.60	5.32	5.04
40F6460	196RE2A3D-12G	E	377	2A	5.60	5.32	5.04
40F6461	196RE2A3D-24G	E	1520	2A	5.60	5.32	5.04
40F6462	196RE2C3K-5G	E	200	2C	9.65	9.17	8.69
40F6464	196RE2C3K-12G	E	377	2C	9.65	9.17	8.69
40F6465	196RE2C3K-24G	E	1520	2C	9.65	9.17	8.69
40F6466	196RE3A3D-5G	F	125	3A	6.40	6.08	5.76
40F6468	196RE3A3D-12G	F	500	3A	6.40	6.08	5.76
40F6469	196RE3A3D-24G	F	1330	3A	6.40	6.08	5.76
40F6470	196RE3C3K-5G	F	125	3C	13.45	12.78	12.11
40F6472	196RE3C3K-12G	F	500	3C	13.45	12.78	12.11
40F6473	196RE3C3K-24G	F	1330	3C	13.45	12.78	12.11

SERIES 191/195 SPST, DPST, SPDT AND DPDT DC COILS

Dry reed relays in molded thermoplastic case with standard 0.1" printed circuit spacing and DIP package. Relays are TTL compatible for SPST. Internal magnetic shielding available. **Maximum Contact Ratings:** single pole. 0.5 amp/100 VDC/10 W.; double pole. 0.25 amp/50 VDC/3 W. **Bounce Time:** 1 msec. **Pick-up Voltage:** 80% max. of nominal coil voltage. **Dielectric Strength:** 500 VDC between all insulated points; 200 VDC across contacts. **Operating Temperature Range:** −40° C to +65° C.

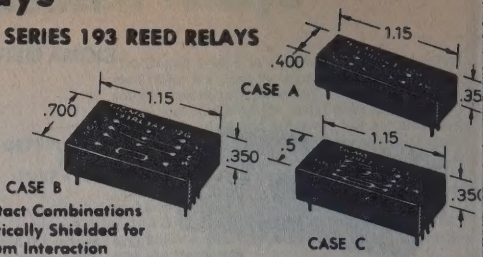


SERIES 191 REED RELAYS

- Form A
  One or Two Pole
- Form C - One Pole

Stock No.	Mfr's. Type & Nom. VDC	Resis. Ohms	Con-tacts	Schem. Diagram	1-49	50-74	75-99
38F1675	191TE1A1-5S	500	1A	1N			
38F1676	191TE1A1-5G	200	1A	1N			
38F1677	191TE1A1-6S	500	1A	1N	3.80	3.61	3.42
38F1679	191TE1A1-12G	1,250	1A	1N			
38F1680	191TE1A1-12L	500	1A	1N			
23F5170	191TE1A1-24W	1,250	1A	1N			
23F5171	191TE1A2-5S	500	1A	1D			
23F5172	191TE1A2-12G	1,250	1A	1D			
23F5173	191TE1A2-24W	1,250	1A	1D	4.50	4.28	4.05
23F5174	191TE1A5-5S	500	1A	1ES			
23F5177	191TE1A6-5S	500	1A	1D&ES			
23F5178	191TE1A6-12G	1,250	1A	1D&ES	5.05	4.80	4.55
23F5179	191TE1A6-24W	1,250	1A	1D&ES			
38F1682	191TE1C1-5S	200	1C	3N			
38F1683	191TE1C1-5G	150	1C	3N			
38F1686	191TE1C1-12G	500	1C	3N	6.05	5.75	5.45
53F860	191TE1C1-24L	1,250	1C	3N			
23F5180	191TE1C1M-5S	200	1C	4N			
23F5184	191TE1C1M-12G	500	1C	4N	6.05	5.75	5.45
23F5185	191TE1C1M-24L	1,250	1C	4N			
23F5189	191TE1C2M-5S	200	1C	4D			
23F5190	191TE1C2M-12G	500	1C	4D			
23F5186	191TE1C2-5S	200	1C	3D			
23F5187	191TE1C2-12G	500	1C	3D	6.75	6.42	6.08
23F5188	191TE1C2-24L	1,250	1C	3D			
23F5193	191TE1C5-12G	500	1C	3ES			
23F5194	191TE1C5-24L	1,250	1C	3ES			
23F5198	191TE1C6-5S	200	1C	3D&ES			
23F5199	191TE1C6-12G	500	1C	3D&ES	7.30	6.94	6.57
23F5200	191TE1C6-24L	1,250	1C	3D&ES			
38F1681	191TE2A1-5G	200	2A	2N			
53F858	191TE2A1-12G	500	2A	2N	7.05	6.70	6.35
53F859	191TE2A1-24L	1,200	2A	2N			

SERIES 193 REED RELAYS

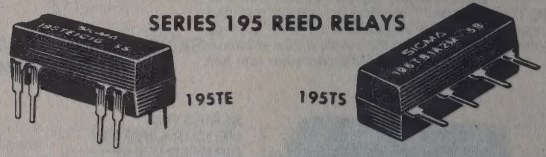


- **26 Contact Combinations**
- **Magnetically Shielded for Minimum Interaction**

Enclosed reed relays. SPST thru 3PST, SPDT thru 3PDT. Form A capsules for single throw switching; Form C for double throw switching. Printed circuit type pin contacts are on 1.000" x 0.100" PC grid spacing. Magnetically shielded for minimum interaction and housed in a molded plastic case. All have standoffs. Contact Rating: 0.5 amp. 100V DC, max. 10W, max.

Stock No.	Mfr's. Type	Case	Coil Ohms	Contacts	1-49	50-74	75-99
45F330	193RE1A3-12G	A	420	1A	4.15	3.95	3.74
45F337	193RE1A3-24G	A	2300	1A	4.15	3.95	3.74
45F331	193RE1C3-12G	A	420	1C	6.90	6.56	6.21
45F338	193RE1C3-24G	A	2300	1C	6.90	6.56	6.21
45F332	193RE2A3-12G	B	280	2A	5.35	5.09	4.82
45F339	193RE2A3-24G	B	1500	2A	5.35	5.09	4.82
45F333	193RE2C3-12G	B	280	2C	9.20	8.74	8.28
45F340	193RE2C3-24G	B	1500	2C	9.20	8.74	8.28
53F825	193RE3A3-12G	C	120	3A	6.10	5.80	5.49
53F826	193RE3A3-24G	C	640	3A	6.10	5.80	5.49
53F829	193RE3C3-24G	C	640	3C	12.85	12.21	11.57

SERIES 195 REED RELAYS

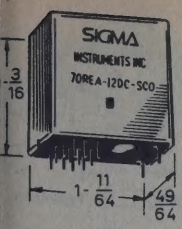


195TE 195TS

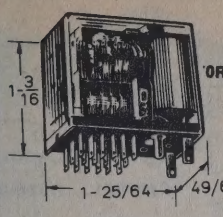
Stock No.	Mfr's. Type & nom. VDC	Resis. Ohms	Con-tacts	Schem. Diagram	1-49	50-74	75-99
30F1350	195TE1A1G-5G	360	1A	5N	3.60	3.42	3.24
30F1351	195TE1A1G-5S	500	1A	5N	3.80	3.61	3.49
30F1352	195TE1A1G-12W	500	1A	5N	3.60	3.42	3.24
30F1353	195TE1A1G-12S	1870	1A	5N	3.80	3.61	3.49
30F1354	195TE1A1G-24G	2200	1A	5N	3.60	3.42	3.24
30F1355	195TE1A1G-24S	3200	1A	5N	3.80	3.61	3.49
30F1356	195TE1A2G-5S	360	1A	5D	4.10	3.90	3.69
30F1357	195TE1A2G-12W	500	1A	5D	3.90	3.71	3.51
30F1358	195TE1A2G-24G	2200	1A	5D	3.90	3.71	3.51
30F1359	195TE2A1E-5S	235	2A	6N	5.30	5.04	4.77
30F1360	195TE2A1E-12G	500	2A	6N	5.25	4.99	4.73
30F1361	195TE2A1E-24S	2200	2A	6N	5.30	5.04	4.77
30F1362	195TE2A2E-5S	235	2A	6D	5.70	5.42	5.13
30F1363	195TE2A2E-12G	500	2A	6D	5.65	5.37	5.09
30F1364	195TE2A2E-24S	2200	2A	6D	5.70	5.42	5.13
30F1365	195TE1B1G-5S	500	1B	7N	4.65	4.42	4.19
30F1366	195TE1B1G-12S	1200	1B	7N	4.65	4.42	4.19
30F1367	195TE1B1G-24S	2200	1B	7N	4.65	4.42	4.19
30F1368	195TE1B2G-5S	500	1B	7D	5.05	4.80	4.55
30F1369	195TE1B2G-12S	1200	1B	7D	5.05	4.80	4.55
30F1370	195TE1B2G-24S	2200	1B	7D	5.05	4.80	4.55
30F1371	195TE1C1G-5S	200	1C	8N	5.70	5.42	5.13
30F1372	195TE1C1G-12G	800	1C	8N	5.60	5.32	5.04
30F1373	195TE1C1G-24G	2200	1C	8N	5.60	5.32	5.04
30F1374	195TE1C2G-5S	200	1C	8D	6.10	5.80	5.49
30F1375	195TE1C2G-12G	800	1C	8D	6.00	5.70	5.40
30F1376	195TE1C2G-24G	2200	1C	8D	6.00	5.70	5.40
30F1377	195TE2C1E-5G	46	2C	9N			
30F1378	195TE2C1E-12G	266	2C	9N			
30F1379	195TE2C1E-24G	1066	2C	9N	14.10	13.40	12.69
30F1380	195TE2C2E-5G	46	2C	9D			
30F1381	195TE2C2E-12G	266	2C	9D			
30F1382	195TE2C2E-24G	1066	2C	9D	14.85	14.11	13.37
30F1383	195TS1A1M-5S	500	1A	10N	3.35	3.19	3.02
30F1384	195TS1A1M-12G	1000	1A	10N	3.30	3.14	2.97
30F1385	195TS1A1M-24G	2200	1A	10N	3.30	3.14	2.97
30F1386	195TS1A2M-5S	500	1A	10D	3.75	3.57	3.38
30F1387	195TS1A2M-12G	1000	1A	10D	3.70	3.52	3.33
30F1388	195TS1A2M-24G	2200	1A	10D	3.95	3.75	3.56
30F1389	195TS1B1H-5S	500	1B	11N	4.10	3.90	3.69
30F1390	195TS1B1H-12S	1200	1B	11N	4.10	3.90	3.69
30F1391	195TS1B1H-24S	2200	1B	11N	4.10	3.90	3.69
30F1392	195TS1B2H-5S	500	1B	11D	4.50	4.28	4.05
30F1393	195TS1B2H-12S	1200	1B	11D	4.50	4.28	4.05
30F1394	195TS1B2H-24S	2200	1B	11D	4.50	4.28	4.05

N-none; D-diode; ES-electrostatic shielding

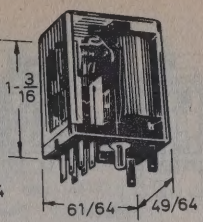
General Purpose Series 70 Relays SIGMA



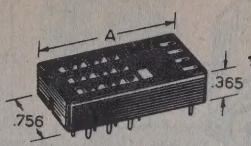
70R2



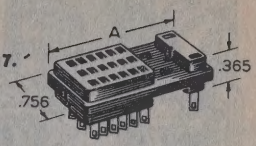
70RE42



70R6



AD120, 121, 122



AD117, 118, 119

Miniature industrial relay for low-level to 5 amp multiple-circuit switching. Choice of voltage adjusted (with either standard or bifurcated contacts) or current sensitive adjusted. Voltage adjusted types with bifurcated contacts rated at 50 million operations. Sensitive current adjusted types pick up from signals as low as 10 mW. Choice of solder or printed circuit terminal sockets, for fast, easy connection. Typical applications include use in communications and data processing equipment, measuring instruments, process controls, recording devices, and alarm systems. Temp.: −67°F to ±158°F.

Socket	Dim. A	Socket	Dim. A
AD117	.944	**AD120**	.940
AD118	1.172	**AD121**	1.168
AD119	1.378	**AD122**	1.372

SOLDER TERMINALS, VOLTAGE ADJUSTED

2 AMPS—Standard Contacts

Stk. No.	Type No.	Contacts	Coil Ohms	Nominal Power	1-9	10-49	50-99
67F535	70R2-12DC	DPDT	185	800mW	5.80	5.22	4.64
38F1647	70R2-24DC	DPDT	700	800mW	5.80	5.22	4.64
67F536	70R2-110DC	DPDT	15,000	800mW	8.20	7.38	6.56
38F1650	70R4-12DC	4PDT	185	800mW	6.35	5.72	5.08
38F1651	70R4-24DC	4PDT	700	800mW	6.35	5.72	5.08
67F538	70R6-12DC	6PDT	90	1.6 W	8.10	7.29	6.48
38F1654	70R6-24DC	6PDT	430	1.4 W	8.10	7.29	6.48

5 AMPS—Standard Silver Cadmium Oxide SCO Contacts

38F1648	70R2-12DC	DPDT	185	800mW	6.00	5.40	4.80
38F1649	70R2-24DC	DPDT	700	800mW	6.00	5.40	4.80
38F1652	70R4-12DC	4RD	185	800mW	6.70	6.03	5.36
38F1653	70R4-24DC	4PDT	700	800mW	6.70	6.03	5.36
67F582	70R6-24DC	6PDT	430	1.4 W	8.75	7.88	7.00

2 AMP—Bifurcated Contacts

67F584	70R2T-12DC	DPDT	185	700mW	6.65	5.99	5.32
67F585	70R2T-24DC	DPDT	700	700mW	6.65	5.99	5.32
67F587	70R4T-12DC	4PDT	185	700mW	7.35	6.62	5.88
67F588	70R4T-24DC	4PDT	700	700mW	7.35	6.62	5.88
67F450	70R6T-12DC	6PDT	90	1.4 W	9.25	8.33	7.40
67F451	70R6T-24DC	6PDT	430	1.4 W	9.25	8.33	7.40

SOLDER AND PC TERMINAL SOCKETS

Stk. No.	Type No.	Description	1-9	10-49	50-99
38F1600	AD117	Solder terminal socket for DPDT	1.30	1.17	1.04
38F1601	AD118	Solder terminal socket for 4PDT	1.50	1.35	1.20
38F1602	AD119	Solder terminal socket for 6PDT	2.00	1.80	1.60
38F1603	AD120	PC terminal socket for DPDT	1.30	1.17	1.04
38F1604	AD121	PC terminal socket for 4PDT	1.56	1.41	1.25
38F1605	AD122	PC terminal socket for 6PDT	2.00	1.80	1.60

PC TERMINALS, CURRENT ADJUSTED

2 AMPS—Standard Contacts

Stk. No.	Type No.	Coil Ohms	Nominal Power	1-9	10-49	50-99
67F471	70RE22-12DC	185	700mW	5.80	5.22	4.64
67F511	70RE22-24DC	700	700mW	5.80	5.22	4.64
67F513	70RE42-12DC	185	700mW	6.35	5.72	5.08
67F517	70RE62-24DC	430	1.4 W	8.10	7.29	6.48

5 AMP—Standard Silver Cadmium Oxide SCO Contacts

67F519	70RE22-12DC	185	700mW	6.00	5.40	4.80
67F520	70RE22-24DC	700	700mW	6.00	5.40	4.80
67F522	70RE42-12DC	185	700mW	6.70	6.03	5.36
67F523	70RE42-24DC	700	700mW	6.70	6.03	5.36
67F525	70RE62-12DC	80	1.4 W	8.75	7.88	7.00
67F526	70RE62-24DC	430	1.4 W	8.75	7.88	7.00
67F527	70RE62-110DC	9,000	1.4 W	10.90	9.81	8.72

SOLDER TERMINAL, SENSITIVE VERSION

1 AMP SUPER CURRENT SENSITIVE

Stk. No.	Type	Contacts	Coil Ohms	Pickup Power mW	1-9	10-49	50-99
53F753	70R2H-1000	DPDT	1000	40	7.25	6.53	5.80
53F754	70R2H-2500	DPDT	2500	40	7.25	6.53	5.80
53F755	70R2H-5000	DPDT	5000	40	8.05	7.25	6.44
53F757	70R4H-2500	4PDT	2500	80	8.95	8.06	7.16
53F758	70R4H-5000	4PDT	5000	80	9.95	8.96	7.96

1 AMP SUPER VOLTAGE SENSITIVE

53F759	70R2VH-6DC	DPDT	500	40	7.25	6.53	5.80
53F760	70R2VH-12DC	DPDT	2000	40	7.25	6.53	5.80
53F761	70R2VH-24DC	DPDT	7500	40	8.05	7.25	6.44
53F762	70R4VH-6DC	4PDT	250	80	8.95	8.06	7.16
53F763	70R4VH-12DC	4PDT	1000	80	8.95	8.06	7.16
53F764	70R4VH-24DC	4PDT	3700	80	9.85	8.87	7.88

1 AMP CURRENT SENSITIVE TYPES

Stk. No.	Type	Contacts	Coil Ohms	Pickup Power mW	1-9	10-49	50-99
38F1655	70R2S-2500	DPDT	2500	85	6.35	5.72	5.08
38F1657	70R2S-10,000	DPDT	10K	85	7.75	6.98	6.20
38F1658	70R4S-2500	4PDT	2500	175	7.00	6.30	5.60
38F1659	70R4S-5000	4PDT	5000	175	7.75	6.98	6.20

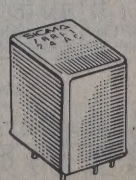
1 AMP VOLTAGE SENSITIVE

53F766	70R2VS-12DC	DPDT	800	100	7.00	6.30	5.60
53F767	70R2VS-24DC	DPDT	3200	100	7.75	6.98	6.20
53F769	70R4VS-12DC	4PDT	450	175	7.75	6.98	6.20
53F772	70R6VS-12DC	6PDT	320	250	9.85	7.87	7.88
53F773	70R6VS-24DC	6PDT	1200	250	10.70	9.63	8.56

SERIES 78 AC/DC—SPDT

- **For Printed Circuit Use**
- **Polypropylene Case**
- **Withstands solder flux and degreasing solvents**

Stk. No.	Type No.	Nominal Volts	Ohms	1-99	100-249	250-499
67F479	78RE1-6DC	6DC	100	2.90	2.76	2.61
38F1672	78RE1-12DC	12DC	400	2.90	2.76	2.61
38F1673	78RE1-24DC	24DC	1600	3.50	3.33	3.15
38F1674	78RE1-120AC	120AC	5500	5.25	4.99	4.73

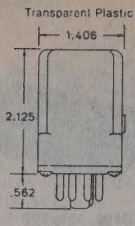


Subminiature relay for PC's. Life rated at a minimum of 100,000 operations at 3 amps, 28VDC/12VAC.

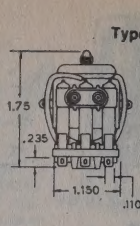
SIGMA General Purpose Relays

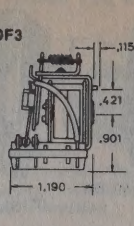
TYPE 50F0

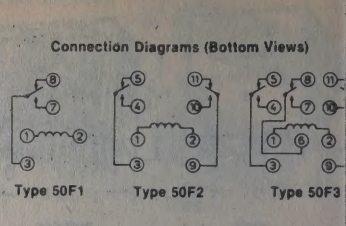
TYPE 50J2



TYPE 50R0







OPEN & ENCLOSED MODELS HIGH DIELECTRIC STRENGTH

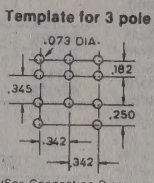
TYPE 50 SPECIFICATIONS

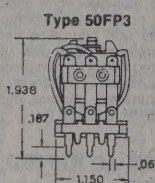
"RO" types are enclosed with plug terminals.

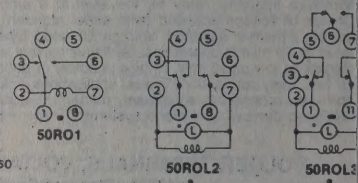
"F" types are open with solder terminals.

"FP" types are open with p.c. terminals.

Contacts: 5 or 10 amps @ 28 VDC or 120 VAC, initial resist. 50 mohms. **General:** operate time 30 msec., release time 20 msec. Temp. range: open type-AC –45 to +70 C-DC –45 to +85C. enclsd type-AC –10 to +55 C-DC –45 to +70 C. **WT:** 2.3-3.6 oz.





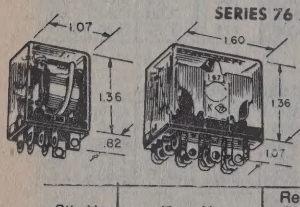


8

Stock No.	Type & Coil Voltage	Coil Resist. (ohms)	1-49	50-74	75-99	100-249
SINGLE POLE 10 AMP.						
23F5211	50R01-12AC-SCO	21	12.10	11.50	10.89	9.68
23F5212	50R01-24AC-SCO	85	12.10	11.50	10.89	9.68
23F5213	50R01-120AC-SCO	2250	12.10	11.50	10.89	9.68
23F5240	50F1-120AC-SCO	2250	6.90	6.56	6.21	5.52
2 POLE 5 AMP.						
38F1640	50RO2-24AC	85	13.20	12.54	11.88	10.56
23F5218	50RO2-120AC	2250	13.20	12.54	11.88	10.56
23F5247	50F2-120AC	2250	8.35	7.94	7.52	6.68
23F5287	50FP2-120AC	2250	8.35	7.94	7.52	6.68
23F5219	50RO2-12DC	120	13.15	12.50	11.84	10.52
23F5248	50F2-12DC	120	7.60	7.22	6.84	6.08
23F5220	50RO2-24DC	472	13.15	12.50	11.84	10.52
23F5249	50F2-24DC	472	7.60	7.22	6.84	6.08
23F5222	50RO2-110DC	10000	14.05	13.35	12.65	11.24
2 POLE 10 AMP.						
23F5254	50F2-120AC-SCO	2250	8.45	8.03	7.61	6.76
23F2705	50RO2-12AC-SCO	21	13.30	12.64	11.97	10.64
24F2706	50RO2-24AC-SCO	85	13.30	12.64	11.97	10.64
24F2707	50RO2-120AC-SCO	2250	13.30	12.64	11.97	10.64
24F2709	50RO2-12DC-SCO	120	13.25	12.59	11.93	10.60

Stock No.	Type & Coil Voltage	Coil Resist. (ohms)	1-49	50-74	75-99	100-249
2 POLE 10 AMP. (Cont.)						
24F2710	50RO2-24DC-SCO	472	13.25	12.59	11.93	10.60
24F2019	50RO2-48DC-SCO	1800	13.25	12.59	11.93	10.60
24F2711	50RO2-110DC-SCO	10000	14.15	13.45	12.74	11.32
23F5297	50FP2-48DC-SCO	1800	7.70	7.32	6.93	6.16
3 POLE 5 AMP.						
23F5224	50RO3-24AC	85	15.45	14.68	13.91	12.36
23F5307	50FP3-24AC-SCO	85	9.30	8.84	8.37	7.44
38F1642	50RO3-120AC	2250	15.45	14.68	13.91	12.36
23F5308	50FP3-120AC-SCO	2250	9.30	8.84	8.37	7.44
23F5225	50RO3-12DC	120	15.10	14.35	13.59	12.08
23F5226	50RO3-24DC	472	15.10	14.35	13.59	12.08
3 POLE 10 AMP.						
23F5229	50RO3-12AC-SCO	21	15.60	14.82	14.04	12.48
23F5265	50F3-24AC-SCO	85	9.45	8.98	8.51	7.56
24F2714	50RO3-24AC-SCO	85	15.60	14.82	14.04	12.48
24F2715	50RO3-120AC-SCO	2250	15.60	14.82	14.04	12.48
24F2717	50RO3-12DC-SCO	120	15.25	14.49	13.73	12.20
24F2718	50RO3-24DC-SCO	472	15.25	14.49	13.73	12.20
24F2719	50RO3-110DC-SCO	10000	16.25	15.44	14.63	13.00
23F5230	50RO3-48DC-SCO	1800	15.25	14.49	13.73	12.20
HERMETICALLY SEALED (*) 2 POLE AND (**) 3 POLE						
23F5204	50JO2-12DC-SCO*	120	32.85	31.21	29.57	26.28
23F5209	50JO2-24DC-SCO*	472	32.85	31.21	29.57	26.28
23F5210	50JO2-120AC-SCO*	2250	33.65	31.97	30.29	26.92
23F5217	50JO3-12DC-SCO**	120	38.75	36.82	34.88	31.00
23F5221	50JO3-24DC-SCO**	472	38.75	36.82	34.88	31.00
23F5223	50JO3-120AC-SCO**	2250	39.60	37.62	35.64	31.68

SERIES 76 AC/DC-DPDT, 4PDT



Compact relay for heavy duty industrial or consumer applications. Provides multipole switching of resistive loads up to 10 amps each pole at 120 VAC. Temperature range –40°F to +131°F. AC and +158°F. DC. UL/CSA approved 100K operates electric life.

Stk. No.	Type No.	Resis. Ohms	Contacts	1-49	50-74	75-99
67F474	76R2-6DC-SCO	40	DPDT	8.35	7.94	7.52
38F1661	76R2-12DC-SCO	160	DPDT	8.35	7.94	7.52
38F1662	76R2-24DC-SCO	650	DPDT	8.35	7.94	7.52

SOCKETS FOR SERIES 76 RELAY

Stk. No.	Type. No.	Description	1-49	50-74	75-99
38F1606	AD127	Solder terminal socket for DPDT	1.80	1.71	1.62
38F1610	AD129	PC terminal socket for DPDT	1.80	1.71	1.62

SERIES 68 AC & DC—SPDT, DPDT, 3PDT RELAYS

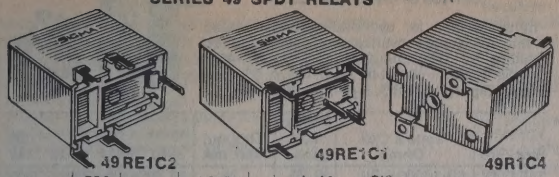
Versatile low-cost, general purpose relay for production-line switching of light to medium power loads. Fast installation— .187" terminals, contact rating 10 amps at 28 VDC/115 VAC. 5×10^5 operations. Nominal power AC 1- and 2-pole types, 2.1 VA 3-pole types, 2.5 VA, DC, 1.2 w: Minimum operating temperature: –49°F. Maximum: AC 1- and 2-pole, +131°F 3-pole, +113°F. DC, +158°+F. Polycarbonate cover. 68R34 has flange mtg. SCO contacts 2,900"h. UL listed. Weight 2.7 oz.

Stock No.	Type Coil Volts	Coil Ohms	Action	1-49	50-74	75-99	100-249
24F3128	68R2-120AC-SCO	2250	DPDT	8.90	8.46	8.01	7.12
24F3129	68R2-12DC-SCO	120	DPDT	8.00	7.60	7.20	6.40
24F3130	68R2-24DC-SCO	470	DPDT	8.00	7.60	7.20	6.40
24F3131	68R3-120AC-SCO	2000	3PDT	9.90	9.41	8.91	7.92
24F3132	68R3-12DC-SCO	120	3PDT	9.05	8.60	8.15	7.24
24F3133	68R3-24DC-SCO	470	3PDT	9.05	8.60	8.15	7.24
24F3134	68R34-120AC-SCO	2000	3PDT	9.90	9.41	8.91	7.92
24F3138	AD63 P.C. term socket			1.75	1.67	1.58	1.40
24F3137	AD62-Solder term socket						

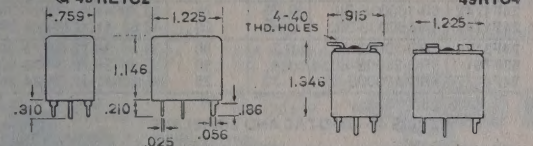
General Purpose Relays

SIGMA

SERIES 49 SPDT RELAYS



49RE1C2 49RE1C1 49R1C4



The series 49 is a low cost printed circuit board relay capable of switching up to 10 amps in just over 1 cubic inch. Units have glass lined nylon dust covers and contact placement furthest away from the PC board. Terminals can be soldered directly to PC board or mounted for hand wiring. Overall case dimensions : .759 x 1.225 x 1.146. Temperature range: -55°C to +85°C. Weight: 1.5 oz. (42 g). SIL indicates contact material of fine silver, gold plated. SCO means silver cadmium oxide, gold plated. Terminal material: brass with fused tin plating. Initial dielectric strength (@ 25°C and 50% R.H.): between all insulated points is 1500 Vrms, across contacts is 500 Vrms. Initial insulation resistance: 1000 megohms, min. (measured at 500 VDC). Expected contact mechanical life: 50 million operations. Expected contact electrical life: 100,000 operations at rated load. Initial contact resistance (max.): 100 milliohms (@ 6V, 1A). Maximum dissipation at coil @ 25°C: 2.0 watts. Coil pick-up, max.: 75% of nominal coil voltage for VG adjustment, 80% of nominal coil voltage for VF adjustment. Not designed for submersible cleaning. UL Recognized—CSA certified.

Stk. No.	Type and Coil Voltage	Coil Resis.	Contact Rating	1-24	25-49	50-99	100-499
65F1011	49RE1C1VG-5DC-SIL	235	3A	3.55	3.20	2.84	2.49
65F1013	49RE1C1VG-12DC-SIL	1350	3A	3.80	3.42	3.04	2.66
65F1016	49RE1C2VF-12DC-SIL	1640	3A	3.80	3.42	3.04	2.66
65F1017	49RE1C2VF-24DC-SIL	6560	3A	4.20	3.78	3.36	2.94
65F1022	49RE1C1VG-5DC-SC0	235	5A	3.70	3.33	2.96	2.59
65F1023	49RE1C1VG-6DC-SC0	340	5A	3.70	3.33	2.96	2.59
65F1024	49RE1C1VG-12DC-SC0	1350	5A	3.95	3.56	3.16	2.77
65F1027	49RE1C2VF-12DC-SC0	1640	5A	3.95	3.56	3.16	2.77
67F1830	49RE1C1VW-5DC-SCO	100	10A	4.10	3.69	3.28	2.87
67F1831	49RE1C1VW-12DC-SCO	600	10A	4.35	3.92	3.48	3.05
67F1832	49RE1C1VW-24DC-SCO	2400	10A	4.55	4.10	3.64	3.19
67F1834	49RE1C4VW-12DC-SCO	600	10A	4.65	4.19	3.65	3.26

SOCKETS FOR SERIES 50

AD114

AD115

AD114. .173 dia. mounting holes. 1.688 on centers. Dimensions: 2.250 sq. x .625 H. **AD115.** .173 dia. mounting holes. 2.188 on centers. Dimensions: 2.563 sq. x .625 H. Series 50 sold on next page.

Stk. No.	Type	1-49	50-74	75-99	100-249
65F1033	ADD114 (8 pins)	5.55	5.28	5.00	4.44
65F1034	ADD115 (11 pins)	8.25	7.84	7.43	6.60

SERIES 67 AC AND DC—4PDT

Switches 5 ampere loads from 1.2 VA or 900 MW signals. Solder or printed circuit terminals. Temp. range of −4°F. to +140°F. 14-prong plug, designed for stud mtg. 1 5/16" x 1 7/64" x 55/64" UL-CSA listed. Shpg. wt. 1.3 oz.

For price quotes on larger quantities contact your nearest Newark facility.

DUST COVERED VERSIONS—3 AMP RATING

Stk. No.	Type and Coil Voltage Solder Terminals	Stk. No.	Type and Coil Voltage P. C. Terminals	Coil Resis. Ohms	EACH
24F2831	67R4-120AC	65F1042	67RE4-120AC	3,900	9.95
65F1035	67R4-240AC	65F1043	67RE4-240AC	16,650	10.30
24F2833	67R4-12DC	65F1046	67RE4-12DC	160	8.10
24F2834	67R4-24DC	65F1047	67RE4-24DC	650	8.10
24F2836	67R4-110DC	65F1048	67RE4-110DC	11,000	9.45

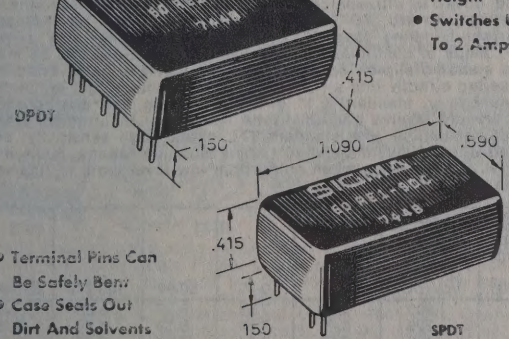
DUST COVERED VERSIONS—5 AMP RATING

65F1037	67RV4-24AC-SC0	65F1049	67REV4-24AC-SC0	160	9.30
45F367	67RV4-120AC-SC0	65F1050	67REV4-120AC-SC0	3,900	10.05
65F1038	67RV4-240AC-SC0	65F1051	67REV4-240AC-SC0	16,650	10.40
45F365	67RV4-12DC-SC0	65F1054	67REV4-12DC-SC0	160	8.35
45F366	67RV4-24DC-SC0	65F1056	67REV4-24DC-SC0	650	8.35

TERMINALS

Stk. No.	Type	Description	1-49	50-74	75-99	100-249
24F2837	AD113-1	Solder terminals	1.40	1.33	1.26	1.12
65F1061	AD113-2	P.C. terminals w/gnd.	1.40	1.33	1.26	1.12
24F2838	AD113-3	P.C. terminals w/o gnd.	1.40	1.33	1.26	1.12
65F1062	AD61	Screw terminals	11.55	10.98	10.40	9.42
65F1063	SD220	Hold-down spring (AD113-1)	.17	.17	.17	.17

SERIES 60 LOW-PROFILE 2-AMP RELAY FOR PC BOARDS



- Low 0.415" Height
- Switches Up To 2 Amps
- Terminal Pins Can Be Safely Bent
- Case Seals Out Dirt And Solvents

Low-profile relay designed for high density PC board applications requiring a machine-solderable relay capable of switching higher currents than a reed relay. Can switch capacitive, lamp, and inductive loads that would weld the contacts of a reed relay, and can be operated from TTL-driver circuits. Available in both SPDT and DPDT models, with a choice of sensitive or standard coils. Uses standard 0.1" grid pin spacing. Ultrasonically welded polyester case protects the contacts against contaminants, and withstands normal vapors and sprays of most flux-cleaning solvents. Type No. Suffix represents Nominal coil VDC. UL/CSA approved.

SPDT—SENSITIVE COIL

Stk. No.	Type	Max. Cont. VCD	Pick-Up (max) VDC	Coil Res. Ohms	1-9	10-49	50-99	100-249
53F803	60RE1S-5DC	8.2	3.2	64	4.15	3.74	3.32	2.91
53F804	60RE1S-6DC	9.7	3.2	66	4.15	3.74	3.32	2.91
53F805	60RE1S-12DC	21	7.1	310	4.15	3.74	3.32	2.91
53F806	60RE1S-24DC	37	12.3	950	4.50	4.05	3.60	3.15

DPDT—STANDARD COIL

53F807	60RE2-5DC	7.5	3.6	32	5.25	4.73	4.20	3.68
53F809	60RE2-12DC	17	8.3	170	5.25	4.73	4.20	3.68
53F810	60RE2-24DC	35	17	670	5.45	4.91	4.36	3.82

SPDT—STANDARD COIL

Stk. No.	Type	Max. Cont. VDC	Pick-up (max) VDC	Coil Res. Ohms	1-9	10-49	50-99	100-249
53F774	60RE1-5DC	7.3	3.8	43	4.05	3.65	3.24	2.84
53F801	60RE1-12DC	17	8.2	200	4.05	3.65	3.24	2.84
53F802	60RE1-24DC	37	17	950	4.25	3.83	3.40	2.98

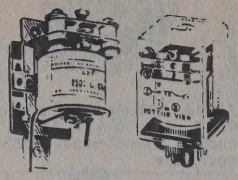
DPDT—SENSITIVE COIL

53F811	60RE2S-5DC	8.5	3.6	42	5.60	5.04	4.48	3.92
53F813	60RE2S-12DC	21	8.8	260	5.60	5.04	4.48	3.92
53F814	60RE2S-24DC	35	14	670	5.70	5.13	4.56	3.99

SIGMA

Sensitive Relays

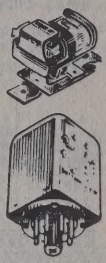
SERIES 48—SPST DC RELAYS



For alarm systems requiring operation from 10 mW. Bridge type contact. Compliant armature. Contact rating: 2 amp; Temp: −4 to +158°F. **48F:** unenclosed, screw mounting, solder terminals, 1 17/64x29/32x1 7/16". Shpg. wt. 3 oz. **48RO:** Plastic dust cover, 8 pin octal plug. 1 23/64 sq. x 2 7/64". UL-CSA listed. Shpg. wt. 4 oz.

Stock No.	Type & Coil Ohms	Pickup Max. mA	Dropout Min. mA	1-49	50-99	100-249	250-499
24F2783	48RO-1000G-SIL	3.2	.32	19.75	18.77	17.78	15.80
24F2784	48RO-2500G-SIL	2.0	.2	19.75	18.77	17.78	15.80

SERIES 41—AC & DC SPDT



Industrial relay. Operates from on-off AC/DC signals. Adjustment S:40 mW; ACS: 2 VA; ACG: 4 VA. Contact rating: ACG, 5 amps at 28 VDC/120 VAC: S, ACS: 2 amps. Temp. range, −67 to +185°F, except plastic covers, to +158°F. All UL/CSA listed **41F, 41FZ:** unenclosed, screw mtg., solder terminals. **41RO. 41ROZ:** aluminum dust cover, 8-pin, **41RO6:** Plastic dust cover, 8-pin. **41R, 41RZ:** Dust cover, 5-pin. Wts: enclosed, 5½ oz; unenclosed, 2½ oz. Pickup power, 200 mW; contact rating 10 amps.

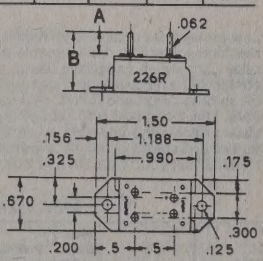
AC TYPES

Stock No	Type & Coil Ohms	Nom. Volts	1-49	50-99	100-249	250-499
24F369	41FZ-5000ACG-BSL	120	13.20	12.54	11.88	10.56
24F2788	41ROZ-5000ACG-BSL	120	20.00	19.00	18.00	16.00

DC TYPES

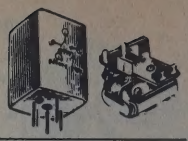
Stock No.	Type & Coil Ohms	Nom. Volts	1-49	50-99	100-249	250-499
24F1714	41F-1000S-SIL	12	14.45	13.73	13.01	11.56
24F2792	41F-5000S-SIL	24	15.05	14.30	13.55	12.04
24F1716	41RO-1000S-SIL	12	21.75	20.67	19.58	17.40
24F2794	41RO-10000S-SIL		23.30	22.14	20.97	18.64
24F2795	41RO6-1000S-SIL	12	20.55	19.53	18.50	16.44
24F2796	41RO6-2500S-SIL		20.55	19.53	18.50	16.44

Solid-State and Hybrid Relays



Dimension	Chassis Mount	PC Mount
A	.315"	.155"
B	.780"	.620"

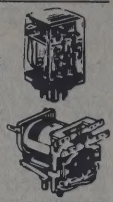
SERIES 5—SPDT DC RELAY



Sensitive type for overload-underload detection. Withstands overloads of 30:1. Contact ratings: S: 1 amp, SS: .25 amp. Temp: S: −40 to +158°F; SS: +50 to 140°F. Wt. 4½ oz. **5R:** dust cover, 5-pin plug. **5RO:** 8-pin. Wt. 5¾ oz.

Stock No.	Type & Coil Ohms	Pickup Max. mA	Dropout Min. mA	1-49	50-74	75-99	100-249
24F1742	5R-10000S-SIL	.70	.25	43.60	41.42	39.24	34.88
24F1743	5R-16000S-SIL	.55	.20	43.60	41.42	39.24	34.88
24F3174	5RO-1000S-SIL	2.3	.80	38.65	36.72	34.79	30.92
53F791	5RO-2500S-SIL	1.4	.50	38.65	36.72	34.79	30.92
24F3177	5RO-10000S-SIL	.70	.25	43.60	41.42	39.24	34.88

SERIES 42—DPDT AC AND DC RELAYS



100 mW fdor 1-billion-operation mechanical life. Adjustment S: 100 mW; G: 200 mW; ACS: .3 VA; ACG: 5 VA. Contact ratings (at 28VDC/120VAC resistive): ACG, G: 5A; ACS. S: 2A. Temp: −67 to +185°F, except plastic covers, to +158°F. UL and CSA listed. **42ROZ:** Plastic dust cover, 8-pin octal plug. **42RO6Z:** Differ in wiring only.

AC TYPES

Stock No.	Type & Coil Ohms	Nom. Volts	1-49	50-99	100-249	250-499
24F2800	42ROZ-50ACG-SIL	12	21.05	20.00	18.95	16.84
24F2802	42ROZ-4000ACG-SIL	120	21.05	20.00	18.95	16.84
24F2049	42RO6Z-4000ACG-SIL	120	21.75	20.67	19.58	17.40
24F2803	42ROZ-7000ACS-SIL	120	26.80	25.46	24.12	21.44

DC TYPES

Stock No.	Type & Coil Ohms	Nom. Volts	1-49	50-99	100-249	250-499
53F799	42RO-50G-SIL	6	21.05	20.00	18.95	16.84
24F2804	42RO-200G-SIL	12				
24F2805	42RO-500G-SIL		21.05	20.00	18.95	16.84
24F2806	42RO-1000G-SIL	24				
24F2807	42RO-2500G-SIL	48				
24F2808	42RO-5000G-SIL		21.75	20.67	19.58	17.40
24F2809	42RO-10000G-SIL		22.50	21.38	20.25	18.00
24F2810	42RO-12000G-SIL		24.40	23.18	21.96	19.52
24F2811	42RO-150S-SIL	6	24.15	22.95	21.74	19.32
24F2812	42RO-500S-SIL	12	24.15	22.95	21.74	19.32
24F2813	42RO-1000S-SIL		24.15	22.95	21.74	19.32
24F2814	42RO-2500S-SIL	24	24.15	22.95	21.74	19.32
24F2815	42RO-5000S-SIL		25.40	24.13	22.86	20.32
58F819	42RO6-50G-SIL	6				
24F2041	42RO6-500G-SIL					
24F2010	42RO6-1000G-SIL	24	21.05	20.00	18.95	16.84
24F2043	42RO6-2500G-SIL	48				
24F2011	42RO6-5000G-SIL	12	21.75	20.67	19.58	17.40
24F2817	42RO6-1000S-SIL		24.15	22.95	21.74	19.32
24F3179	42RO6-2500S-SIL	24	24.15	22.95	21.74	19.32

SERIES 226 SOLID-STATE RELAYS

Handle loads from 50 mA to 7 A. Unit is encapsulated internally and cover is ultrasonically sealed. With integral heat sink for mating with std. TO-3 style transistor heat sinks for increased current handling capacity. By itself, integral heat sink permits 1½ amps of continuous load current. Connections can be made via standard slip-on connectors or the unit can be inverted and inserted directly into a PC board for wave soldering. Termination pins are on standard 0.1" grid pin spacing and are polarized to prevent reverse plug-in. 15 mA max. input requirement makes unit compatible with standard TTL gates. High sensitivity, coupled with 2,500V rms and 10^{12} ohms isolation ratings, make it an ideal output device when going from low level logic to line voltage loads.

Push-On Connector Terminals		Printed Circuit Terminals		OUTPUT VOLTAGE INPUT	Nominal Line Vrms	Repetitive Peak Blocking					
Stk. No.	Type	Stk. No.	Type	VDC	(50/60Hz)	Vpk (DC)	1-9	10-49	50-99	100-249	250-499
27F1150	226R1-5A1	**27F1152**	226RE1-5A1	5	120	±200	8.40	7.56	6.72	5.88	5.46
27F1153	226R1-12A1	**27F1156**	226RE1-12A1	12	120	±200	8.40	7.56	6.72	5.88	5.46
27F1157	226R2-5A1	**27F1154**	226RF2-5A1	5	240	±400	9.60	8.64	7.68	6.72	6.24
27F1155	226R2-12A1	**27F1151**	226RE2-12A1	12	240	±400	9.60	8.64	7.68	6.72	6.24
23F5600	226R4-5A1	**23F5608**	226RE4-5A1	5	120	±300	9.00	8.10	7.20	6.30	5.85
23F5601	226R4-12A1	**23F5609**	226RE4-12A1	12	120	±300	9.00	8.10	7.20	6.30	5.85
23F5604	226R6-5A1	**23F5612**	226RE6-5A1	5	240	±600	11.40	10.26	9.12	7.98	7.41
23F5606	226R7-5A1	**23F5614**	226RE7-5A1	5	120-240	±400	9.60	8.64	7.68	6.72	6.24

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For convenience, place one purchase order to NEWARK.

PRICES SUBJECT TO CHANGE. SEE PAGE

Photo-Electric & Opto Isolator Components SIGMA

SERIES 8

Photocontrols operate on a light beam interruption. Available in models with an integral output relay in Receiver or with an amplifier and output relay remote from receiving head.

- **NEMA Type 1 housings.**
- **Plug-in and conduit mountings available.**
- **Easily replaceable lamps.**
- **Operating distances up to 25 feet.**

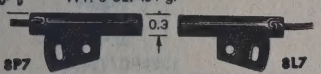
for model 8RCO1A only.

Plastic Shield for 8RC02A

8RC01A, 8RC02A
5 pin plug
WT: 3 oz. (64 g)

CSA certified
File LR20954

UL recognized
File E36169



8P7 #22 AWG leads. 12" long WT: 0.3 oz. (8.4 g)

8L7

Receivers and Amplifiers

- Expected electrical life (operations at rated load): 200,000 for 8P3 and 8P5; 1,000,000 for 8RC01A and 8RC02A.
- Temperature range: 8RC01A, 8RC02A; −40°C to +60°C. All others: 0°C to +50°C.

Specifications

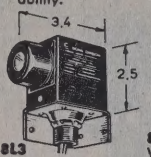
- Power consumption: 8P3, 8P5—2.5 VA; 8RC01A, 8RC02A—0.7 VA; 8A, 8A3 with 8L4—7.5 VA; 8A, 8A3 with 8L7—5.0 VA.
- Time Delay (Model 8A3 amplifier): 50 msecs to 20 seconds: ±10% repeatability.

Light Sources

- Lamp life 8L3—10,000 hours; 8L4—4,000 hours @ 5.5 V; 40,000 hours @ 4.5 V; 8L7—4,000 hours.
- Power consumption: 8L3—6VA; 8L4, 8L7—see 8A and 8A3.
- Temperature range: 0°C to +50°C.

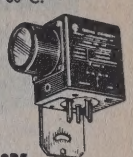
Mechanical Data

8L4 DEPTH: 1.6 (41.0) #18 AWG leads, 10" **8P4**



8L3 DATA SAME AS FOR 8P3 long WT: 2.8 oz. (78.4 g)

8P3 Width: 1.9 (48.0) ½" CONDUIT #18 AWG Leads. 19" long WT: 13 oz. (364 g)



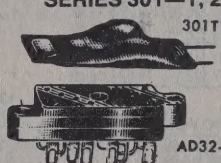
8P5 DIMENSIONS SAME AS FOR 8P3 8-pin plug. WT: 9 oz. (252 g)

Ordering Information

Stock No.	Type	Contacts	Contact Rating (amps)	Operations Per Minute (max.)	Operating Distance (max.)	Line Voltage (VAC)	Term. Style	Use With Light Source	1-49	50-99	100-249	250-499
RECEIVERS WITH BUILT-IN OUTPUT RELAY												
24F427	8P3-115	SPDT	10	600	12 Ft.	.....	wire leads	8L3	63.55	60.38	57.20	50.84
24F1719	8RC01A	SPDT	3	120	12 ft.	.....	5 pin plug	8L3	53.20	50.54	47.88	42.56
24F1720	8RC02A	SPDT	3	120	12 ft.	.....	5 pin plug	8L3	53.20	50.54	47.88	42.56
RECEIVERS WITHOUT AMPLIFIER												
24F431	8P7	....	Use 8A or 8A3 amplifier	600	12 in	.....	wire leads	8L7	42.35	40.24	38.12	33.88
24F433	8P4	....		600	25 ft.	.....	wire leads	8L4	46.50	44.18	41.85	37.20
LIGHT SOURCES												
24F430	8L3-115	....	....	...	12 ft.	115 from	wire leads	...	46.50	44.18	41.85	37.20
24F434	8L4	....	....	...	25 ft.	8A or 8A3	wire leads	...	40.70	38.67	36.63	32.56
24F432	8L7	....	....	...	12 in.	amplifier	wire leads	...	30.65	29.12	27.59	24.52

Stock No.	Type No. after "R" ind. no. of poles	Input Characteristics Lamp: Voltage	Input Characteristics Lamp: Current (milliamperes)	Output Characteristics —Photocell (at 25°C): On Resistance, R_L (ohms, max.)	Output Characteristics —Photocell (at 25°C): Voltage Rating (DC or AC peak)	Output Characteristics —Photocell (at 25°C): Power Dissipation, Each Cell (mW)	1-49	50-74	75-99	100-249
24F1589	301R1-12	12	19	500	250	500				
24F1590	301R1-24	24	40	200	250	175	6.45	6.13	5.81	5.16
24F1591	301R1-150	150	2	500	250	500				
24F1593	301R2-12	12	19	500	250	400				
24F1594	301R2-24	24	40	200	250	175	10.20	9.69	9.18	8.16
24F1595	301R2-150	150	2	500	250	400				
24F1598	301R4-24	24	40	500	250	75	13.20	12.54	11.88	10.56
24F1599	AD32-1	Socket for solder Term. mounting					1.60	1.52	1.44	1.28
45F347	AD58-1	PC Board Socket					1.60	1.52	1.44	1.28
							1-9	10-49	50-99	100-249
45F344	301T1-6B1	6	50	400	250	400	2.55	2.30	2.04	1.79
45F345	301T1-12B1	12	24	400	250	400	2.55	2.30	2.04	1.79
24F3045	301T1-120A1	120	1.3	1200	250	400	2.75	2.48	2.20	1.93

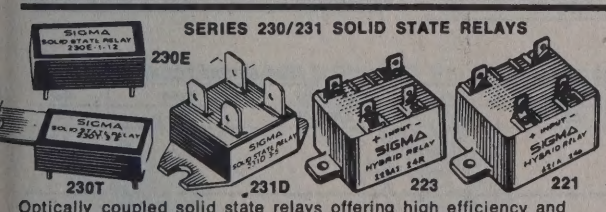
SERIES 301—1, 2 and 4 POLE



301R1, 2, 4

Opto-isolators feature solid state construction, 1000 Vrms min. isolation between output and input circuits. Signal applied to the input is coupled by means of light to one, two or four mutually isolated photoconductive cells. Suitable for AC/DC input/output. Cell has 300mW dissipation capability. Visual on/off state indication in plug-in models. High reliability switching functions include logic circuits, data sampling, audio switching and data processing. Other applications: noiseless audio level control, tremolo circuits, RC oscillator tuning. Temp.: −40°C to +50°C.

SERIES 230/231 SOLID STATE RELAYS



230E 230T 231D 223 221

Optically coupled solid state relays offering high efficiency and reliability with Zero Angle Firing. Unlike other ZAF types which have high leakage (1 to 5 mA), the 230/231 feature leakage less than 100 μA. Units handle 1 cycle surges of 50 amps and 2 minute overloads of 100%. Isolation Input/Output: 4000 VAC. Operating Temperature Range: 0°C to +115°C. UL and CSA pending.

Stock No.	Type Number	Input Volts	Output Amps	Output VAC	Net
30F1327	230E1-5	5	1.5	120	10.10
30F1328	230E1-12	12	1.5	120	10.10
30F1329	230E2-5	5	1.5	240	11.15
30F1330	230E2-12	12	1.5	240	11.15
30F1331	230T3-5	5	5.0	120	11.15
30F1332	230T3-12	12	5.0	120	11.15
30F1333	230T4-5	5	5.0	240	12.15
30F1335	231D3-5	5	5.0	120	11.15
30F1336	231D3-12	12	5.0	120	11.15
30F1337	231D4-5	5	5.0	240	12.15
30F1338	231D4-12	12	5.0	240	12.15

SERIES 221 HYBRID RELAYS

For photocopy equipment, process controls, instrumentation. Uses reed relay to sense and provide gating to an AC semiconductor. Compatible with TTL logic; used to switch inductive, capacitive, tungsten or resistive loads. Operate time, 2 msec. max., 60 Hz. Release time, 9 msec. max. 60 Hz. Dielectric strength, between all insulated points, 1500 VAC rms. *Output, 120 VAC; †Output, 240, VAC.

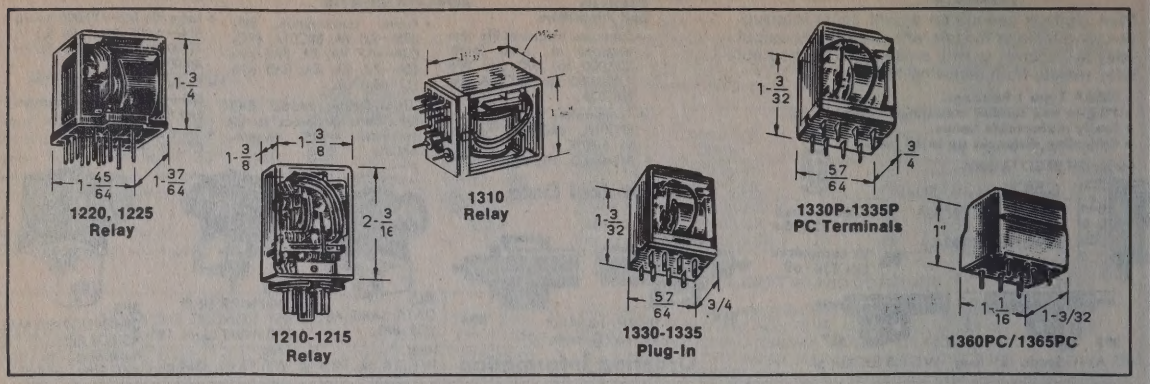
Stock No.	Mfr's. Type & Input VDC	Output Amps	Input Impeds Ohms	1-9	10-49	50-99	100-249
53F861	221A-1-5D*	4	525	16.10	14.49	12.88	11.27
53F864	221A-1-24D*	4	2150	15.25	13.73	12.20	10.68
53F869	221A-3-5D*	10	525	18.40	16.56	14.72	12.88

SERIES 223 SOLID-STATE RELAYS

For use in vending machines, process controls, machine tools. Isolates power input from low level control circuits. Utilizes an optical coupler to control an AC semiconductor. Can be operated from either AC or DC sources. Operate time, 60 Hz, 50 milliseconds. Release time, 60 Hz, 50 milliseconds. Dielectric strength, between all insulated points, 1000 VAC rms. Output, 120 VAC.

Stock No.	Mfr's. Type & Input VDC/AVC	Output Amps	Input mA	1-9	10-49	50-99	100-249
53F880	223A-3-12	10	24	17.50	15.75	14.00	12.25
53F883	223A-1-120	4	1.3	15.25	13.73	12.20	10.68
53F884	223A-3-120	10	1.3	17.50	15.75	14.00	12.25

Enclosed and Heavy Duty Relays



8

ENCLOSED PLUG-IN 10 AMP RELAY

- **Transparent-Lightweight Case**
- **UL Listed**
- **Resistant to 200° F**

Enclosed in a transparent, lightweight Lexan case, resistant to temp. of 200° F. 8 pin octal plug for DPDT and 11 pin for 3PDT. Rated for 10 amps @ 60 Hz, 120 VAC, non-inductive load. U.L. Recognized. Size: 2 9/16" x 1 3/8" x 1 3/8".

TYPE 1210-AC VOLTS

Stock No.	Type	Cont. Cmb.	1-24	25-49	50-99
24F117	1210-2C-24A	DPDT	16.09	15.29	14.49
24F119	1210-2C-120A	DPDT	16.09	15.29	14.49
24F120	1210-3C-120A	3PDT	19.87	18.88	17.89
24F2457	1210-2C-240A	DPDT	17.34	16.48	15.61
24F2458	1210-3C-240A	3PDT	20.54	19.52	18.49

TYPE 1215-DC VOLTS

24F121	1215-2C-6D	DPDT	16.09	15.29	14.49
24F2459	1215-2C-12D	DPDT	16.09	15.29	14.49
24F123	1215-2C-24D	DPDT	16.09	15.29	14.49

TYPE 1210N

Neon lamp lights when coil is energized or indicates circuit fault when lamp is dark. 10 A @ 120 VAC. Coil Res.: 1110 ohms.

Stock No.	Type 1210N-	Cont. Comb.	1-24	25-49	50-99
24F191	2C-120A	DPDT	19.45	18.48	17.51
24F192	3C-120A	3PDT	23.07	21.92	20.77

1220-AC AND 1225-DC 10 AMP RELAYS

Features "UNI—GARD" continuous loop moving blades; AMP Faston 110 Series quick connect or socket plug-in. 1220 Relay comes complete with mtg. bracket. U/L recognized.

Stock No.	Type	Coil Volt	1-24	25-49	50-99
62F1883	1220-2C-120A	120AC	12.88	12.24	11.60
62F1887	1220-3C-120A	120AC	14.69	13.96	13.23
67F5693	1225-2C-12D	12DC	11.80	11.21	10.62
67F5695	1225-2C-110D	110DC	13.25	12.59	11.93
67F5697	1225-3C-110D	110DC	15.07	14.32	13.57

1220 SOCKETS

U/L component recognized when used with Guardian Relays. **SOC-2,** 1 31/32" high; 1 5/16" wide; 1/2" thick.

Stock No.	Type	1-24	25-49	50-99
24F3470	1220-SOC-1	2.59	2.47	2.34
24F3471	1220-SOC-2	2.59	2.47	2.34

MINIATURE 5 AMP RELAY

1310 AC, 1315 DC. Contact; 4PDT rated @ 120 VAC or 30 VDC resistive. Power req. 1.2 volt amp. @ nom. voltage for AC, 0.9 watts for DC. Temp. range: −45° C to 70° C. Shpg. wt. 1 1/8 oz.

Stock No.	Type	Coil Volt	1-24	25-49	50-99
81F2516	1310S-4C	24AC	7.69	7.31	6.93
81F2517	1310S-4C	120AC	8.05	7.65	7.25
81F2518	1315S-4C	12DC	7.78	7.40	7.01
81F2519	1315S-4C	24DC	7.78	7.40	7.01
81F2520	1315S-4C	110DC	8.49	8.07	7.65

PRINTED CIRCUIT RELAYS

1310P AC, 1315P DC. Rated at 5 amp at 30 VDC or 115 VAC. Wt. 1 1/8 oz.

Stock No.	Type	Coil Volt	1-24	25-49	50-99
81F2521	1310PS-4C	120AC	8.19	7.79	7.38
81F2522	1315PS-4C	12DC	7.92	7.53	7.13
81F2523	1315PS-4C	24DC	7.92	7.53	7.13

1310 SERIES SOCKETS

Panel cutout for socket should measure 1.015" x .858" with .025" radii at all four corners.

Stock No.	Type	NET
24F3472	1310-1ST	1.60
24F3473	1310-2PC	1.60

1330 SERIES SOCKETS

Stock No.	Type	Net
67F5638	1330-1ST	.94

MINIATURE ENCLOSED RELAYS

Model 1330 & 1335 Plug. 1330P & 1335P are Printed Circuit, DPDT. Rated: 5 A @ 30VDC or 120 VAC. Heat resistant Lexan cover. For business, photocopy, computers and appliances. Wt. 3/4 oz.

Stock No.	Type	Coil Volt.	1-24	25-49	50-99
67F5624	1330-2C-6A	6A	5.97	5.68	5.38
67F5626	1330-2C-24A	24AC	5.97	5.68	5.38
67F5627	1330-2C-120A	120AC	6.10	5.80	5.49
67F5629	1335-2C-12D	12DC	5.82	5.53	5.24
67F5630	1335-2C-24D	24DC	5.82	5.53	5.24
67F5633	1330P-2C-24A	24AC	6.03	5.73	5.43
67F5634	1330P-2C-120A	120AC	6.16	5.86	5.55
67F5635	1335P-2C-6D	6DC	5.88	5.59	5.30
67F5637	1335P-2C-24D	24DC	5.88	5.59	5.30

1360PC/1365PC DPDT SWITCHING

For low power solid state circuitry .060" dia. terms. on .1" grid spacing. Solders on PC brd. or use mating socket. 1 W. 3500Ω res. 5 amp. res. 120 VAC 60 Hz. **1360 SOCKET.** Solder to PC board or snap thru underside of chassis. Cutout should measure 1.265" x 1.078".

Stock No.	Type	Coil Volt	1-24	25-49	50-99
67F5641	1360PC-2C-120A	120AC	11.16	10.61	10.05
67F5643	1365PC-2C-12D	12DC	9.79	9.31	8.82
67F5644	1365PC-2C-24D	24DC	9.79	9.31	9.82

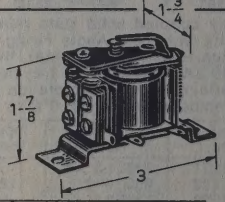
1360 SERIES SOCKETS

Stock No.	Type	Net
67F5645	1360-1	1.41

TYPE 220 HEAVY DUTY INDUSTRIAL AC RELAY

- **20 Amp**
- **SPST-NO**
- **Silver Alloy Contacts**

Rugged relay makes and breaks up to 20 amperes @ 240 volts. Armature equipped with Phenolic contact mounting block carrying 5/16" dual contacts. Phenolic tested at 1500 volts break-down to ground. Contact rating at 60 cycles, 20 amps, 240 V non-inductive load. Size 3" x 1 7/8 x 1 3/4". Shpg. wt. 5.5 oz.



Stock No.	Type	Volts	1-24	25-49	50-99
24F052	220-A-24A	24	21.57	20.50	19.42
24F053	220-A-120A	120	21.57	20.50	19.42

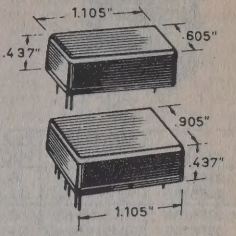
Relay Steppers

GUARDIAN

SERIES 1475 LOW PROFILE ELECTROMECHANICAL RELAY

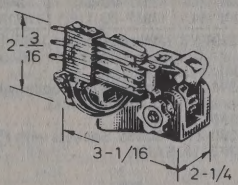
Stock No.	Type	Coil VDC	Coil Res.	Cont. Comb.	1-24	25-49
67F5646	1475-1C-6D	6	70	SPDT	4.58	4.36
67F5648	1475-1C-12D	12	288	SPDT	4.58	4.36
67F5650	1475-1C-24D	24	1152	SPDT	4.77	4.54
24F214	1475-2C-5D	5	41.6	DPDT	6.43	6.11
67F5647	1475-2C-6D	6	60	DPDT	6.43	6.11
67F5649	1475-2C-12D	12	240	DPDT	6.43	6.11
67F5651	1475-2C-24D	24	960	DPDT	6.62	6.29

Designed for high density packaging. Sealed thermoset housing and cover construction. Contacts rated 5 amps at 6 and 12 VDC; 3 amps at 24 and 28 VDC; 5 amps at 6, 12 & 24 VAC; 1.5 amps at 120 VAC. (AC loads are resistive.) Mechanical life in excess of 10^7 operations. Wt. 10 grams SPDT; 14 grams DPDT.

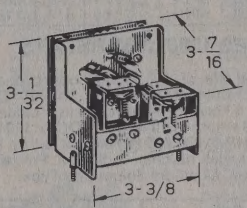


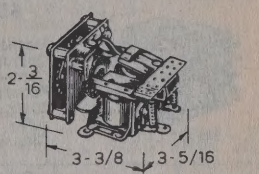
SEQUENCE RELAY

For on/off control of lighting, motors, appliances and speaker applications, among others. Each impulse (up to 10 steps per second) reverses contacts. Contacts rated 12½ amps. 120V, 60 Hz. Size: $3\frac{1}{16}$x$2\frac{1}{4}$x$2\frac{3}{16}$. Shpg. wt., 7.5 oz.



ELECTRICAL RESET STEP RELAY





TYPE PER. Resets when coil is energized. Coil, 120 VAC; 35W (step.) 7 W (reset). 40 points. 36 contacts. Sz. 3x$3\frac{3}{8}$x$3\frac{9}{16}$. **TYPE MER.** Positive acting interlock, actuated by magnet. Coil, 120 VAC. 20W step, 7W reset. 24 pts. 22 conts. Wt. 11.5 oz.

Stk. No.	Type and AC Volts	VA	1-24	25-49	50-99
24F766	PER/40-120A	60-10	86.05	81.75	77.45
24F865	MER-120A	40-10	55.70	52.92	50.13

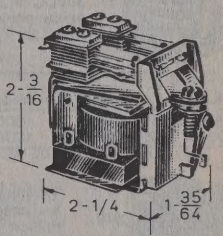
TYPE 660 — AC VOLTS

Stock No.	Type	Cont. Comb.	Volts	1-24	25-49	50-99
24F2437	660-C-24A	SPDT	24	21.96	20.87	19.77
24F193	660-C-120A	SPDT	120	21.96	20.87	19.77
24F2438	660-2C-24A	DPDT	24	23.71	22.53	21.34
24F194	660-2C-120A	DPDT	120	23.71	22.53	21.34
24F2439	660-4C-24A	4PDT	24	34.52	32.80	31.07
24F2440	660-4C-120A	4PDT	120	34.52	32.80	31.07

SERIES 840LS (AC) & 845LS (DC) ON/OFF RELAY STEPPERS

Single Coil Impulse Operated Mechanical Latching Relay Stepper

SPDT, DPDT or 4DPT contact combinations. Impulse as short as 20 ms energizes the coil to reverse position of switches. Contacts: 10 amp, at 120VAC, 60 Hz non-inductive. Power requirement: 8.2 voltamps. Shipping wt.: 5.2 oz.

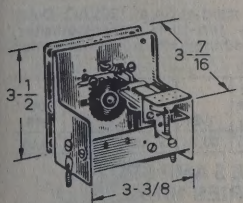


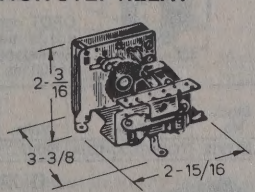
Stk. No.	Type	Coil Voltage	Cont. Comb.	1-24	25-49	50-99
67F5670	840LS-C-24A	24AC	SPDT	17.36	16.50	15.63
67F5671	840LS-2C-24A	24AC	DPDT	20.92	19.88	18.83
67F5673	840LS-C-120A	120AC	SPDT	17.36	16.50	15.63
67F5674	840LS-2C-120A	120AC	DPDT	20.92	19.88	18.83
67F5675	840LS-4C-120A	120AC	4PDT	30.51	28.99	27.46
67F5676	845LS-C-12D	12DC	SPDT	17.36	16.50	15.63
67F5677	845LS-2C-12D	12DC	DPDT	20.92	19.88	18.83
67F5678	845LS-4C-12D	12DC	4PDT	30.51	28.99	27.46
67F5680	845LS-2C-24D	24DC	DPDT	20.92	19.88	18.83

SUBMINIATURE 1 AMP DPDT ENCLOSED RELAY

Stk. No.	Type	Coil VDC	Coil Res.	1-24	25-49	50-99	100-249
81F2495	1495S-2C-3D	3	17	5.66	5.38	5.10	4.25
81F2496	1495S-2C-5D	5	45	5.66	5.38	5.10	4.25
81F2497	1495S-2C-6D	6	66	5.66	5.38	5.10	4.25
81F2498	1495S-2C-12D	12	280	5.66	5.38	5.10	4.25
81F2499	1495S-2C-24D	24	1070	5.95	5.66	5.36	4.47

CONTINUOUS ROTATION STEP RELAY



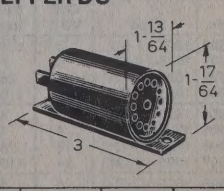


TYPE PC. Oilite shaft bearings. Life, 4,000,000 steps; oper. @ 15% below or 10% above volt. Coil 120VAC, 20W. 40 pts. & active contacts. Sz. $3\frac{3}{8}$x3x$3\frac{9}{16}$. **TYPE MC.** Smaller rotation like PC. Life, 2,000,000 steps. 24 pts. & con. 120VAC, 17W.

Stk. No.	Type and AC Volts	VA	1-24	25-49	50-99
24F762	PC-120A	35	65.41	62.14	58.87
24F764	MC-120A	30	48.40	45.98	43.56

ROTOMITE STEPPER DC

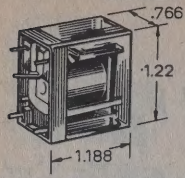
Continuous rotation on 12 position to 20 steps per. sec. Stepping mechanism, coils & contacts metal enclosed. 3 amps resistive, 1 amp inductive (50% P.F.) Over 1,000,000 operations. For bus. machines, lighting, counting, sorting, & computer circ. L.3" x D.$\frac{3}{16}$". 5 oz.



Stk. No.	Type	VDC	1-24	25-49	50-99
24F126	705-12P-12D	12	32.13	30.53	28.92
24F127	705-12P-24D	24			

Mechanical and Time Delay Relays

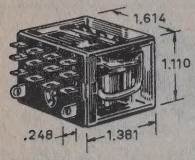
SERIES 1345, 10 AMP RELAY



Occupies just over one cubic inch. Is designed for long life at a low price. Contact rating: 10A resistive at 12 VDC, 7A res.—6A inductive at 30 VDC, 3.5A res.—2.5A ind. at 120 VAC. SPST in your choice of NO or NC contacts, or SPDT. Heat resistant nylon cover. UL recognized under Component Program.

Stk. No.	Type	Coil VDC	Coil Res.	Action	1-24	25-49	50-99
23F5100	1345-1A-6D	6	350	SPST-NO	2.87	2.73	2.58
23F5101	1345-1A-12D	12	1400	SPST-NO	2.87	2.73	2.58
23F5103	1345-1B-6D	6	350	SPST-NC	2.87	2.73	2.58
23F5105	1345-1B-24D	24	5600	SPST-NC	3.11	2.95	2.80
23F5106	1345-1C-6D	6	350	SPDT	3.24	3.08	2.92
23F5107	1345-1C-12D	12	1400	SPDT	3.24	3.08	2.92
23F5108	1345-1C-24D	24	5600	SPDT	3.53	3.35	3.18

SERIES 1380-1385 RELAYS



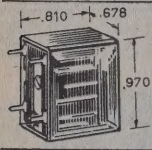
Mechanical life of 100 million operations. Operating temp. range −45° to +70°C. Contacts: 4 Form C, Silver cadmium oxide. Rated at 13 amps resistive @ 30 VDC, or 120 V 60 Hz, 1/3 HP @ 120 V 60 Hz. Weight: 2.5 oz. P suffix to serial number indicates Printed Circuit Type. All others Solder Lug Type.

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
28F1322	1380-4C-24A	24AC	80	11.59	11.01	10.43	8.69
28F1323	1380-4C-120A	120AC	2500	12.12	11.51	10.91	9.09
28F1325	1385-4C-12D	12DC	100	10.69	10.16	9.62	8.02

SOCKETS FOR 1380-1385 RELAYS

Stock No.	Type	Terminals	1-99	100-Up
29F3050	1380-1ST	Solder LUG	1.98	1.88
29F3052	1380-5SM	Screw Mount	5.67	5.39

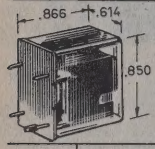
SERIES 1565 RELAY



Terminals mount directly to PC board. Electrical life of 200,000 operations at rated load of 3 Amps at 30VDC or 250VAC, 60 Hz, resistive. Silver Cadmium oxide contacts are SPST-NO for Type 1565-1A, SPDT for Type 1565-1C. Molded Nylon dust cover.

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
28F1578	1565-1A-12D	12DC	180	2.40	2.28	2.16	1.80
28F1582	1565-1C-12D	12DC	180	2.56	2.43	2.30	1.92

SERIES 1575 RELAY



Terminals mount directly to PC board. Cover and base are sealed together. Mechanical life of 1 million operations. Electrical life of 100,000 operations at rated load of 3 Amps at 30VDC or 120VAC resistive. Contacts are Silver Cadmium oxide flashed with Gold. SPDT.

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
28F1584	1575-1C-6D	6DC	100	2.23	2.12	2.01	1.67
28F1585	1575-1C-12D	12DC	400	2.23	2.12	2.01	1.67
28F1586	1575-1C-24D	24DC	1600	2.36	2.24	2.12	1.77

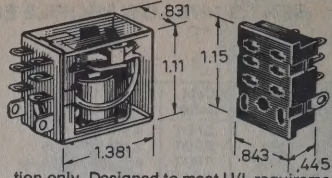
MINIATURE 10 AMP SINGLE POLE—SERIES 1625

Small but sturdy. Ideal where PC board space is limited. Contacts rated 10A at 28VDC or 240VAC resistive, ⅓ HP at 120VAC. Expected mechanical life: 100 million operations. Electrical life: 100,000 operations minimum at rated load. Termination: Printed circuit. Weight: 15 g. L-1.157"—W-0.5"—H-1.1.101".

MINIATURE 10 AMP SINGLE POLE

Stk. No.	Type	Coil VDC	Coil Res.	Action	1-24	25-49	50-99	100 249
81F2500	1625-1A-5D	5	48	SPST-NO	2.90	2.76	2.61	2.18
81F2501	1625-1A-6D	6	75	SPST-NO	2.90	2.76	2.61	2.18
81F2502	1625-1A-12D	12	280	SPST-NO	2.90	2.76	2.61	2.18
81F2503	1625-1A-24D	24	1100	SPST-NO	3.01	2.86	2.71	2.26
81F2504	1625-1B-5D	5	48	SPST-NC	2.90	2.76	2.61	2.18
81F2505	1625-1B-6D	6	75	SPST-NC	2.90	2.76	2.61	2.18
81F2506	1625-1B-12D	12	280	SPST-NC	2.90	2.76	2.61	2.18
81F2507	1625-1B-24D	24	1100	SPST-NC	3.01	2.86	2.71	2.26
81F2508	1625-1C-5D	5	48	SPDT	3.08	2.93	2.78	2.31
81F2507	1625-1C-6D	6	75	SPDT	3.08	2.93	2.78	2.31
81F2510	1625-1C-12D	12	280	SPDT	3.08	2.93	2.78	2.31
81F2511	1625-1C-24D	24	1100	SPDT	3.18	3.03	2.87	2.39

SERIES 1390-1395, DPDT, 13 AMP RELAY



Rated for mechanical life of 100 million operations, and 100,000 operations minimum at rated loads. Occupies approximately 1.25 cubic inches. Contacts rated at 13 A at 28VDC or 130VAC resistive; 7.5 A at 120VAC inductive: ⅛ hp at 120VAC. Heat resistant lexan cover. DPDT configuration only. Designed to meet U/L requirements. Weight: 1.25 oz. P suffix to serial number indicates Printed Circuit Type. All others Solder Lug Type.

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5110	1390-2C-24A	24AC	160	6.78	6.44	6.10	5.09
23F5111	1390-2C-120A	120AC	3900	7.16	6.80	6.44	5.37
23F5113	1395-2C-12D	12DC	160	6.55	6.22	5.90	4.91
23F5114	1395-2C-24D	24DC	650	6.55	6.22	5.90	4.91
28F1344	1395P-2C-12D	12DC	160	6.66	6.33	5.99	5.00
28F1345	1395P-2C-24D	24DC	650	6.66	6.33	5.99	5.00
28F1347	1395P-2C-110D	110DSC	11,000	7.61	7.23	6.85	5.71

SERIES 1390 sockets for 1390-1395 relays. Requires panel cutout 0.858" x 1.015" with .025" radi at all four corners. Chassis thickness of .031" to .062" recommended.

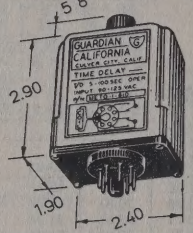
1390-1 ST Series relay socket with solder terminal lugs that accept AMP Series .187 quick connects.

23F5117. EACH ..... .85

1390-2 PC Series. Sockets with PC terminals.

23F5118. EACH ..... .85

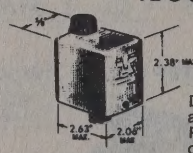
MET SERIES—TIME DELAY ON OPERATE OR RELEASE



Provide a time delay range of .5 to 300 seconds. DPDT contacts rated at 10 A resistive load at 120 VAC, 50-60 Hz. Accuracy: ±10% of nominal setting over oper. and voltage range, with repeatability of 1%. Operating temperature range: 0 to 55°C. 0 in type number indicates delay on operate, R indicates delay on release.

Stk. No.	Type	Oper. Volts	Delay Range (Sec.)	1-9	10-24
23F5119	MET-O-100-24A	24VAC	.5-100	28.84	27.40
23F5120	MET-O-300-24A	24VAC	100-300	30.06	28.55
23F5121	MET-O-015-120A	120VAC	.5-15	28.09	26.69
23F5122	MET-O-100-120A	120VAC	.5-100	28.84	27.40
23F5123	MET-O-300-120A	120VAC	100-300	30.06	28.55
23F5125	MET-O-100-24D	24VDC	.5-100	28.09	26.69
23F5126	MET-O-300-24D	24VDC	100-300	29.19	27.73
23F5127	MET-R-100-24A	24VAC	.5-100	38.90	36.96
23F5129	MET-R-015-120A	120VAC	.5-15	38.19	36.28
23F5130	MET-R-100-120A	120VAC	.5-100	38.90	36.96
23F5131	MET-R-300-120A	120VAC	100-300	39.95	37.95
23F5132	MET-R-015-24D	24VDC	.5-15	37.68	35.80
23F5133	MET-R-100-24D	24VDC	.5-100	38.23	36.32

TDO SERIES TIME DELAY



- **Economical**
- **Versatile**
- **Repeatability within 5%**

DPDT contacts rated at 5A at 120VAC. Delay adjustment by ten-turn potentiometer. Repeatability is within 5% after a line interruption of 100 ms.

Stock No.	Type	Volts	Delay Range (Sec.)	1-24	25-49	50-99	100-249
62F1912	TDO62C30-120A	120VAC	5 to 30	30.73	27.66	26.12	23.05

DURABLE 5 AMP SPDT—SERIES 1675

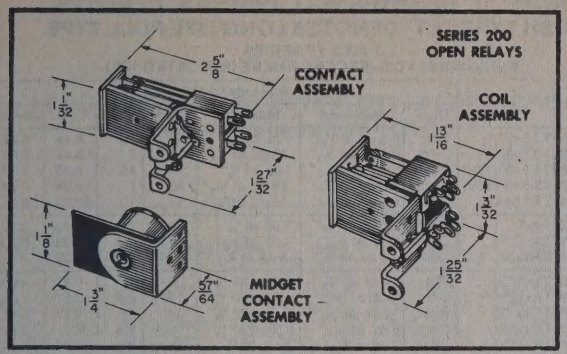
Rugged polycarbonate case for long life. Contacts rated 5A at 30VDC or 120VAC resistive; 1/10 HP at 120VAC. Expected mechanical life: 20 million operations. Electrical life: 100,000 operations at rated load. Termination: Printed circuit. Weight: 8 g. L-0.831"—W-0.642"—H-0.547".

DURABLE 5 AMP SPDT — MODEL 1675

81F2512	1675-1C-5D	5	56	SPDT	3.08	2.93	2.78	2.31
81F2513	1675-1C-6D	6	80	SPDT	3.08	2.93	2.78	2.31
81F2514	1675-1C-12D	12	320	SPDT	3.08	2.93	2.78	2.31
81F2515	1675-1C-24D	24	1280	SPDT	3.17	3.02	2.86	2.38

Open Relays

GUARDIAN



Coil consists of coil and field piece. Contact assembly consists of blades, armature, spring & bracket. Midget Contact Assembly interchangeable with Series 200. Available with SPDT, DPDT or 4PDT switch assembly. Use with any AC or DC coil.

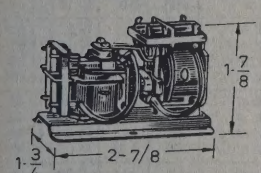
SERIES 200 RELAY

Stk. No.	Type	Volts	1-24	25-49	50-99
24F810	200-6A	6AC	5.41	5.14	4.87
24F811	200-12A	12AC	5.41	5.14	4.87
24F812	200-24A	24AC	5.41	5.14	4.87
24F813	200-120A	120AC	6.33	6.01	5.70
24F814	200-240A	240AC	8.36	7.94	7.52
24F821	200-12D	12DC	5.86	5.57	5.27
24F822	200-24D	24DC	5.86	5.57	5.27
24F824	200-110D	110DC	7.76	7.37	6.98

CONTACT SWITCH ASSEMBLIES

Stock No.	Type	Cont. Amps.	Cont. Comb.	1-24	25-49	50-99
24F800	200-1	8	SPDT	4.97	4.72	4.47
24F801	200-2	8	DPDT	6.51	6.18	5.86
24F802	200-4	12.5	DPDT	7.32	6.95	6.59
24F805	200-5	8	4PDT	11.46	10.89	10.31
24F803	200-M1	10	SPDT	4.68	4.45	4.21
24F804	200-M2	10	DPDT	5.72	5.43	5.15
24F806	200-M5	8	4PDT	9.28	8.82	8.35

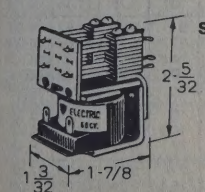
INTERLOCKING RELAY SERIES 1200/1200



Two interlocking AC relays in sturdy metal frame bracket. Used to maintain circuits without coil power consumption. Electrically pulse operated with mechanical hold and electrical release. Rated for 10 amps @ 60 Hz, 12VAC, non-inductive load. Coil resistance is 1,100 ohms. Shpg. wt., 5.5 oz.

Stock No.	Type	Cont. Comb.	1-24	25-49	50-99
24F868	1200/1200-4C-120A	4PDT	31.64	30.08	28.48

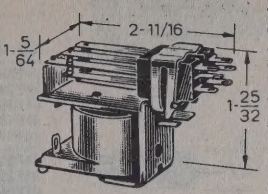
SERIES 640U—10 AMPERE



All purpose economy relay. Capable of unusually heavy power control for its size. All are AC with selection of contact combinations. Contacts ratings at 60 Hz. 120V non-inductive load. 8/32 single screw, ctr. hole mtg. Shpg. wt., 3.5 oz. U/L recognized.

Stock No.	Type 640U-	Coil Res.	VAC	Cont. Comb.	1-24	25-49	50-99
24F009	C-120A	550	120	SPDT	7.77	7.38	6.99
24F010	2C-120A	550	120	DPDT	10.42	9.90	9.38
24F011	4C-120A	550	120	4PDT	14.57	13.84	13.11
24F012	2C-240A	2950	240	DPDT	10.50	9.98	9.45

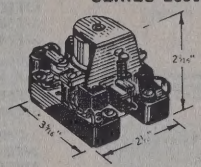
900-905/910-915 DPDT 10 AMP RELAYS



Number of parts and assembly time reduced by 50%. Eliminates cold flow while maintaining accurate adjustments. 1-piece switch mounting clip and return spring. Resistive load 120 VAC. Single screw mounting. Unitary field and core, no gap between core and field piece. Contacts: DPDT can control up to 10 amps. Mechanical life in excess of 1,000,000 operations. Size 2 1/16" x 1 23/32" x 1 5/64". Shipping Weight: 6 oz. U/L recognized, CSA approved.

Stock No.	Type & Coil Volts	Stock No.	Type & Coil Volts	1-24	25-Up
62F1875	900-2C-24VAC	24F2444	910-2C-24AC		
62F1876	900-2C-120VAC	24F2445	910-2C-120AC		
62F1879	905-2C-12VD	24F2448	915-2C-12DC	8.75	8.31
62F1880	905-2C-24VDC	24F2449	915-2C-24DC		

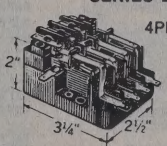
SERIES 2600/2620 25-AMP POWER RELAYS



Protects from mechanical damage or electrical shorting. Series **2600U** and **2605U** are DPDT, series **2620U and 2625U** are DPST. Convenient manual circuit testing. Two .196" dia. Mntg. holes in base. Shpg. wt. 8 oz. Auxiliary switch has solder lug blade tails rated for 10 amp operation. Easy conversion. U/L recognized, CSA approved.

Stock No.	Type	Volts	1-24	25-49	50-99
	DPDT				
24F3415	2600U-DPDT-24A	24AC	24.02	22.82	21.62
24F3416	2600-U-DPDT-120A	120AC	24.02	22.82	21.62
24F3417	2600-U-DPDT-240A	240AC	24.72	23.48	22.25
24F3418	2605U-DPDT-12D	12DC	24.02	22.82	21.62
24F3419	2605U-DPDT-24D	24DC	24.02	22.82	21.62
	DPST				
24F3421	2620U-DPST-24A	24AC	22.79	21.65	20.51
24F3422	2620U-DPST-120A	120AC	22.79	21.65	20.51
24F3423	2620U-DPST-240A	240AC	23.45	22.28	21.11
24F3424	2625U-DPST-24D	24DC	22.79	21.65	20.51
24F3426	2600U-SPDT-Aux.-SW	....	4.48	4.26	4.03

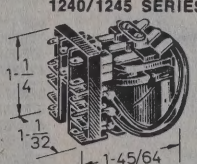
SERIES 2700/2705 25-AMP POWER RELAY



4PDT with 25A resistive cont. rtng. at 120VAC Input power is 10VA AC or 3WDC. Screw type or ¼" quick connect terminals. Load carrying members meet U/L requirements for up to 240VAC. Space for P.C. board. 2 slotted mntg. holes .290" x .177" on 2 1/32" centers, and two .177" dia. holes on 1 7/8" centers.

Stock No.	Type	Coil Volts	1-24	25-49	50-99
23F5492	2700-4C-120A	120AC	26.40	25.08	23.76

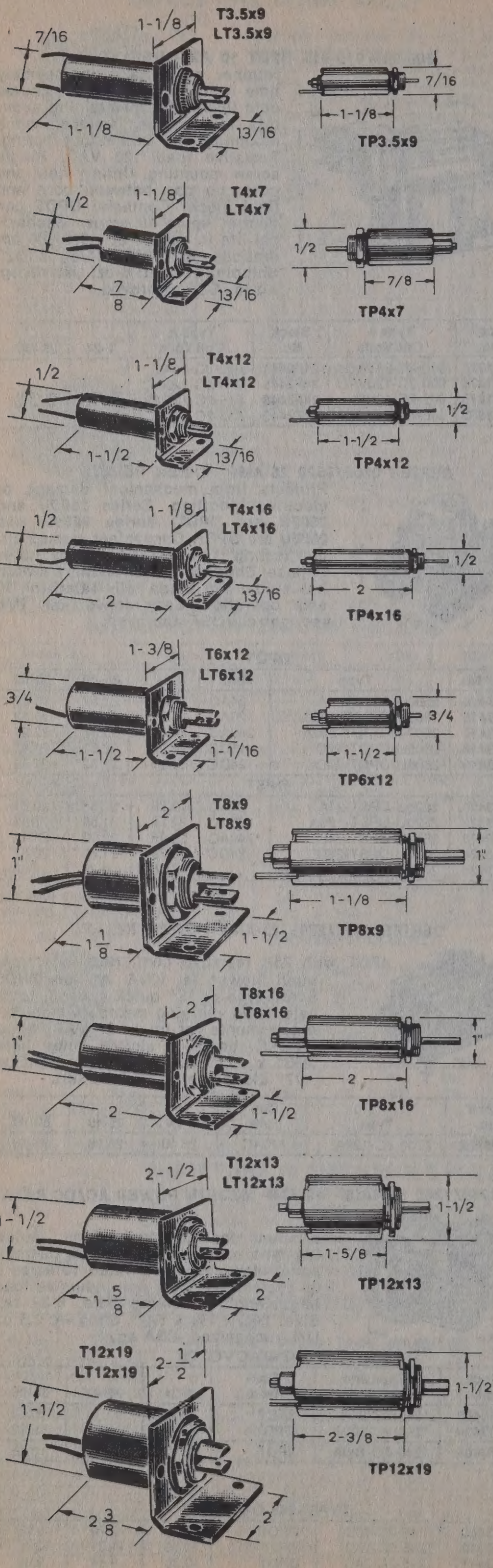
1240/1245 SERIES 10 AMP MEDIUM POWER AC/DC RELAY



Efficient for communications. Solder lug type terminals, molded in phenolic panel block. Contacts rated 10 amps at 60 cycles. 120 VAC, non-inductive load. Mtg: Single mounting hole, 6-32 tap. Size: 1 45/64 x 1¼ x 1 1/32". Shpg wt: 2.5 oz. U/L recognized, CSA apvd.

Stock No.	Type and Coil Volts	Con-tacts	1-24	25-49	50-99
	TYPE 1240 AC VOLTS				
24F3403	1240-3C-24A	3PDT	11.73	11.14	10.56
24F3404	1240-2C-120A	DPDT	10.36	9.85	9.32
24F3405	1240-3C-120A	3PDT	11.73	11.14	10.56
	TYPE 1245-DC VOLTS				
24F3409	1245-2C-12D	DPDT	10.29	9.78	9.26
24F3410	1245-3C-12D	3PDT	11.59	11.01	10.43
24F3411	1245-2C-24D	DPDT	10.36	9.84	9.32
24F3412	1245-3C-24D	3PDT	11.73	11.14	10.56

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.



NOTE: "T" DENOTES PULL TYPE; "TP" DENOTES PUSH TYPE; "LT" DENOTES LONG LIFE PULL TYPE.

T AND TP SERIES
TUBULAR 24 VDC (EXCEPT WHERE INDICATED 12V)

Stk. No.	Type	Typical Lifts and Strokes			Ohms	Watts	1-24	25-49
		Duty	Minimum	Maximum				
24F2971	T3.5x9*	Inter.	8.5 oz. at 1/32"	1 oz. at 1/2"	57	10	8.44	8.02
24F2980	T3.5x9*	Cont.	5.5 oz. at 1/32"	.75 oz. at 1/16"	260	2	8.44	8.02
67F5608	T3.5x9*(12V)	Inter.	8.5 oz. at 1/32"	1 oz. at 1/2"	14	10	8.36	7.94
67F5609	T3.5x9*(12V)	Cont.	5.5 oz. at 1/32"	.75 oz. at 5/16"	80	2	8.36	7.94
24F3434	TP3.5x9	Inter.	6.8 oz. at 1/32"	.96 oz. at 1/2"	57	10	10.04	9.54
24F2972	T4x7*	Inter.	12 oz. at 1/32"	8 oz. at 1/4"	80	7	8.63	8.20
24F2981	T4x7*	Cont.	6 oz. at 1/32"	1 oz. at 3/16"	240	2.4	8.63	8.20
67F5611	TP4x7	Cont.	4.8 oz. at 1/32"	.8 oz. at 3/16"	240	2.4	10.23	9.72
24F2973	T4x12*	Inter.	14 oz. at 1/32"	1.5 oz. at 7/8"	38	15	8.27	7.86
24F2982	T4x12*	Cont.	7 oz. at 1/32"	1.5 oz. at 1/4"	160	3.5	8.27	7.86
24F3435	TP4x12	Inter.	12 oz. at 1/32"	1.2 oz. at 7/8"	38	15	9.27	8.81
24F3439	TP4x12	Cont.	6 oz. at 1/32"	1.2 oz. at 1/4"	160	3.5	9.27	8.81
24F2974	T4x16*	Inter.	7 oz. at 1/32"	4 oz. at 1"	24	20	8.78	8.34
67F5612	T4x16*(12V)	Inter.	7 oz. at 1/32"	4 oz. at 1"	6	20	8.69	8.26
67F5613	T4x16*(12V)	Cont.	6.5 oz. at 1/32"	1.5 oz. at 7/8"	36	4	8.69	8.26
24F3436	TP4x16	Inter.	5.6 oz. at 1/32"	3.2 oz. at 1"	24	20	9.78	9.29
24F3440	TP4x16	Cont.	5.2 oz. at 1/32"	1.2 oz. at 7/8"	145	4	9.78	9.29
24F2975	T6x12*	Inter.	30 oz. at 1/16"	4 oz. at 1/16"	25	22	8.98	8.53
24F2984	T6x12*	Cont.	12 oz. at 1/16"	1 oz. at 3/4"	165	3.5	8.98	8.53
67F5614	T6x12*(12V)	Inter.	30 oz. at 1/16"	4 oz. at 1/16"	6.5	22	8.89	8.45
67F5615	T6x12*(12V)	Cont.	12 oz. at 1/16"	1 oz. at 3/4"	41	3.5	8.89	8.45
24F3437	TP6x12	Inter.	24 oz. at 1/16"	3.2 oz. at 3/4"	25	22	9.98	9.48
24F3441	TP6x12	Cont.	9.6 oz. at 1/16"	.8 oz. at 3/4"	165	3.5	9.98	9.48
24F2985	T8x9*	Cont.	23 oz. at 1/16"	3 oz. at 7/16"	145	4	10.72	10.18
67F5616	TP8x9	Inter.	42 oz. at 1/16"	4.8 oz. at 7/16"	30	19	11.72	11.13
67F5617	TP8x9	Cont.	18.4 oz.at 1/16"	2.4 oz. at 7/16"	145	4	11.72	11.13
24F2977	T8x16*	Inter.	80 oz. at 1/16"	14 oz. 7/8"	15	38	11.96	11.36
24F2986	T8x16*	Cont.	35 oz. at 5/8"	5.5 oz. 7/8"	105	5.5	11.96	11.36
67F5618	T8x16*(12V)	Inter.	80 oz. at 1/16"	14 oz. 7/8"	2.7	38	11.85	11.26
67F5619	T8x16*(12V)	Cont.	35 oz. at 1/16"	5.5 oz. 7/8"	26	5.5	11.85	11.26
24F2978	T12x13*	Inter.	150 oz. at 1/8"	14 oz. at 3/4"	14	40	14.72	13.98
24F2987	T12x13*	Cont.	50 oz. at 1/8"	4 oz. at 3/4"	85	6.6	14.72	11.98
67F5620	TP12x13	Inter.	120 oz. at 1/8"	11.2 oz. at 3/4"	14	40	16.31	15.49
67F5621	TP12x13	Cont.	40 oz. at 1/8"	3.2 oz. at 3/4"	85	7	16.31	15.49
24F2979	T12x19*	Inter.	150 oz. at 1/8"	12 oz. at 1 1/2"	9.5	60	18.16	17.25
24F2988	T12x19*	Cont.	80 oz. at 1/8"	5 oz. at 1 1/2"	59	10	18.16	12.98
67F5622	TP12x19	Inter.	120 oz. at 1/8"	9.6 oz. at 1 1/2"	9.5	60	19.16	18.20
67F5623	TP12x19	Cont.	64 oz. at 1/8"	4 oz. at 1 1/2"	59	10	19.16	18.20

*UL MODEL

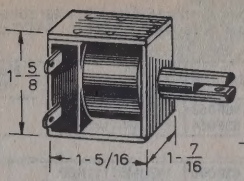
LT SERIES
TUBULAR 24 VDC (EXCEPT WHERE INDICATED 12V)

Stk. No.	Type	Duty	Minimum	Maximum	Ohms	Watts	1-24	25-49
62F3650	LT3.5x9(12V)	Inter.	4.75 oz. at 1/32"	.6 oz. at 3/8"	15	9.5	12.03	11.43
62F3651	LT3.5x9(12V)	Cont.	1.8 oz. at 1/32"	.2 oz. at 3/8"	72	2.0	12.03	11.43
62F3652	LT3.5x9	Inter.	4.75 oz. at 1/32"	.6 oz. at 3/8"	60.6	9.5	12.12	11.51
62F3653	LT3.5x9	Cont.	1.8oz. 1/32"	.2 oz. at 3/8"	288	2.0	12.12	11.51
62F3654	LT4x7(12V)	Inter.	11 oz. at 1/32"	.25 oz. at 3/8"	16	9	12.22	11.61
62F3655	LT4x7(12V)	Cont.	3.25 oz. at 1/32"	.25 oz. at 3/8"	48	3	12.22	11.61
62F3656	LT4x7	Inter.	11 oz. at 1/32"	.25 oz. at 3/8"	64	9	12.31	11.69
62F3657	LT4x7	Cont.	3.25 oz. at 1/32"	.25 oz. at 3/8"	192	3	12.31	11.69
62F3658	LT4x12(12V)	Inter.	16 oz. at 1/16"	1.5 oz. at 1/2"	8	18	10.95	10.40
62F3659	LT4x12(12V)	Cont.	7.5 oz. at 1/16"	.75 oz. at 1/2"	33.8	4.25	10.95	10.40
62F3660	LT4x12	Inter.	16 oz. at 1/16"	1.5 oz. at 1/2"	32	18	11.03	10.48
62F3661	LT4x12	Cont.	7.5 oz at 1/16"	.75 oz. at 1/2"	135	4.25	11.03	10.48
62F3662	LT4x16(12V)	Inter.	16 oz. at 1/16"	5.5 oz. at 1/2"	4.8	30	8.69	8.26
62F3663	LT4x16(12V)	Cont.	8 oz. at 1/16"	2 oz. at 1/2"	28.8	5	8.69	8.26
62F3664	LT4x16	Inter.	16 oz. at 1/16"	5.5 oz. at 1/2"	19.2	30	8.78	8.34
62F3665	LT4x16	Cont.	8 oz. at 1/16"	2 oz. at 1/2"	115	5	8.78	8.34
62F3666	LT6x12(12V)	Inter.	36 oz. at 1/16"	3 oz. at 1/2"	3.6	40	11.29	10.73
62F3667	LT6x12(12V)	Cont.	14 oz. at 1/16"	1.5 oz. at 1/2"	25	5.75	11.29	10.73
62F3668	LT6x12	Inter.	36 oz. at 1/16"	3 oz. at 1/2"	14.4	40	11.36	10.79
62F3669	LT6x12	Cont.	14 oz. at 1/16"	1.5 oz. at 1/2"	100	5.75	11.36	10.79
62F3670	LT8x9(12V)	Inter.	52 oz.at 1/16"	4 oz. at 1/2"	9.1	23.5	14.82	14.08
62F3671	LT8x9(12V)	Cont.	20.5 oz. at 1/16"	1.75 oz. at 1/2"	27.4	5.25	14.82	14.08
62F3672	LT8x9	Inter.	52 oz. at 1/16"	4 oz. at 1/2"	24.5	23.5	14.93	14.18
62F3673	LT8x9	Cont.	20.5 oz. at 1/16"	1.75 oz. at 1/2"	109.7	5.25	14.93	14.18
62F3674	LT8x16(12V)	Inter.	88 oz. at 1/16"	30 oz. at 1/2"	2.5	56	16.12	15.31
62F3675	LT8x16(12V)	Cont.	48 oz. at 1/16"	7 oz. at 1/2"	18	8	16.12	15.31
62F3676	LT8x16	Inter.	88 oz. at 1/16"	30 oz. at 1/2"	10.2	56	16.24	15.43
62F3677	LT8x16	Cont.	48 oz. at 1/16"	7 oz. at 1/2"	72	8	16.24	15.43
62F3678	LT12x13(12V)	Inter.	190 oz. at 1/8"	16 oz. at 3/4"	2.6	53.5	18.25	17.34
62F3679	LT12x13(12V)	Cont.	96 oz. at 1/8"	4 oz. at 3/4"	15.5	9.25	18.25	17.34
62F3680	LT12x13	Inter.	190 oz. at 1/8"	16 oz. at 3/4"	10.7	53.5	18.40	17.48
62F3681	LT12x13	Cont.	96 oz. at 1/8"	4 oz. at 3/4"	62.2	9.25	18.40	17.48
62F3682	LT12x19(12V)	Inter.	172 oz. at 1/8"	64 oz. at 3/4"	1.7	82.5	22.55	21.42
62F3683	LT12x19(12V)	Cont.	126 oz. at 1/8"	12 oz. at 3/4"	10	14.5	22.55	21.42
62F3684	LT12x19	Inter.	172 oz. at 1/8"	64 oz. at 3/4"	6.9	82.5	22.74	21.60
62F3685	LT12x19	Cont.	126 oz. at 1/8"	12 oz. at 3/4"	39.7	14.5	22.74	21.60

Solenoids

RECOGNIZED BY UNDERWRITERS LABORATORIES
except types marked with (*)

Stock No.	Type	Volts	Duty	Ohms	Lifts and Strokes Oz. at in. (Min.)	(Max.)	1-24	25-49
24F078	2	120AC	Inter.	60	45 oz. @ 1/8"	11 oz. @ 7/8"	9.15	8.69
24F079	2	120AC	Cont.	166	14 oz. @ 1/8"	3 oz. @ 7/8"	9.15	8.69
62F1897	2HD	120AC	Inter.	36	70 oz. @ 1/8"	16 oz. @ 3/4"	11.47	10.90
62F1898	2HD	120AC	Cont.	113	25 oz. @ 1/8"	6 oz. @ 3/4"	11.47	10.90
62F1899	2HD	24DC	Inter.	20	96 oz. @ 1/8"	10 oz. @ 3/4"	11.86	11.27
62F1900	2HD	24DC	Cont.	64	48 oz. @ 1/8"	6 oz. @ 3/4"	11.86	11.27
24F872	4	120AC	Inter.	37	36 oz. @ 1/8"	26 oz. @ 1"	9.66	9.18
24F873	4	120AC	Cont.	133	8 oz. @ 1/8"	7 oz. @ 1"	9.66	9.18
24F885	4	24DC	Inter.	15	115 oz. @ 1/8"	16 oz. @ 1"	9.53	9.05
24F886	4	24DC	Cont.	54	63 oz. @ 1/8"	6 oz. @ 7/8"	9.53	9.05
24F887	4	110DC	Inter.	346	115 oz. @ 1/8"	16 oz. @ 1"	9.72	9.23
24F888	4	110DC	Cont.	1300	63 oz. @ 1/8"	6 oz. @ 7/8"	9.72	9.23
62F1901	4HD	24DC	Inter.	15	145 oz. @ 1/8"	23 oz. @ 3/4"	12.05	11.45
62F1902	4HD	24DC	Cont.	50	75 oz. @ 1/8"	8 oz. @ 3/4"	12.05	11.45
62F1903	4HD	110DC	Inter.	350	145 oz. @ 1/8"	23 oz. @ 3/4"	12.30	11.69
62F1904	4HD	110DC	Cont.	1200	75 oz. @ 1/8"	8 oz. @ 3/4"	12.30	11.69
24F081	11	120AC	Inter.	85	21 oz. @ 1/8"	11 oz. @ 3/4"	6.39	6.07
24F082	11	120AC	Cont.	200	12 oz. @ 1/8"	6 oz. @ 3/4"	6.39	6.07
24F889	11	6DC	Inter.	2	40 oz. @ 1/8"	6 oz. @ 3/4"	6.20	5.89
24F083	11	6DC	Cont.	4.5	24 oz. @ 1/8"	3 oz. @ 3/4"	6.20	5.89
24F891	11	24DC	Inter.	31	40 oz. @ 1/8"	6 oz. @ 3/4"	6.32	6.00
24F084	11	24DC	Cont.	72	24 oz. @ 1/8"	3 oz. @ 3/4"	6.32	6.00
28F1350	11HD	120AC	Inter.	75	25 oz. @ 1/8"	7 1/2 oz. @ 1"	6.83	6.49
28F1351	11HD	120AC	Cont.	165	12 oz. @ 1/8"	3 1/2 oz. @ 1"	6.83	6.49
28F1352	11HD	24DC	Inter.	29	60 oz. @ 1/8"	5 oz. @ 7/8"	6.71	6.37
28F1353	11HD	24DC	Cont.	68	30 oz. @ 1/8"	2 1/2 oz. @ 5/8"	6.71	6.37
24F3443	11P	120AC	Inter.	85	16.8 oz. @ 1/8"	8.8 oz. @ 3/4"	7.72	7.33
24F3454	11P	120AC	Cont.	200	9.6 oz. @ 1/8"	4.8 oz. @ 3/4"	7.72	7.33
24F3445	11P	24DC	Inter.	31	32 oz. @ 1/8"	4.8 oz. @ 3/4"	7.35	6.98
24F3456	11P	24DC	Cont.	72	19.2 oz. @ 1/8"	2.4 oz. @ 3/4"	7.35	6.98
24F086	12	120AC	Inter.	100	48 oz. @ 1/8"	9 oz. @ 7/8"	10.98	10.43
24F087	12	120AC	Cont.	150	28 oz. @ 1/8"	6 oz. @ 7/8"	10.98	10.43
24F874	14	120AC	Inter.	11	108 oz. @ 1/8"	56 oz. @ 1 1/2"	16.59	15.76
24F875	14	120AC	Cont.	18	75 oz. @ 1/8"	40 oz. @ 1 1/2"	16.59	15.76
24F090	16	120AC	Inter.	41	110 oz. @ 1/8"	28 oz. @ 3/4"	13.82	13.13
24F876	16	120AC	Cont.	85	63 oz. @ 1/8"	15 oz. @ 3/4"	13.82	13.13
24F892	16	240AC	Inter.	200	110 oz. @ 1/8"	28 oz. @ 3/4"	14.10	13.40
24F893	16	240AC	Cont.	350	63 oz. @ 1/8"	15 oz. @ 3/4"	14.10	13.40
24F3446	16P	120AC	Inter.	41	88 oz. @ 1/8"	22.5 oz. @ 3/4"	15.47	14.70
24F3457	16P	120AC	Cont.	85	50.5 oz. @ 1/8"	12 oz. @ 3/4"	15.47	14.70
24F092	18	120AC	Inter.	8.8	350 oz. @ 1/8"	208 oz. @ 7/8"	17.00	16.15
24F093	18	120AC	Cont.	19.7	152 oz. @ 1/8"	100 oz. @ 7/8"	17.00	16.15
24F894	18	240AC	Inter.	45	350 oz. @ 1/8"	208 oz. @ 2 7/8"	17.34	16.47
24F895	18	240AC	Cont.	78	152 oz. @ 1/8"	100 oz. @ 2 7/8"	17.34	16.47
24F3447	18P	120AC	Inter.	8.8	315 oz. @ 1/8"	187 oz. @ 7/8"	18.65	17.72
24F3458	18P	120AC	Cont.	19.7	137 oz. @ 1/8"	90 oz. @ 7/8"	18.65	17.72
24F756	22	6DC	Inter.	4	20 oz. @ 1/16"	20 oz. @ 3/8"	3.75	3.56
24F757	22	6DC	Cont.	9	12 oz. @ 1/16"	1.7 oz. @ 3/8"	3.75	3.56
24F758	22	24DC	Inter.	60	20 oz. @ 1/16"	2 oz. @ 3/8"	3.83	3.38
24F759	22	24DC	Cont.	144	12 oz. @ 1/16"	1.7 oz. @ 3/8"	3.83	3.38
24F754	24	120AC	Inter.	310	17 oz. @ 1/16"	4 oz. @ 5/8"	4.95	4.70
24F755	24	120 AC	Cont.	500	10 oz. @ 1/16"	2 oz. @ 5/8"	4.95	4.70
24F177	28	24AC	Cont.	17.4	24 oz. @ 1/16"	5 oz. @ 5/8"	5.64	5.36
24F178	28	120AC	Inter.	220	40 oz. @ 1/16"	7 oz. @ 1/2"	5.74	5.45
24F179	28	120AC	Cont.	400	24 oz. @ 1/16"	5 oz. @ 1/2"	5.74	5.45
24F218	28	6DC	Inter.	3.3	40 oz. @ 1/16"	3 oz. @ 2 1/2"	5.49	5.22
24F219	28	6DC	Cont.	7.7	25 oz. @ 1/16"	2 oz. @ 1/2"	5.49	5.22
24F220	28	12DC	Inter.	13	40 oz. @ 1/16"	3 oz. @ 1/2"	5.55	5.27
24F221	28	12DC	Cont.	27	25 oz. @ 1/16"	2 oz. @ 2 1/2"	5.55	5.27
24F222	28	24DC	Inter.	50	40 oz. @ 1/16"	3 oz. @ 1/2"	5.60	5.32
24F223	28	24DC	Cont.	104	25 oz. @ 1/16"	2 oz. @ 1/2"	5.60	5.32
62F1906	34	120AC	Cont.	865	9 oz. @ 1/16"	1.5 oz. @ 3/8"	4.87	4.63



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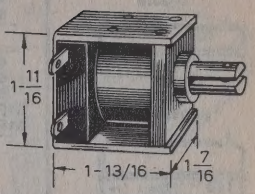

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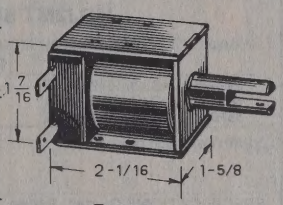

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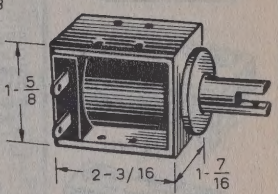

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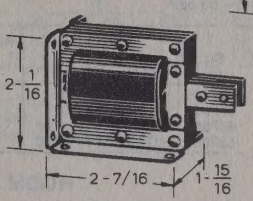

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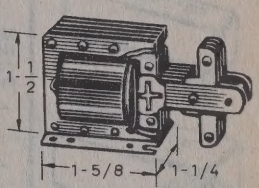

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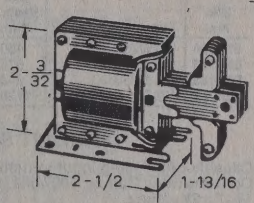

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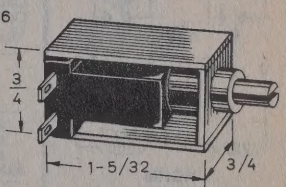

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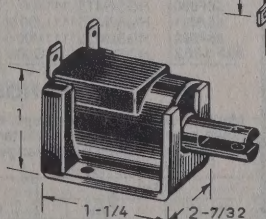

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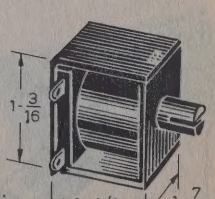
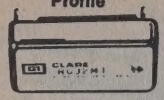


Type 28

NEWARK IS YOUR ONE STOP SOURCE FOR ALL GUARDIAN PRODUCTS INCLUDING SOLENOIDS, HEAVY DUTY AND TIME DELAY RELAYS, AND RELAY STEPPERS.

Clare Relays

Low Profile



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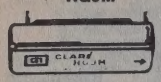
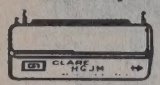


High Sensitivity



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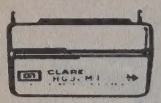

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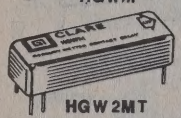

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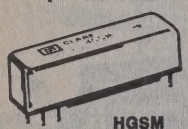

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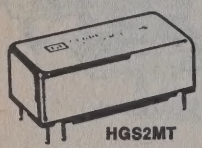

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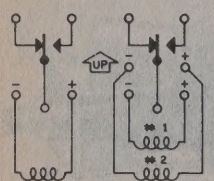
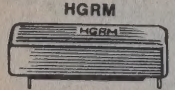
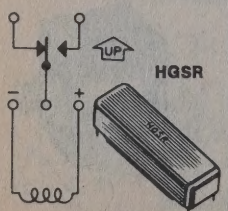


HGRM





HGSR

HGJM SERIES MERCURY—WETTED CONTACT RELAYS

Noise is only 15μV at 4 ms after coil energization with 10 kHz bandwidth; less than 5μV at 5 ms. Fast response time approaches 1 ms; ultra-stable to 250Hz. SPDT contacts rated 2 amps at 500 volts max.; 100 VA max. AC or DC.

0.350" LOW PROFILE SINGLE SIDE STABLE

Stk. No.	Type	Nom. VDC	Coil Resis. Ohms	Must VDC Operate	Must VDC Release	1-24	25-49	50-99	100-249	250-499
65F053	HGJM51131J00	5.0	68	3.0	0.50	13.61	12.13	10.40	9.16	8.17
65F054	HGJM51131N00	12.0	375	6.6	1.0					
0.400" HIGH SENSITIVITY SINGLE SIDE STABLE										
65F056	HGJM51111K00	5.0	125	3.2	0.57	12.24	10.90	9.35	8.23	7.34
65F057	HGJM51111P00	12.0	685	7.5	1.4					
65F058	HGJM51111T00	24.0	2650	15.0	2.6					
81F2493	HGJM51111L00	6.0	185	3.7	0.79					
81F2494	HGJM51111W00	48	9850	29	6.0					

HGJ2MT SERIES MERCURY-WETTED CONTACT RELAYS

Same as HGJM series except two capsules for DPDT configurations.

0.400" HIGH SENSITIVITY SINGLE SIDE STABLE†

65F062	HGJ2MT54211G00	5.0	55	2.8	0.50	27.80	24.77	21.24	18.71	16.68
65F063	HGJ2MT54211L00	12.0	370	7.3	1.0					
65F064	HGJ2MT54211P00	24.0	1370	14.0	2.3					

†With common open time.

HGW MERCURY-WETTED RELAYS

SPECIFICATIONS **Contact Rating (with proper contact protection):** Power—100 VA max. Voltage—500 V, dc or ac max. Current —2A. switched max. 5A, carry only, max. **Contact Forms:** HGWM—1 Form C. HGW2MT—2 Form C. **Contact Resistance (ON impedance):** 12 to 25 milliohms, stable within ±2.0 milliohms over life. **Life Expectancy:** 10 x 10⁹ operations at rated load with proper contact protection. **Operating temperature:** −38.8° C to +85° C. **Insulation Resistance (OFF impedance):** — Measured across open contacts at 25° C, 40% relative—HGWM—1000 megohms. HGW2MT—10,000 megohms. **Coil Power Dissipation (at 25° C):** HGWM—1.0W max. HGW2MT—2.0W max. Weight: 1 Form C—.28 oz., 2 Form C—.53 oz.

Stk. No.	Part Number	Recommended Nominal Voltage	Coil Resistance ±10%	Operate (Vdc)	Release (Vdc)	Voltage (Vdc)	EACH 1-24	EACH 25-49	EACH 50-99	EACH 100-249
65F045	HGWM51111P00	12	720	7.0	1.3	27	15.46	13.77	11.80	10.40
65F046	HGWM51111T00	24	2730	14	2.6	52	15.46	13.77	11.80	10.40
65F050	HGW2MT54111L00	12	392	7.0	1.3	28	29.67	26.44	22.66	19.96
65F051	HGW2MT54111P00	24	1440	14	2.6	54	29.67	26.44	22.66	19.96

HGSM SERIES PRINTED CIRCUIT MODULE RELAYS

Mercury-wetted relays for printed circuit board mounting. **HGSM-1000** series have SPDT make-before-break contacts: **HGSM-5000**, break-before-make. Contacts rated 2 amps, 500 volts. 100 VA max. at rated load. Max. dissipation, 2 watts continuous at 25° C. Temperature rise, 30° C per watt at 25° C ambient. Life expectancy, 22 x 10⁹. Single side stable, except as indicated. Size ⅝" x ⅝" x 2 1/16" max.

Stk. No.	Type	Coil Resis., Ohms	Must mADC Oper. ate	Must mADC Re-lease	Must Oper. VDC	Max DC Volts	Each 1-9	Each 10-24	Each 25-49	Each 50-99	Each 100-249
65F084	HGSM5009	450	12.9	2.1	6.4	30.0	12.24	10.90	9.35	8 23	7.34
65F085	HGSM5010	675	11.6	1.9	8.6	36.7					
65F086	HGSM5011	940	10.1	1.7	10.5	43.3					
65F087	HGSM5001	1425	8.3	1.4	13	53.4					

HGS2MT SERIES MERCURY—WETTED CONTACT RELAYS

Capable of handling input switching functions for any type of reasonable high speed, low level data acquisition system. Contacts rated 2 amps. 500 volts, 100 VA maximum DPDT, Form C break-before-make. Life expectancy, 22 x 10⁹. Size ¾" x 1 3/32" x 2 1/16" max.

Stk. No.	Type	Nom. VDC	Coil Resis. Ohms	Must VDC Oper-ate	Must VDC Re-lease	Each 1-9	Each 10-24	Each 25-49	Each 50-99	Each 100-249
56F090	HGS2MT51111F00	6	130	3.0	0.5	23.10	20.58	17.64	15.54	13.86
65F091	HGS2MT51111J00	12	520	5.3	1.1					
65F092	HGS2MT51111M00	24	2200	11.0	2.2					
81F5802	HGS2MT51111Q00	48	8000	24.0	4.0					

SERIES HGSR, HGRM MODULAR MERCURY-WETTED RELAYS

Mercury-wetted contact relays recommended for replacement applications. Contacts rated 2 A max. 100 VA max. SPDT, make-before-break. Life expectancy 2 x 10¹⁰. Size: Type HGRM. 1.61" lg. x .565" w. x .4"; Type HGSR, 1.563" lg. x .532" w. x .4" h. Operating Temperature Range: −38.8° C to +85° C.

40 mW SINGLE SIDE STABLE

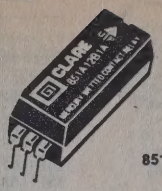
1 Form C Stk. No.	Type	Coil	Voltage (VCD) Operate	Max.	Price 1-24	Price 50-99	Price 25-49	Price 100-249	Price 250-499
65F1349	HGSR51111H00	4	1.4	9.4	12.24	10.90	9.35	8.23	7.34
65F1350	HGSR51111K00	6	2.3	15					
65F1351	HGSR51111M00	10	3.8	25					
81F2492	HGSR51111N00	12	4.6	28					
65F1352	HGSR51111Q00	20	7.2	44					
65F1353	HGSR51111V00	48	17	103					
65F1354	HGRM51111J00	5	1.8	11	11.69	10.41	8.93	7.86	6.99
65F1355	HGRM51111K00	6	2.3	15					
65F1356	HGRM51111N00	12	4.7	28					
65F1357	HGRM51111R00	24	8.8	55					

Clare Relays

GENERAL INSTRUMENT

SERIES 851 AND HRB MERCURY-WETTED RELAYS

851 epoxy molded and HRB metal covered relays have reliable reed capsules with mercury wetted armatures. SPECIFICATIONS: Contact Rating (Resistive load with proper contact protection): Power—50VA max. Voltage—350Vdc or peak ac max. Current—1 ampere, max., switched. 3 amperes, max., carry only. Contact Resistance (ON impedance): 50 milliohms max., ±2 milliohms throughout life. Insulation Resistance (OFF impedance): 500 megohms over open contacts, 10,000 megohms between coil and contacts at 100Vdc, +25°C, 20-50% humidity. Drain Time: 30 seconds plus one no-load operation to clear the contacts. Operating Temperature: −38.8° to +65°C. Life Expectancy: 20 x 10^6 operations at max. contact rating.



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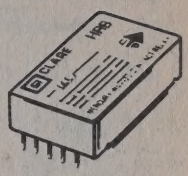
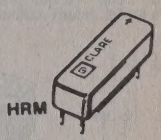


HRB

Stk. No.	Type	Contact Form	Nom. Volt. (Vdc)	Must Oper. (Vdc)	Must Rel. (Vdc)	Max. Volt. (Vdc)	Coil Resist. (Ohms ±10%)	Each 1-24	25-49	50-99	100-249
65F001	851A12B1A	1A	12	9	1.3	31	490	8.57	7.38	6.66	5.95
65F002	851A24B1A		24	18	2.6	61	1870	8.96	7.72	6.97	6.22
65F003	851A05B2A	2A	5	3.75	0.4	9	32	13.82	11.90	10.75	9.60
65F004	851A12B2A		12	9	0.9	23	184	13.18	11.35	10.25	9.15
65F005	851A24B2A		24	18	2.0	47	744	13.18	11.35	10.25	9.15
65F006	851A05B4A	4A	5	3.75	0.4	9	20	25.81	22.23	20.08	17.92
63F007	851A12B4A		12	9	1.0	23	126	25.81	22.83	20.08	17.92
65F009	HRB1A1505	1A	5	3.75	0.15	10	95	7.85	6.76	6.10	5.45
65F010	HRB1A1512		12	9	0.7	18	405	7.99	6.88	6.22	5.55
65F011	HRB1A1524		24	18	1.4	36	2210	8.42	7.25	6.55	5.85
65F012	HRB2A1505	2A	5	3.75	0.15	7.5	55	13.82	11.90	10.75	9.60
65F013	HRB2A1512		12	9	0.7	18	250	13.82	11.90	10.75	9.60
65F014	HRB2A1524		24	18	1.4	36	1000	13.82	11.90	10.75	9.60

SERIES HRM SUBMINIATURE RELAY

The HRM series mercury-wetted contact relay is a subminiature Form A module for printed circuit board mounting. Small size and attractive price are the major advantages to the relay.



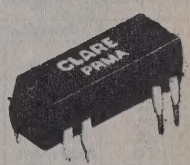
HRM

Stk. No.	Type	Nom. V V.	MVST Opet.	MVST Rel.	Max. V.	Coil Res.	1-24	25-49	50-99	100-249
65F2154	HRM1A05	5	330	0.5	16	330	8.96	7.72	6.97	6.22
67F2155	HRM1A12	12	1920	1.2	39	1920	9.61	8.28	7.48	6.67
65F2156	HRM1A24	24	7680	2.4	78	7680	10.51	9.05	8.18	7.30

PRMA SERIES PICOREED® DIP RELAYS

Signal level to 10 VA switching capability. Typical operating speeds for switching range from 200 µsec to 1.5 msec. 5V One Form A is compatible with standard TTL logic. Life expectancy of 100 × 10^6 operations at signal levels. 5 × 10^6 operations at full rated loads. 0.018" wide pins require 0.024" diameter holes for normal mounting. 0.040" diameters holes for reduced height mounting. Module Capacitance: Across open contacts −1.5 pF; Open contacts to coil −2.8 pF; Closed contacts to coil −4.2 pF. Pins are tintillate tinned.

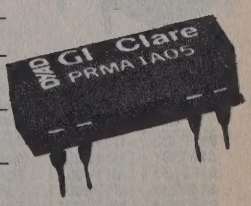
600 ms typical response times, signal level to 10VA switching capabilities, total input/output isolation, IC compatible TO-116 DIP. Life expectancy of 100 × 10^6 operations at signal level or 5 × 10^6 at rated load. PCB mntg. on 0.30" × 0.100 grid patterns, or 14 pin DIP sockets. Ht.: 0.180".



Stock No.	Type	Contact Form	Nom. VDC	Must Operate VDC	Must Release VDC	Coil Resis., Ohms	Net Each, Lots of 1-24	25-49	50-99	100-249
65F2272	PRMA1A05	1A	5	3.75	0.8	500	2.74	2.36	2.13	1.90
65F2273	PRMA1A12	1A	12	9.0	1	1000	2.74	2.36	2.13	1.90
65F2274	PRMA1A24	1A	24	18.0	2	2150	2.99	2.57	2.32	2.07
65F2275	PRMA1B05	1B	5	3.75	0.8	140	5.40	4.65	4.20	3.75
65F2277	PRMA1B24	1B	24	18.0	2	2150	5.94	5.11	4.62	4.12
65F2278	PRMA2A05	2A	5	3.75	0.8	140	4.00	3.44	3.11	2.78
65F2280	PRMA2A24	2A	24	18.0	2	2150	4.25	3.66	3.30	2.95
65F2281	PRMA1C05	1C	5	3.75	0.8	140	6.24	5.56	4.77	4.20
65F2282	PRMA1C12	1C	12	9.0	1	500	6.23	5.36	4.84	4.32
65F2284	PRMA1C05D	1C	5	3.75	0.8	140	6.24	5.56	4.77	4.20

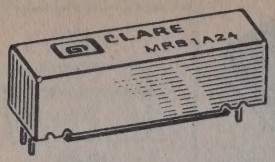
PRMA DYAD DRY REED RELAYS

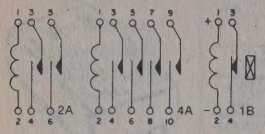
Bifurcated vacuum deposited ruthenium contacts laser glass sealing. Rated at 250 million operations at low level loads (50mV) and at higher loads it is rated at 10 volt amperes. Switching speeds in excess of 500 Hz. Power: 10 volt amperes max. Initial contact resistance 100 milliohms max.

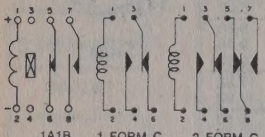


Stk. No.	PRMA Type DYAD)	Contact Form	Nom. V(Vdc)	Must Operate (Vdc)	Must Release (Vdc)	Coil Resistance	Each 1-24	25-49	50-99	100-249
81F9012	1A05	1A	5	3.75	0.8	500	2.74	2.36	2.13	1.90
81F9013	1A12	1A	12	9.0	1	1000	2.74	2.36	2.13	1.90
81F9014	1A24	1A	24	18.0	2	2150	2.99	2.57	2.32	2.07
81F9015	1B05	1B	5	3.75	0.8	140	5.40	4.65	4.20	3.75
81F9016	1B12	1B	12	9.0	1	500	5.40	4.65	4.20	3.75
81F9017	1B24	1B	24	18.0	2	2150	5.94	5.11	4.62	4.12
81F9018	2A05	2A	5	3.75	0.8	140	4.00	3.44	3.11	2.78
81F9019	2A12	2A	12	9.0	1	500	4.00	3.44	3.11	2.78
81F9020	2A24	2A	24	18.0	2	2150	4.25	3.66	3.30	2.95

Clare Relays







Signal level to 10VA switching capabilities, total input/output isolation, 800 microsecond typical switching speeds. Coil power requirements as low as 10 milliwatts. Life expectancy of 100 x 10^6 operations at signal level, 10 x 10^6 at rated load. 1.000" x 0.100" grid mounting centers for PC board mounting.

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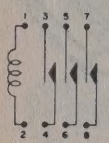


MRB SERIES MICROCLAREED® RELAYS

Stock No.	Type	Contact Form	Nom. VDC	Must Operate VDC	Must Release VDC	Max. VDC	Coil Resis., Ohms	Net Each, Lots of 1-24	25-40	50-99	100-249
65F1401	MRB1A05	1A	5	3.75	0.15	15	225	3.60	3.18	2.73	2.40
65F1402	MRB1A06	1A	6	4.5	0.15	18	340	4.00	3.56	3.05	2.69
65F1403	MRB1A12	1A	12	9.0	0.7	36	1400	3.79	3.38	2.90	2.55
65F1404	MRB1A24	1A	24	18.0	2.5	60	4340	4.30	3.83	3.28	2.89
65F1405	MRB2A05	2A	5	3.75	0.15	11	105	5.03	4.48	3.84	3.39
65F1407	MRB2A12	2A	12	9.0	0.7	26	730	5.22	4.65	3.99	3.51
65F1408	MRB2A24	2A	24	1.80	2.5	48	2500	5.50	4.90	4.20	3.70
65F1409	MRB4A05	4A	5	3.75	0.15	9	60	8.50	7.57	6.49	5.72
65F1411	MRB4A12	4A	12	9.0	0.7	18	275	8.50	7.57	6.49	5.72
65F1412	MRB4A24	4A	24	18.0	2.5	36	1090	8.50	7.57	6.49	5.72
65F1415	MRB1B12	1B	12	9.0	1.0	18	1240	5.70	5.08	4.35	3.84
65F1416	MRB1B24	1B	24	18.0	2.0	36	5800	6.10	5.46	4.68	4.12
65F1419	MRB1N12	1A1B	12	9.0	1.0	18	230	7.70	6.86	5.88	5.18
65F1420	MRB1N24	1A1B	24	18.0	2.0	36	900	8.08	7.20	6.17	5.44

MICROCLAREED® RELAYS FORM C

Stock No.	Type	Contact Form	Nom. VDC	Must Operate VDC	Must Release VDC	Max. VDC	Coil Resis., Ohms	Net Each, Lots of 1-24	25-40	50-99	100-249
65F1421	922A05C1C	1C	5	3.75	0.4	20	350	8.25	7.35	6.30	5.55
65F1422	922A06C1C	1C	6	4.5	0.5	25	560	8.80	7.84	6.72	5.92
65F1423	922A12C1C	1C	12	9.0	1.0	45	1900	8.22	7.35	6.30	5.55
65F1424	922A24C1C	1C	24	18.0	2.0	93	7800	9.30	8.29	7.10	6.26
65F1425	922A05C2C	2C	5	3.75	0.4	16	220	14.50	12.92	11.07	9.75
65F1426	922A06C2C	2C	6	4.5	0.5	21	365	15.30	13.63	11.68	10.29
65F1427	922A12C2C	2C	12	9.0	1.0	32	880	14.49	12.91	11.07	9.75
65F1428	922A24C2C	2C	24	18.0	2.0	75	4660	16.00	14.25	12.22	10.76
10F8253	922A24C4C	4C	24	18	1.4	45	1120	28.40	25.30	21.69	19.20

SERIES PRB PICOREED® RELAYS

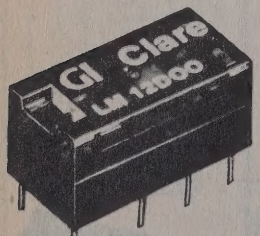
Stock No.	Type	Norm. V	Coil Resis., Ohms	Contact Form	Net Each, Lots of 1-9	10-24	25-49	50-99
65F1435	PRB-2513	12	1200	1A	6.10	5.44	4.66	4.11
65F1436	PRB-2516	24	5380	1A	6.65	5.93	5.08	4.48
651F433	PRB-3510	5	387	1A	6.93	6.17	5.29	4.66

CG/CG2 GAS DISCHARGE ARRESTERS

CG/CG2 SERIES WITH LEADS

SPECIFICATIONS Surge Life: 50 surges min. Max. Surge Current: 5,000A, Max. AC Current: 5A. Min. Insulation Resistance 10,000 megohms. Oper. and Storage Temp: −40° To +60°C. Weight: 1 gm. (*) Not applicable for CG Series products below 350V breakdown.

Type	Breakdown Voltage DC Volts	Pulse Max. V.	Typical Arc V.	Stock No. W/Leads	1-26	25-49
CG90L	90±20%	1000	10	**65F1453**	2.55	2.30
CG145L	145±20%	1000	10	**65F1454**	2.55	2.30
CG350L	350±15%	2000	10	**65F1455**	2.29	2.06
CG800L	800±15%	4000	10	**65F1456**	2.66	2.40
CG1000L	1000±15%	4000	10	**65F1457**	2.60	2.40
CG2-145L	145±20%	900	16	**65F1458**	2.55	2.30

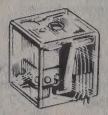


SUBMINIATURE ELECTROMECHANICAL RELAYS LM SEALED FORM C DIP RELAYS

The Clare LM dual-in-line electromechanical relay provides reliable long life operation. The .133 cubic inch subminiature design meets today's standard PCB spacing and fits standard 16 pin DIP IC sockets. The relay is available in 1 and 2 pole versions with contact ratings of 3 and 2 amps respectively. To simplify soldering and cleaning operations, all LM relays are epoxy sealed. To insure long life operation, the relays have a vent that should be opened after cleaning. Coils are available in six standard voltages (3, 5, 6, 12, 24, and 48). Life Expectancy: Mechanical: 10 x 10^6 operations. Electrical: 5 x 10^5 operations at 1A, 30VDC, 2 x 10^5 operations at 1A, 60VAC.

Stock Number	Part Number	Contact Configuration	Nominal Voltage (V)	Pull-In @ =20° C (VDC)	Drop Out @ =20° C (VDC)	Coil Resistance ±10% @ 20° C (Ohms)	Rated Current 15% @ 20° C (MW)	Nominal Operate Power @20° C (MW)	1-24	25-49	50-99	100-249
81F9230	LM11B00*	1 Form C	5	3.75	0.5	49	102	510	3.70	3.46	3.14	2.70
81F9231	LM11D00	1 Form C	12	9	1.2	284	42.3	504	3.70	3.46	3.14	2.70
81F9232	LM11E00	1 Form C	24	18	2.4	1110	21.6	518	3.70	3.46	3.14	2.70
81F9233	LM12B00*	2 Form C	5	3.75	0.5	49	102	510	3.95	3.69	3.35	2.88
81F9234	LM12D00*	2 Form C	12	9	1.2	284	42.3	504	3.95	3.69	3.35	2.88
81F9235	LM12E00*	2 Form C	24	18	2.4	1110	21.6	518	3.95	3.69	3.35	2.88

*Normally stocked items by your local Clare Distributor. Note: Consult factory for UL approval information.



LB MINIATURE TELEPHONE COVERED

6PDT contacts rated 2A at 28VDC resistive, with life of 100,000 operations at rated load, 100 million operations mechanical. Contact Resistance (ON impedance): 100 milliohms max. initial Contacts are palladium alloy with gold alloy overlay on bifurcated Make-and-Break springs. Operate Time: 10-25ms typical. Release Time: 5ms. Size: 1.24" x 1.00" x 1.22".

PC BOARD MOUNTING

Stk. No.	Type	Volts	Coil, Ohms	1-24	25-49	50-99	100-249
65F1465	LB0060B00	12	130	6.50	5.85	5.52	4.88
65F1467	LB0060C00	18	330				
65F1468	LB0060D00	24	590				
651F469	LB0060K00	30	915				

SOCKET MOUNTING

65F1474	LBP0060B00	12	120	6.50	5.85	5.52	4.88
65F1476	LBP0060C00	18	330				
65F1516	RP-15450GS	Solder lug socket for LBP PC board socket		3.96	3.53	3.02	2.66

Solid State Time Delay Relays

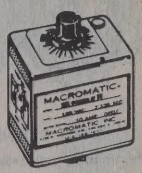
Type SS78 ON DELAY

ON Delay type DPDT 10 Amp resistive. 0.5% repeatable accuracy. Transient protected MOV (10,000 V-20 Microseconds) Ambient Temp. −40°F to 175°F. 60ms typical recycle time. Reverse polarity protected. IC accuracy and reliability. **Features:** Gold flashed contacts, pilot light, 8 pin plug-in, **steel capes,** internal steel frame. UL **Recognized.**

Stk. No.	Type	Input	Timing (Seconds)	EACH 1-4	5-9	10-24	25-Up
28F962	SS 78222-02	120VAC	.05-1				
28F963	SS 78222-04	120VAC	.05-5	46.50	41.90	39.53	37.20
28F964	SS 78222-06	120VAC	0.15-15				
28F965	SS 78222-08	120VAC	0.6-60	49.50	44.55	42.08	39.60
28F966	SS 78222-12	120VAC	3-300	59.95	53.96	50.96	47.96
28F970	SS 78228-08	24VAC	0.6-60	46.50	41.90	39.53	37.20
28F971	SS 78228-12	24VAC	3-300	59.95	53.96	50.96	47.96

7000 & 8000 Series
- **Indep. supported Fiberglass boards**
- **Cermet potentiometers**
- **MOV transient protection**
- **Steel case**
- **Tantalum capacitors**

SS78
SS80
SS81



Type SS80 MOMENTARY INTERVAL

Same as SS 78 except Single Shot momentary interval type. 11 pin plug-in. UL Recognized.

Stk. No.	Type	Input	Timing (Seconds)	EACH 1-4	5-9	10-24	25-Up
28F972	SS 80522-02	120VAC	.05-1				
28F973	SS 80522-04	120VAC	.05-5	52.95	47.66	45.01	42.36
28F974	SS 80522-06	120VAC	0.15-15				
28F975	SS 80522-08	120VAC	0.6-60	54.95	49.46	46.71	43.96
28F976	SS 80522-12	120VAC	3-300	52.95	47.66	45.01	42.36

Type SS81 OFF DELAY

Same as SS78 except Off Delay type. 11 pin plug-in. UL Recognized.

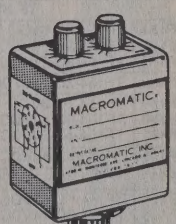
Stk. No.	Type	Input	Timing (Seconds)	EACH 1-4	5-9	10-24	25-Up
29F300	SS 81622-02	120VAC	.05-1				
29F301	SS 81622-04	120VAC	.05-5	52.95	47.66	45.01	42.36
29F303	SS 81622-08	120VAC	0.6-60	54.95	49.46	46.71	43.96
29F304	SS 81622-12	120VAC	3-300	66.95	61.95	58.95	55.95
29F305	SS 81628-02	24VAC	.05-1				
29F306	SS 81628-04	24VAC	.05-5	52.95	47.66	45.01	42.36
29F307	SS 81628-06	24VAC	0.15-15				
29F308	SS 81628-08	24VAC	0.6-60	54.95	49.46	46.71	43.96
295309	SS 81628-12	24VAC	3-300	66.95	61.95	58.95	55.95

Type SS23 REPEAT CYCLE Timers

Off and On times independently adjustable, 0.5% Repeatable accuracy, Transient protected MOV (10,000V-20 Microseconds). Ambient Temp. range −40° to 175°F, DPDT 10 amp resistive output. Times up to 24 hours, IC Accuracy, OFF delay followed by ON delay. Octal 8 pin plug-in. Steel case, Int. Steel frame. UL Recognition or (*) UL Recognition pending.

Stk. No.	Type	Input	Timing	EACH 1-4	5-9	10-24	25-Up
28F932	SS 23122-02	120VAC	.05-1 Sec				
28F933	SS 23122-04	120VAC	.05-5 Sec	78.00	64.35	59.12	55.64
28F934	SS 23122-06	120VAC	0.15-15 Sec				
28F935	SS 23122-08	120VAC	0.7-60 Sec	81.00	66.83	61.40	57.78
28F936	SS 23122-12	120VAC	3-300 Sec.	93.00	76.73	70.50	66.34
28F937	SS 23122-16*	120VAC	5 min-1 hr.	132.00	108.90	100.05	94.16
28F938	SS 23122-20*	120VAC	1 hr.-8 hr.				
28F939	SS 23122-21*	120VAC	1.5 hr.-12 hr.	159.00	131.18	120.52	113.42
28F940	SS 23122-23*	120VAC	3 hr.-24 hr.				
28F941	SS 23128-02	24VAC	.05-1 Sec				
28F942	SS 23128-04	24VAC	.05-5 Sec	78.00	64.35	59.12	55.64
28F943	SS 23128-06	24VAC	0.15-15 Sec				
28F944	SS 23128-08	24VAC	0.6-60 Sec	81.00	66.83	61.40	57.78

SS23

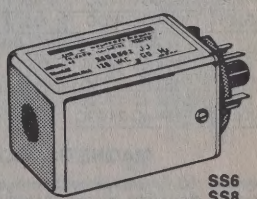


Type SS6 & SS8

Type SS6 is ON DELAY. Type SS8 is OFF DELAY. Both units feature: SPDT 3 amp output, 8 pin plug-In, Repeatable Accuracy ±5%, Ambient temp. range 0° to +130°F, Power consumption 2 Watts max. Recycle Time 100 ms. Timing adj. with screwdriver slot on top. Ideal for Burglar Alarms. Battery Charging controls, Photocopiers, Electric door control Size — Top: 1.35"x1.35", Bottom: 1.4"x 1.4", Side: 2.1"L.

Stk. No.	Type	Input	Timing (Seconds)	EACH 1-4	5-9	10-24	25-Up
28F945	SS 6262II	120VAC	1-15	23.70	19.56	17.97	16.91
28F946	SS 6262Y	120VAC	1-30				
28F947	SS 6262JJ	120VAC	1-60	26.10	21.54	19.79	18.62
28F948	SS 6262KK	120VAC	1-180	31.02	25.60	23.51	22.13
28F950	SS 6268II	24VAC	1-15	23.70	19.56	17.97	16.91
28F951	SS 6268Y	24VAC	1-30				
28F952	SS 6268JJ	24VAC	1-60	26.10	21.54	19.79	18.62
28F953	SS 6268KK	24VAC	1-180	31.02	25.60	23.51	22.13
28F954	SS 8562II	120VAC	1-15	29.82	24.61	22.60	21.28
28F955	SS 8562Y	120VAC	1-30				
28F956	SS 8562JJ	120VAC	1-60	31.50	26.00	23.88	22.47
28F957	SS 8562KK	120VAC	1-180	36.90	30.45	27.97	26.33
28F958	SS 8568II	24VAC	1-15	29.82	24.61	22.60	21.28
28F959	SS 8568Y	24VAC	1-30				
28F960	SS 8568JJ	24VAC	1-60	31.50	26.00	23.88	22.47
28F961	SS 8568KK	24VAC	1-180	36.90	30.45	27.97	26.33

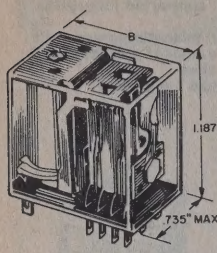
SS6
SS8

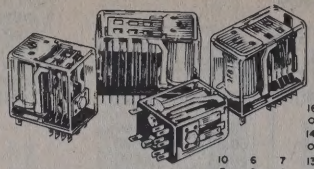


GOULD Allied Control Cradle Series Relays

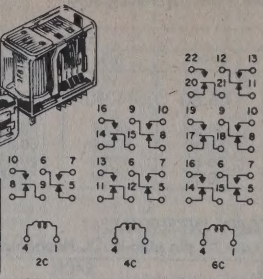
VOLTAGE ADJUSTED—AC-DC RELAYS

Industrial relays with versatile mounting means including solder, printed circuit board and socket options. Sensitivity selection to match applications ranging from 20 to 140 mW per pole. Contact selection to match load switching requirements. U/L Recognized File #E206041. Voltage relays adjusted for maximum pickup of 75% of nominal coil voltage. Wt. 1.0 to 6.0 ounces. Contacts are of the tape or ribbon type, with gold finished silver contacts to protect against corrosion and assure low contact resistance.

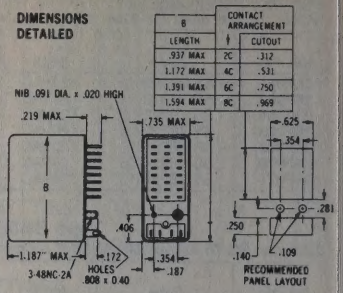




DIMENSION B	
2C	.937
4C	1.172
6C	1.391
8C	1.594



CIRCUIT DIAGRAMS-UNENERGIZED



B LENGTH	CONTACT ARRANGEMENT	CUTOUT
.937 MAX	2C	.312
1.172 MAX	4C	.531
1.391 MAX	6C	.750
1.594 MAX	8C	.969

T-154 STANDARD/SINGLE POINT CONTACTS

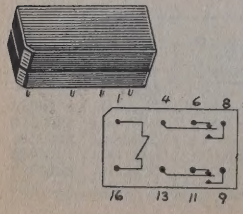
Contact arrangement specified in Type No. Example: 2C indicates 2 Form C.

Solder/Plug in		Coils Res. in	Nom.				
Stk. No.	Type	Ohms	Power	1-19	20-49	50-99	100-249
59F459	T154-2C-6VDC	52	690mW	6.00	5.40	4.80	4.50
59F460	T154-2C-12VDC	185	690mW	6.00	5.40	4.80	4.50
59F461	T154-2C-24VDC	700	690mW	6.00	5.40	4.80	4.50
59F462	T154-2C-48VDC	2,500	690mW	6.30	5.67	5.04	4.72
59F463	T154-2C-115VDC	15,000	690mW	9.15	8.23	7.32	6.86
59F464	T154-4C-6VDC	52	690mW	6.70	6.03	5.36	5.02
59F465	T154-4C-12VDC	185	690mW	6.70	6.03	5.36	5.02
59F466	T154-4C-24VDC	700	690mW	6.70	6.03	5.36	5.02
59F467	T154-4C-48VDC	2,500	690mW	7.10	6.39	5.68	5.32
59F470	T154-6C-12VDC	90	1.4W	9.70	8.73	7.76	7.27
59F471	T154-6C-24VDC	430	1.4W	9.70	8.73	7.76	7.27
59F473	T154-6C-115VDC	9,000	1.4W	12.00	10.80	9.60	9.00
	TF SERIES—5 AMP TYPES						
59F484	TF154-2C-6VDC	52	690mW	6.55	5.89	5.24	4.91
59F485	TF154-2C-12VDC	185	690mW	6.55	5.89	5.24	4.91
59F486	TF154-2C-24VDC	700	690mW	6.55	5.89	5.24	4.91
59F488	TF154-2C-115VDC	15,000	690mW	9.45	8.50	7.56	7.08
59F489	TF154-4C-6VDC	52	690mW	7.60	6.84	6.08	5.70
59F490	TF154-4C-12VDC	185	690mW	7.60	6.84	6.08	5.70
59F491	TF154-4C-24VDC	700	690mW	7.60	6.84	6.08	5.70
59F492	TF154-4C-48VDC	2,500	690mW	7.95	7.15	6.36	5.96
59F493	TF154-4C-115VDC	15,000	690mW	10.75	9.67	8.60	8.06
59F495	TF154-6C-12VDC	90	1.4W	11.00	9.90	8.80	8.25
59F496	TF154-6C-24VDC	430	1.4W	11.00	9.90	8.80	8.25
59F498	TF154-6C-115VDC	9,000	1.4W	12.60	11.34	10.08	9.45
	T SERIES STANDARD/BIFURCATED CONTACTS						
59F528	T163-2C-24VDC	700	690mW	7.00	6.30	5.60	5.25
59F532	T163-4C-12VDC	185	690mW	8.00	7.20	6.40	6.00
59F533	T163-4C-24VDC	700	690mW	8.00	7.20	6.40	6.00
59F537	T163-6C-12VDC	90	1.4W	10.50	9.45	8.40	7.87
59F538	T163-6C-24VDC	430	1.4W	10.50	9.45	8.40	7.87
59F539	T163-6C-48VDC	1,550	1.4W	11.55	10.39	9.24	8.66
11F321	T163-8C-24VDC	430	1.9W	15.50	13.95	12.40	11.62
	SENSITIVE/SINGLE POINT CONTACTS						
11F330	TS154-2C-12VDC	800	100mW	6.70	6.03	5.36	5.02
11F331	TS154-2C-24VDC	3,200	100mW	6.70	6.03	5.36	5.02
11F332	TS154-4C-12VDC	430	175mW	7.35	6.61	5.88	5.51
11F333	TS154-4C-24VDC	1,800	175mW	7.35	6.61	5.88	5.51

MAGNETIC LATCH RELAYS

Magnetic latch relays with single and dual coil construction. Versatile mounting means, including solder, printed circuit board and socket options. U.L. recognized File E-20604. Weight: 1.5 to 4.0 ounces.

Contact arrange. specified in Type No. Eg.: 2C indicates 2 Form C.



Fits 16 pin IC socket or PCB with .5" spacing. 4 ms operate time, 1 ms release time with 5 ms N.C. and 1 ms N.O. bounce time. Rated at 1 amp. at 28 VDC switching, 5 amps. carry. Max. pull-in sensitivity: 200 mW. Coil to contacts: 2.8 pf. between contacts: 1.5 pf. between circuits: 1.3 pf. Expected mechanical life: 10 x 10^6 operations. Operating temp.: –55°C to 70°C. Weight: 5 g. *±10%.

Stock No.	Type	Nom. Volt	Coil VDC Max.	Coil Drop Out	Coil. Res.*	1-19	20-49	50-99	100-249
29F310	DR-5VDC	5V	7.5V	.19V	63Ω	5.50	4.95	4.40	4.12
29F311	DR-6VDC	6V	9V	.23V	100Ω				
29F312	DR-12VDC	12V	18V	.68V	400Ω				
29F313	DR24VDC	24V	36V	.9V	1600Ω	5.25	5.17	4.80	4.50

DUAL COIL SINGLE POINT CONTACTS—2 AMPS

Solder/Plug-in		Res. in	Nom.				
Stk. No.	Type	Ohms	Power	1-19	20-49	50-99	100-249
59F1227	T351-2C-2/24VDC	485/485	600mW	12.35	11.11	9.88	9.26
59F1232	T351-4C-2/24VDC	485/485	600mW	14.20	12.78	11.36	10.65
	DUAL COIL SINGLE POINT CONTACTS—5 AMPS						
59F1237	TF351-2C-2/24VDC	485/485	600mW	13.40	12.06	10.72	10.05
59F608	TF351-2C-2/24VDC	485/485	600mW	15.25	13.72	12.20	11.43
	DUAL COIL BIFURCATED CONTACTS—2 AMPS						
59F611	T362-2C-2/24VDC	485/485	600mW	13.40	12.06	10.72	10.05
59F612	T362-2C-2/24VDC	485/485	600mW	15.25	13.72	12.20	11.43

AC RELAYS—VOLTAGE ADJUSTED

SINGLE POINT CONTACTS

Solder/Plug-in		Con.	Res. in	Nom.				
Stk. No.	Type	Rtg.	Ohms	Power	1-9	20-49	50-99	100-249
59F588	T154-2C-115VAC	2 Amp	6,000	1.3VA	9.45	8.50	7.56	7.08
59F589	T154-4C-115VAC	2 Amp	6,000	1.3VA	10.75	9.67	8.60	8.06
59F590	TF154-2C-115VAC	5 Amp	6,000	1.3VA	10.00	9.00	8.00	7.50
59F591	TF154-4C-115VAC	5 Amp	6,000	1.3VA	11.55	10.39	9.24	8.66
	BIFURCATED CONTACTS							
59F596	T163-2C-115VAC	2 Amp	6,000	1.3VA	10.00	9.00	8.00	7.50
59F597	T163-4C-115VAC	2 Amp	6,000	1.3VA	11.00	9.90	8.80	8.25

NEW LOW PROFILE S.I.P. RELAY

Low cost, low profile—¼ in² PCB space with .390" max. height. SP-NO or SP-NC contacts. Bifurcated contacts rated 2.0 amps at 28 VDC switching, 6.0 amps carry. 125 mw pull in sensitivity. Sealed construction withstands wave solder and inline cleaning. Operating temperature –55°C to +75°C. Operate time 3.0 ms. Release time 1.0 ms. Contact resistance 100 milliohm max. initially. Weight 4 grams, dimensions: L .900", W .290", H .390".

	COIL DATA @ 20°C	
Coil VDC Nom.	24	48
Coil Resistance OHMS ± 10%	2400	6,000
Continuous Coil VDC max.	36	60
Pull-in VDC Max. Applied Abruptly	18.0	36.0
Drop-Out VDC Min.	.9	1.8

Stock No.	Type	1-10	20-49	50-99	100-Up
81F1966	SR-1A-5VDC	3.50	3.15	2.80	2.63
81F1967	SR-1A-12VDC	3.50	3.15	2.80	2.63
81F1968	SR-1A-24VDC	3.75	3.38	3.00	2.82
81F1969	SR-1A-48VDC	4.25	3.83	3.40	3.19
81F1970	SR-1B-5VDC	3.50	3.15	2.80	2.63
81F1971	SR-1B-12VDC	3.50	3.15	2.80	2.63
81F1972	SR-1B-24VDC	3.75	3.38	3.00	2.82

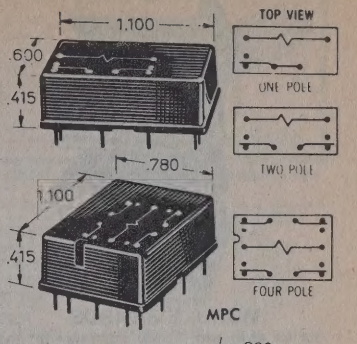
Allied Control Relays

GOULD

MINIATURE PRINTED CIRCUIT RELAYS

Series MPC. Low profile, high density packaging. Can switch low level up to 2 amps (50 watts max. per hole). Interlocking housing provides protection from contamination and increases reliability.

Stock No.	Type	Coil Input VDC	Coil Resis. Ohms	Coil Power mW	Contacts	1-19	20-49	50-99	100-249
11F371	MPC-1C	12	200	720	1PDT	4.25	3.82	3.40	3.18
11F372	MPC-1C	24	800	720	1PDT	4.50	4.05	3.60	3.37
11F373	MPC-2C	6	50	720	2PDT	5.55	4.99	4.44	4.16
11F374	MPC-2C	12	200	720	2PDT	5.55	4.99	4.44	4.16
11F375	MPC-2C	24	800	720	2PDT	5.80	5.22	4.64	4.35
11F377	MPC-4C	6	38	960	4PDT	7.00	6.30	5.60	5.25
11F378	MPC-4C	12	150	960	4PDT	7.00	6.30	5.60	5.25
11F379	MPC-4C	24	600	960	4PDT	7.15	6.43	5.72	5.36
MPC SENSITIVE RELAYS									
28F1703	MPCS-2C	24	2000	720	DPDT	6.30	5.67	5.04	4.72

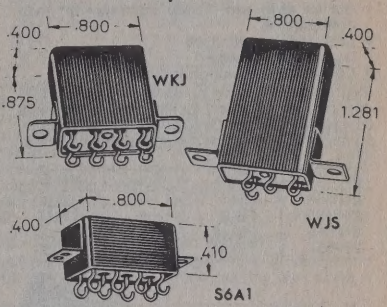


MILITARY RELAYS

Series WKJ. High performance. Bifurcated contacts make relay ideal for dry circuit loads up to 3 amp. All welded. **Series WKJ,** MIL-R-5757/10 as applicable. **Series WJS,** MIL-R-5757/13 as applicable. **Series S,** MIL-R-5757/9 as applicable.

CRYSTAL CAN/SERIES WKJ

Stock No.	Type	Con. Rtg.	Cont.	Coils Input	Coils Coil Resist.	1-9	10-49	50-99	100-499
11F381	WKJ-6D	3 amp	DPDT	26.5 VDC	600	24.00	21.60	19.20	18.00
½ SIZE CRYSTAL CAN/SERIES S									
59F1246	S6A1	2 amp	DPDT	26.5 VDC	700	18.75	16.87	15.00	14.06



MILITARY RELAYS/MINIATURE ROUND CAN STYLE

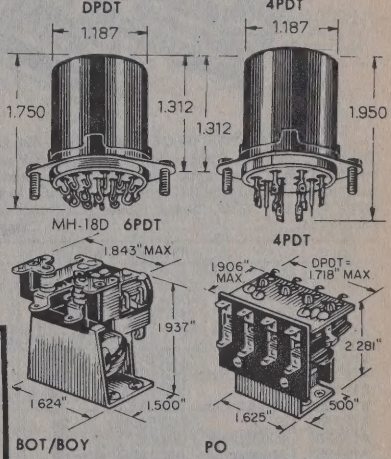
5 AMP/SERIES MH/MHB/MHJ

CRYSTAL CAN STYLE

Stock No.	Type	Cont.	Coils Input	Coils Resist.	1-9	10-49	50-99	100-499
59F439	MH-6D	SPDT	26.5 VDC	400	29.25	24.52	21.80	20.43
59F440	MH-12D	4PDT	26.5 VDC	300	40.50	36.45	32.40	30.37
59F441	MH-18D	6PDT	26.5 VDC	200	53.00	47.70	42.40	39.75
ROUND CAN STYLE—10 AMP								
11F384	MHY-12D	4PDT	26.5 VDC	200	51.00	45.90	40.80	38.25

BOT/BOY SERIES—OPEN FRAME INDUSTRIAL COMMERCIAL RELAYS

Stock No.	Type	Con-tacts	Coil Input	Coil Resist.	1-9	10-49	50-99	100-499
59F406	BOT-6A	DPDT	110/120 VAC	445	20.00	18.00	16.00	15.00
59F410	BOT-6D	DPDT	26.5 VDC	230	19.75	17.77	15.80	14.86
59F411	BOT-6D	DPDT	110/120 VDC	5,000	19.75	17.77	15.80	14.86
11F385	BOY-6D	DPDT	87 VDC	10,000	27.25	24.52	21.80	20.43
PO SERIES—OPEN FRAME, HEAVY DUTY								
59F450	PO-9A	3PDT	110/120 VAC	145	24.75	22.27	19.80	18.56
59F454	PO-12A	4PDT	110/120 VAC	145	28.00	25.20	22.40	21.00
59F456	PO-12D	4PDT	26.5 VDC	230	27.00	24.30	21.60	20.25



CRADLE SOCKETS AND HARDWARE

2 POLE

Stock No	Type	For	NET
59F621	0211-011-001-000	Solder Lug	1.30
59F622	0211-011-005-000	PC Mount	

4 POLE

59F625	0211-011-002-000	Solder Lug	1.90
59F626	0211-011-006-000	PC Mount	
59F627	0211-011-004-000	.1x.1 Grd	

6 POLE

Stock No.	Type	For	Net
59F628	0211-011-020-000	Solder Lug	2.35
59F629	0211-011-024-000	PC Mount	

GROUND WIRE

Stock No.	Type	For	Net
59F615	30052-1	Solder & Std.	PC .23

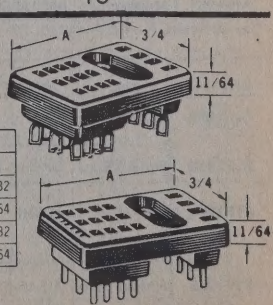
STANDARD RETAINERS

Stock No.	Type	For	Net
59F617	30040-1	2 pole	.23
59F618	30040-2	4 pole	
59F619	30040-3	6 pole	

FLAT RETAINER

Stock No.	Type	For	Net
59F620	0330-031-001	8 pole	.32

Dimensions	
Poles	A
2 Pole	31/32
4 Pole	1-13/64
6 Pole	1-13/32
8 Pole	1-41/64



SAVE WORK! Make Newark your Complete 1-Point Stock Source.

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8

GORDOS IO MODULES & CONTROL SYSTEMS

MODULE BOARDS

- **Barrier strip with screw terminals for load connections**
- **LED Status Indicators**
- **Replaceable Fuses**
- **Color Coded Position Indicators**

Plug compatible logic contacts on 8, 16 and 24 position boards. Screw terminal logic connectors on 4 position boards. Circuitry for pull-up resistors. 5 amp. field replaceable fuses. LED status indicators.

Stk. No.	Type	Pos.	Net Ea.
21F854	PB-4	4	20.50
21F855	PB-8	8	38.00
21F856	PB-16	16	62.50
21F857	PB-24	24	97.50

8

INPUT/OUTPUT MODULES AND BOARDS

INPUT/OUTPUT MODULES

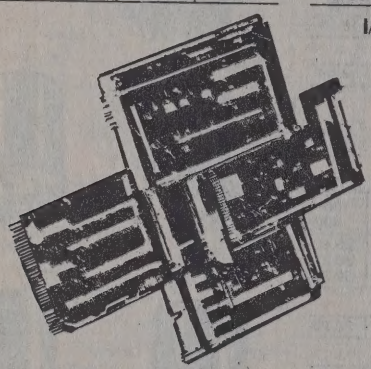
The Gordos I/O modules offer the high reliability and cost advantages of hybrid construction. Each module is functionally tuned and optimized during manufacture, providing module-to-module uniformity in the field. Thick film technology is used to provide superior thermal properties, noise immunity, and shock and vibration resistance for use in harsh environments.

SPECIFICATIONS

- 5, 15, or 24 volt logic compatible.
- Line voltages up to 280 VAC or 200 VDC.
- 600 V blocking and VDE specs available.
- 2500 VAC photo isolation.
- Zero voltage turn-on (AC output).
- Excellent surge protection.
- Component values laser trimmed to ±0.3%.
- Room temperature encapsulated.
- −30 to +80° C. temperature range for output modules.
- −30 to +60° C. temperature range for input modules.
- Single hold-down screw.
- Buffered I/O modules are also available.
- U.L. recognized.
- CSA certified.

Stock No.	Type	Desc.	Input Voltage	Volt Logic	Timing Charact. Turn-On	Timing Charact. Turn-Off	Output Voltage	1-9	10-49	50-99
21F863	IAC5	AC-Input	90-140V	5	10 mS	10 mS	4.5-6V	15.76	13.13	11.26
21F864	IAC15	AC-Input	90-140V	15	10 mS	10 mS	12-18V	15.76	13.13	11.26
21F865	IAC24	AC-Input	90-140V	24	10 mS	10 mS	20-30V	15.76	13.13	11.26
21F866	IAC5A	AC-Input	180-280V	5	10 mS	10 mS	4.5-6V	16.16	13.47	11.54
21F867	IAC15A	AC-Input	180-280V	15	10 mS	10 mS	12-18V	16.16	13.47	11.54
21F868	IAC24A	AC-Input	180-280V	24	10 mS	10 mS	20-30V	16.16	13.47	11.54
21F869	OAC5	AC-Output	3-15V	5	½ cycle	½ cycle	12-140VAC	17.36	14.47	12.40
21F870	OAC15	AC-Output	6-24V	15	½ cycle	½ cycle	12-140VAC	17.36	14.47	12.40
21F871	OAC24	AC-Output	12-32V	24	½ cycle	½ cycle	12-140VAC	17.36	14.47	12.40
21F872	OAC5A	AC-Output	3-15V	5	½ cycle	½ cycle	24-280VAC	17.76	14.80	12.69
21F873	OAC15A	AC-Output	6-24V	15	½ cycle	½ cycle	24-280VAC	17.76	14.80	12.69
21F874	OAC24A	AC-Output	12-32V	24	½ cycle	½ cycle	24-280VAC	17.76	14.80	12.69
21F858	IDC5	DC-Input	10-32V	5	5 mS	5 mS	4-5-6V	14.96	12.47	10.69
21F859	IDC15	DC-Input	10-32V	15	5 mS	5 mS	12-18V	14.96	12.47	10.69
21F860	IDC24	DC-Input	10-32V	24	5 mS	5 mS	20-30V	14.96	12.47	10.69
21F861	ODC5	DC-Output	3-15V	5	500 µS	2 mS	60V	15.64	13.03	11.17
21F862	ODC15	DC-Output	6-24V	15	500 µS	2 mS	60V	15.64	13.03	11.17
21F864	ODC24	DC-Output	12-32V	24	500 µS	2 mS	60V	15.64	13.03	11.17

I/O Modules and Boards



SERIAL INTERFACE SYSTEM (RS-422 COMPATIBLE)

The Serial Interface System provides twisted-pair serial link between a host controller and other serial systems, plus a wide variety of parallel I/O peripherals including the STD bus. A converter is available to link these serial cards to the RS-232C based Systems. Contact Manufacturer for further information.

BUS COMPATIBLE INPUT/OUTPUT CONTROL SYSTEMS

The Bus Compatible Input/Output Control Systems make it easy to equip your RM-65™, Multibus™, EXORciser II®, or STD microcomputer bus for industrial control. Interface cards, cable, input/output modules, and module boards are available from a single source. Eurocards and VDE spec modules are also available.

PARALLEL INPUT/OUTPUT CARDS

GPBI/O CARD—Used with the RM-65 bus. Contains 16 buffered, bidirectional I/O lines for general TTL interface and I/O control. Eurocard versions are also available.

GPSI/O CARD—Used with the RM-65 bus. Contains 32 nonbuffered, bidirectional I/O lines for general MOS interface and I/O control with Gordos' buffered I/O modules. Eurocard versions are also available.

GS19I/O CARD—Used with the Multibus (IEEE-796). Contains 72 buffered, bidirectional, bit-programmable I/O lines for general TTL interface or I/O control. Permits any configuration of I/O modules. Interrupt Controller 8259 and Programmable Timer 8253 are also provided.

G680I/O CARD—Used with the EXORciser II bus. Contains 32 buffered, bidirectional I/O lines for general TTL interface or I/O control.

G7507I/O CARD—Used with the STD bus. Contains 24 buffered, bidirectional I/O lines for general TTL interface or I/O control.

DATA CONVERSION CARDS

DA-410 CARD—Supports the RM-65 bus with four 10-bit digital-to-analog converters.

AD-10 CARD—Provides 10-bit analog-to-digital conversion. 8 dual or 16 single-ended channels.

PARALLEL I/O CARDS SPECIFICATIONS AND PRICING

Interface Cards						Interconnection Cables**			I/O Module Requirements				
Stock No.	Bus	Gordos Part No.	Max. No. of I/O Lines	I/O Lines*	No. of Available 16 Bit Timers On Board	Part No.	No. Req'd.	Number Supplied Standard	Module Compatibility†	Current Sinking Capability	1-9	10-24	25-up
81F1955	RM-65	GPBI/O	16	B	2	CP8001	1	1	S or B	24 mA	240.00	225.00	211.00
81F1956	RM-65 Euro	GPBI/O-E	16	B	2	CP8001	1	1	S or B	24 mA	249.00	234.00	219.00
81F1957	RM-65	GPSI/O	32	N	4	CP8001	1 or 2	1	B	1.6 mA	240.00	225.00	211.00
81F1958	RM-65 Euro	GPSI/O-E	32	N	4	CP8001	1 or 2	1	B	1.6 mA	249.00	234.00	219.00
81F1959	STD	G7507I/O	24	B	0	CA-x‡	1	0	S or B	20 mA	214.00	.....	.....
81F1960	EXORciser II	G680I/O	32	B	4	CP-8001	1 or 2	0	S or B	24 mA	375.00	352.50	331.35
81F1961	Multibus	G519I/O	72	B	3	CA-x‡	1, 2, or 3	0	S or B	24 mA	435.00	408.90	384.37

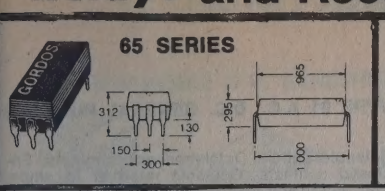
*B—Buffered; N—Nonbuffered. †S—Standard; B—Buffered. **Prices on request. ‡Specify length (ft.) when ordering.

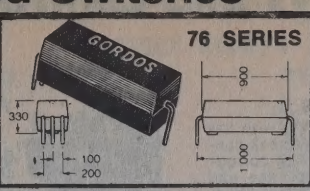
DATA CONVERSION CARDS SPECIFICATIONS AND PRICES

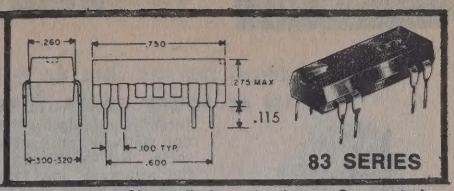
Stock No.	Bus	Number	Conversion Type	Resolution (Bits)	Number of Channels	Characteristics	Connections (Part Numbers)	1-9	10-24	25-up
81F1962	RM-65	DA-410	Digital-to Analog	10	4	Unipolar (9 to 10.23 V) or Bipolar (−5.12 to 5.11V)	Molex .156" 2139R	350.00	329.00	308.00
81F1963	RM-65 Euro	DA-410-E						359.00	337.00	316.00
81F1964	RM-65	AD-10	Analog-to Digital	10	8 dual or 16 single ended	Gain-programmable instrumentation amp. Sample-and-hold circuit Programmable analog filter with bypass switch.	Optional—CP8003 Cable (3 ft. 50-conductor, color coded ribbon cable with socket connector on one end).	390.00	367.00	343.00
81F1965	RM-65 Euro	AD-10-E						399.99	375.00	351.00

Relays and Reed Switches

GORDOS







• Logic compatible • Molded epoxy • Standard DIP package fits TO-116 • Mercury wetted relays • Clamp diode protection • Compact size

CONTACT RATINGS

Type of Relay D.C. Watts Contacts Type No.	DRY REED Low Level to 3 WDC SPST 832A	DRY REED Low Level to 3 WDC SPDT 651C, 831C	DRY REED Low Level to 10 WDC SPST 741A, 831A	DRY REED Low Level to 10 WDC SPST & SPDT 651A, 761A	MERCURY WETTED REED RELAY Low Level to 50 WDC SPST	 SPDT 651C
Max. Switching Volt.	28 VDC	28 VDC	100 VDC	200 VDC	500 VDC	500 VDC
Max. D.C. Current Rat'g.	250MA	250MA	250MA	500MA	1.0 A	1.0 A
Breakdown Voltage.	150 VRMS	250 VRMS	250 VRMS	300 VRMS	1000VRMS	1000 VRMS
Init. Contact Resistance.	.200 Ohms	.200 Ohms	.200 Ohms	.200 Ohms	.070 Ohms	.070 Ohms
Typ. Operate Time.	.5 ms	1.0 ms (N/C)	.5 ms	.5 ms	1.8 ms	1.8 ms
Typ. Release Time.	.05 ms	1.5 ms (N/O)	.05 ms	.05 ms	1.50 ms.	1.0 ms

65 SERIES MERCURY WETTED RELAYS

Stock No.	Type	Contact Form	VDC Nom.	Coil Ohms★ Nom.	Diode	1-24	25-99	100-499	500-999
28F1749	651A-051-5	1A	5	70	NO	3.00	2.77	2.40	2.00
28F1743	652A-121-1	2A	12	320	NO	4.97	4.58	3.97	3.31
21F965	652A-122-5	2A	12	170	NO	8.80	8.12	7.04	5.87
21F961	651A-122-5	1A	12	320	NO	5.90	5.45	4.72	3.93
21F962	651A-242-5	1A	24	1600	NO	6.23	5.75	4.99	4.16
28F1753	651C-051-5	1C	5	70	NO	9.93	9.17	7.95	6.62
28F1754	651C-121-5	1C	12	320	NO	9.93	9.17	7.95	6.62

76 SERIES IN .10 x 1.0" PCB PATTERN

28F1746	761A-051-1	1A	5	225	NO	2.67	2.46	2.13	1.78
28F1747	761A-121-1	1A	12	1000	NO	2.67	2.46	2.13	1.78
28F1748	761A-241-1	1A	24	2150	NO	2.83	2.62	2.27	1.89
21F942	761A-052-1	2A	5	225	NO	2.67	2.46	2.13	1.78
21F943	761A-122-1	2A	12	1000	NO	2.67	2.46	2.13	1.78
21F944	761A-242-1	2A	24	2150	NO	2.83	2.62	2.27	1.89

65 SERIES IN .15 x 1.0" PCB PATTERN

28F1740	651A-051-1	1A	5	150	NO	3.00	2.77	2.40	2.00
28F1741	651A-121-1	1A	12	575	NO	3.00	2.77	2.40	2.00

831A DUAL-IN-LINE IN 8-PIN .275" HIGH CASE

62F4010	831A-1	1A	5	380	NO	2.83	2.62	2.27	1.89
62F4011	831A-2	1A	5	380	YES	3.20	2.95	2.56	2.13
62F2914	831A-3	1A	5	500	NO	2.93	2.71	2.35	1.96
62F2915	831A-4	1A	5	500	YES	3.30	3.05	2.64	2.20
62F4012	831A-5	1A	12	500	NO	2.93	2.71	2.35	1.96
62F4013	831A-6	1A	12	500	YES	3.30	3.05	2.64	2.20
62F2918	831A-7	1A	24	1750	NO	3.40	3.14	2.72	2.27
62F2919	831A-8	1A	24	1750	YES	3.73	3.45	2.99	2.49

831C DUAL-IN-LINE IN 8-PIN .275" HIGH CASE

21F947	831C-1	1C	5	150	NO	4.40	4.06	3.52	2.93
62F4034	831C-2	1C	5	150	YES	4.73	4.37	3.79	3.16
21F948	831C-3	1C	12	450	NO	4.40	4.06	3.52	2.93
62F4035	831C-4	1C	12	450	YES	4.73	4.37	3.79	3.16
21F949	831C-5	1C	24	1750	NO	4.87	4.49	3.89	3.24
62F4036	831C-6	1C	24	1750	YES	5.20	4.80	4.16	3.47

832A DUAL-IN-LINE IN 8-PIN .275" HIGH CASE

21F950	832A-1	2A	5	150	NO	4.80	4.43	3.84	3.20
62F4037	832A-2	2A	5	150	YES	5.17	4.77	4.13	3.44
21F951	832A-3	2A	12	450	NO	4.80	4.43	3.84	3.20
62F4038	832A-4	2A	12	450	YES	5.17	4.77	4.13	3.44
21F952	832A-5	2A	24	1750	NO	5.53	5.11	4.43	3.69
62F4039	832A-6	2A	24	1750	YES	5.93	5.48	4.75	3.96

Mercury wetted relays have advantages of low stable contact resistance along with no contact bounce and an extremely long life. In order for mercury wetted relays to operate properly they must be mounted within 30° of vertical. Pin spacing of dual-in-line design conforms to standard DIP lead spacing and fits standard 14 pin receptacles and may be inserted automatically, 8 pin version of the DIP types are designed for direct printed circuit board mounting or TO116 sockets. Internal clamp diodes are available on some models which provide protection of drivers by suppressing back EMF. All ratings listed above are typical values at 25°C. Coil resistance is given ±10% at 25°C. All relays are molded epoxy for environmental immunity.

SERIES GA-AC GEN. PURPOSE RELAYS

The GA AC solid state relays have a control voltage input of 3 to 30 VDC and maximum line voltage of 140, 250 and 280 VAC. When ordering refer to the part number.

GA SERIES

Stk. No.	Type	Maximum Output Rating	Control Voltage	1-24	25-99	100-499	500-999
21F924	GA5-2D05	140VAC/5.0	3-30VDC	19.56	16.30	13.97	12.23
21F925	GA5-2D10	140VAC/10.0	3-30VDC	20.20	16.83	14.43	12.63
21F926	GA5-2D25	140VAC/25.0	3-30VDC	22.92	19.10	16.37	14.33
21F927	GA5-2D40	140VAC/40.0	3-30VDC	26.92	22.43	19.23	16.83
21F928	GA5-4D10	250VAC/10AMP	3-30VDC	21.20	17.67	15.14	13.25
21F929	GA5-4D25	250VAC/25AMP	3-30VDC	23.76	19.80	16.97	14.85
21F930	GA5-4D40	250VAC/40AMP	3-30VDC	27.76	23.13	19.83	17.35

15000—MOLDED SOLID STATE RELAY

U.L. recognized, zero voltage turn-on, 3 to 32 VDC TTL compatible photo-isolated input with reverse polarity protection. SPST N.O. output, 10, 25 or 40 AMP, 24 to 280 VAC with internal RC network protection. Molded package with screw termination. 2500 VRMS isolation. Size: 2.250"L. x 1.75"W. x .875"H. with 1.875" mounting centers.

Stock No.	Type	Maximum Output Rating	1-9	10-49	50-99	100-250
10F8139	GB15205-2	140 VAC/5.0	19.76	16.47	14.11	12.35
28F1761	GB15210-2	140 VAC/10	20.60	17.17	14.71	12.88
28F1762	GB15225-2	140 VAC/25	23.12	19.27	16.51	14.45
28F1763	GB15240-2	140 VAC/40	27.12	22.60	19.37	16.95
10F8140	GB15405-2	250 VAC/5.0	20.60	17.17	14.71	12.88
28F1764	GB15410-2	250 VAC/10	21.40	17.83	15.29	13.38
28F1765	GB15425-2	250 VAC/25	24.04	20.03	17.17	15.03
28F1766	GB15440-2	250 VAC/40	28.04	23.37	20.03	17.53

Stock No.	Type HG.	Contact Arrg.	30V	Max. Amps 115V	220V	Contact Type	Max. Diff. Angle	Mtg. Clip	Each
62F4055	252-LO	SPST	4	2	1	MWM	14°	M-514	2.25
62F4057	520-LO	SPST	.25	.1	.05	MDM	10°	M-539	2.45

MOUNTING CLIPS

Stock No.	Type	Description	Each
62F4067	M-514	H: .562" x W: .385" x L: 410"	.25
62F4068	M-539	H: .275" x W: .218" x L: .250"	.35

SUB-MINIATURE AND MINIATURE REED SWITCHES

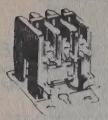
Stock No.	Type	Form	Description	Maximum Dim. Dia. A	Maximum Dim. Lgth. B	Nom. Lgth. C	Maximum Amps	Maximum VDC	Initial Contact Res. Ohms	Min. Br. Volt. Volts-RMS	Typical Oper. Time M Sec.	Amp. Turns	1-99	100-499	500-999
62F4014	MR-456	A	Offset Gap	.090"	.560"	1.90"	.250	100	150	250	0.6	10/50	.53	.42	.37
62F4016	MR-108	A	Center Gap	.105"	.785"	2.10"	.500	200	.100	250	0.75	20/35	1.56	1.25	1.10
62F4017	MR-138	A	Center Gap	.105"	.815"	2.10"	.500	1000	.100	1200	0.50	20/35	2.09	1.50	1.31
62F4018	MR-5830	A	Center Gap	.105"	.845"	2.10"	.500	200	.090	250	0.75	28/42	2.00	1.60	1.42
62F4020	MR-5024	C	SPDT	.125"	.600"	2.125"	.300	28	.150	200	0.5	20/35	2.58	1.84	1.61
21F851	MR-103	A	Center Gap	.105"	.785"	2.10"	1.000	200	.500	250	1.0	30/50	.79	.64	.56
21F852	MR-1088	A	Center Gap	.105"	.785"	2.10"	.500	1000	.100	1200	0.75	15/50	1.02	.82	.72
21F853	MR-7063	C	SPDT	.125"	.585"	2.04"	.300	28	.150	250	1.01	15/35	1.88	1.50	1.33

COMPACT STANDARD AND LARGE REED SWITCHES

62F4022	MR-8901	A	Offset Gap	.190"	1.70"	3.20"	3.0	250	.500	400	2.5	50/65	2.17	1.74	1.53
28F1772	WR-1300-1	C	Mercury Wetted	.190"	1.050"	3.20"	3.0	500	.060	1000	2.0	40/140	3.14	2.51	2.22

8

TYPE 154 AC POWER CONTACTORS



Interchangeable mounting with low coil wattage and double-break contacts. Non-positional non-corroding structure, low temp. rise and riveted terminal assemblies. Hardware included in boxed units only. Size: 2¾″x3¾″x3 1/16″.

20 AMP THREE POLE—NORMALLY OPEN

Stock No.	Type	Call V.	Cont. Rating Inductive	Resistive	1-9	10-24
60F2650	154-901	24	Cont. 20A@ 600V, inrush 120A@ 277V.	30A @ 600V AC Max	24.78	23.44
60F2651	154-902	120			25.73	24.35

25 AMP THREE POLE—NORMALLY OPEN

60F2653	154-904	24	Cont. 25 AMP @ 600V	35A @ 600V AC Max	26.76	25.32
60F2654	154-905	120	Inrush 150 AMP @ 277V		27.85	26.35

30 AMP THREE POLE—NORMALLY OPEN

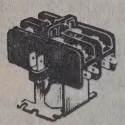
60F2656	154-907	24	Cont. 30A@ 600V Inrush 180A@ 277V	40 AMP @ 600V AC Max	37.86	35.82
60F2657	154-908	120			38.82	36.25
60F2658	154-909	208/240			38.45	36.86

40 AMP TWO AND THREE POLE—NORMALLY OPEN

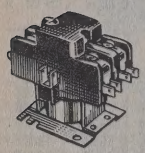
3 Pole except (*) 2 Pole

60F2661	154-911	120	Inrush 240A@ 277V 200 AMP @ 480V	50 AMP @ 600V AC Max	40.80	38.60
60F2662	154-914*	120			30.69	29.04
60F2663	154-912	208/240			40.80	38.60

TYPE 143 A.C. POWER CONTACTORS



2PNO double make contacts. Rated at 277V; cont. 150A (except 143-901/902: 100A) inrush. St. through wiring. Screw power terminals with dual quick-connect auxiliary terminals. Female wiring terminals included. U.L. and CSA listed. 3¼″x2⅜″x2½″.



Stk. No.	Type	Vac Coil	Amps	1-9	10 24	25- 49	50- 99
60F2979	143-901	24	20	19.46	18.41	16.37	15.50
60F2980	143-902	120	20	20.33	19.24	17.10	16.20
60F2981	143-903	208 240	20	20.48	19.38	17.23	16.32
02F1101	143-907	120	30	23.09	26.85	19.42	18.40
02F1102	143-914	24	25	22.40	21.19	18.84	17.85
02F1103	143-915	120	25	23.09	21.85	19.42	18.40
02F1104	143-916	208 240	25	23.24	21.99	19.55	18.52

TYPE 129 AC POWER RELAY

Totally enclosed. Screw terminals. Silver alloy contacts rated at 18 amperes continuously at 250 volts AC, resistive or inductive. Horse power rating, 1 H.P. at 125 volts, 2 H.P. at 250 volts. Single screw mounting. Electrical life, 100,000 operations at rated load. Coil: 10 volt-amperes inrush; 5 volt-amperes sealed. Size: 2 7/16x2¼x1⅞″. Approx. 7 oz.

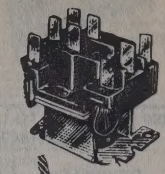
Stk. No.	Type	AC Volts	Action	1-9	10-24	25-49	50-99
60F2709	129-902	24	SPNO	11.09	10.49	9.32	8.83
60F2710	129-903	120	SPNO	11.04	10.72	9.28	8.79
60F2711	129-904	208/230	SPNO	11.49	10.88	9.67	9.16
60F2714	129-907	120	SPDT*	14.39	13.61	12.10	11.46
81F189	129-911	6	18	11.40	10.78	9.58	9.08

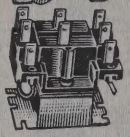
*Isolated Terminals: All contact term, wired same polarity.

TYPE 192

¼″ Quick Connect Termination U.L. and C.S.A. Enclosed Contacts Operate- Any Position Solenoid Action Manual Operating Button. A.C. Coils Rated 50/60 Hz

Stk. No.	Mfr. Type	AC Volts	1-9	10-24	25-49	50-99
60F2720	192-902	120	18.84	17.83	15.85	15.01





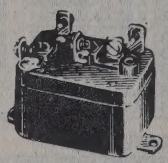
TYPE 91 A.C., D.C. GENERAL PURPOSE

Solenoid action. Quick-connect terminals. Enclosed contacts. Contacts rated at 15 amps, 277 volts AC max. resistive, 12 amps, (60 amps inrush) 125 VAC; 6 amps (35 amps inrush) 250 volts inductive. For VDC; 10 amps @ 32 VDC max. Selective mounting. Electrical life: 100K operations, at rated load. DPDT characteristics, 22 V-amp inrush; 10 V-amp sealed. Size: 2⅛″x1⅞″x2⅜″.

Stk. No.	Type	Voltage	1-9	10-24	25-49	50-99
60F2716	91-901	24 VAC	14.36	13.58	12.07	11.44
60F2717	91-902	115/120 VAC	15.38	14.55	12.93	12.25
60F2718	91-903	220/240 VAC	9.12	8.63	7.67	7.26
02F1107	91-180-1	*	1.45	1.38	1.22	1.16

(*) Socket and terminal kit (+) 10 A @ 32 V max. res.

TYPE 84 SCREW TERMINALS



Totally enclosed. Silver alloy contacts rated at 125/250 volts AC; SPNO, 16 amps resistive (continuous); 8 amps (25 amps inrush) inductive. D.T. 18A inrush-inductive, 8A continuous-resistive. 6-32 mounting holes/2.156″ centers. Electrical life, 100,000 operations at rated load. Coil, 4 VA inrush; 3 VA sealed. Overall size, 2⅜x1⅝x1½″. Approx. wt., 5 oz.

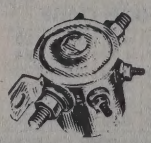
Stk. No.	Type	AC Volts	Action	1-9	10-24	25-49	50-99
60F2700	84-901	6	SPNO	7.13	6.75	6.00	5.68
60F2701	84-902	24	SPNO	8.29	7.85	6.98	6.61
60F2702	84-903	120	SPNO	8.66	8.19	7.28	6.90
60F2705	84-906	24	SPDT	9.25	8.75	7.78	7.37
60F2706	84-907	120	SPDT	9.60	9.08	8.07	7.65

TYPE 84 QUICK CONNECT TERMINALS

Same as above except with female quick-connect wiring terminals. (*) 3A @ 125 VAC or 1.5A @ 250 VAC. Pilot Duty.

Stk. No.	Type	AC Volts	Action	1-9	10-24	25-49	50-99
60F2847	84-922	24	SPNO	6.47	6.13	5.44	5.16
60F2985	84-912	24	SPNO	8.03	7.60	6.75	6.40
60F2986	84-913	120	SPNO	8.38	7.93	7.05	6.68
60F2988	84-916	24	SPDT	8.43	7.97	7.09	6.71
60F2989	84-917	120	SPDT	8.77	8.30	7.38	6.99
60F2997	84-927*	120	SPDT	7.53	7.13	6.33	6.00
81F184	184-902	24	SPNO	5.75	5.44	4.84	4.58
81F185	184-903	120	SPNO	6.35	6.00	5.34	5.06
81F186	184-912	24	SPNO	5.82	5.50	4.89	4.64
81F187	184-916	24	SPDT	7.67	7.25	6.45	6.11

TYPE 70 D.C. POWER CONTACTORS



Double break copper to copper rotating disc moveable contact. Wiring hardware included Cont. rating, 80 Amps (inrush 300A @ 6V, 150A @ 12VDC). 50A max. at 24 and 36 volts DC. Bracket mounting—2.109″ centers. Coil, 9 watts. Copper contacts except (*) which are silver. SPNO: 2½x3½x2½″. SPDT 3⅜x3 9/16x2½″. Approx. wt., 1 lb.

Stk. No.	Type	Volts DC	Action	Term. No.	1-9	10-24	25-49	50-99
60F2725	70-901	6	SPNO	4	10.24	9.69	8.61	8.16
60F2726	70-902	12	SPNO	4	10.01	9.47	8.42	7.97
60F2727	70-903	24	SPNO	4	10.24	9.69	8.61	8.16
60F2728	70-904	36	SPNO	4	9.64	9.13	8.11	7.68
60F2676	70-906*	12	SPNO	4	30.06	28.44	25.28	23.95
60F2677	70-907*	24	SPNO	4	30.29	28.66	25.47	24.13
60F2680	70-910*	12	SPDT	6	51.30	48.53	43.14	40.87
60F2681	70-911*	24	SPDT	6	51.40	48.63	43.22	40.94
60F2692	70-914	12	SPNO	3	8.95	8.47	7.53	7.13
60F2693	70-915	24	SPNO	3	9.25	8.75	7.78	7.37
60F2694	70-918	12	SPNO	3	8.98	8.50	7.56	7.16
02F1109	70-922*	12	SPDT	6	30.02	28.41	25.25	23.92

*Silver contacts.

Relays, Switches and Solenoids

ESSEX STANCOR

ESSEX RELAYS

MINIATURE D.C. SENSITIVE RELAYS

FIG. 1

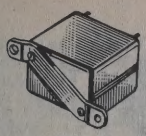


FIG. 2

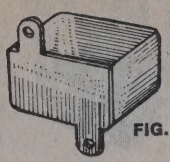


FIG. 3

Molded construction with snap-on cover. Isolated gold or silver alloy contacts. Printed circuit terminals or bracket mounting. All relays non-induct 28 VDC or 115 VAC. Size: 1 7/32" x 3/4" x 1 7/32".

PRINTED CIRCUIT 3A SPDT

Stk. No.	Type	DC Volts	Ohms • 25°C	Fig.	1-24	25-49	50-99	100-249
60F2971	MS64-901	6	400	1	3.55	3.36	2.99	2.83
60F2972	MS64-902	12	1600	1	3.63	3.44	3.06	2.89
60F2973	MS64-903	24	6500	1	4.34	4.10	3.65	3.46

PRINTED CIRCUIT 5A SPDT

02F1112	MS64-931	12	1300	1	3.90	3.69	3.28	3.11
02F2689	MS64-934	12	1300	2	4.61	4.36	3.88	3.68

PRINTED CIRCUIT 10A SPDT

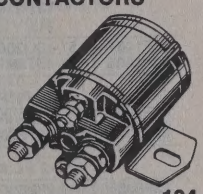
02F1114	MS64-951	6	200	1	4.84	4.58	4.07	3.86

3A SPDT BRACKET SOLDER TERMINALS

60F2975	MS64-911	6	400	2	4.34	4.11	3.65	3.46
02F2976	MS64-912	12	1600	2	4.38	4.14	3.68	3.49
02F2977	MS64-913	24	6500	2	4.43	4.19	3.72	3.53

HEAVY DUTY DC POWERED CONTACTORS

Design meets U.L. 583 Industrial Truck Standard; dust and splash proof cover. Contact Rating for D.C. Inductive load: 100 Amps continuous and 400 Amps inrush. Maximum continuous coil watts: 12 @ rated voltage. Maximum pick-up: 70% rated coil voltage with design ambient from −40°C to +65°C. silver contacts.



124

SPNO 3 Ter./Grounded coil 3 1/8" × 3 9/16" × 2 1/4"

Stk. No.	Type	VDC Coil	1-24	25-49	50-99	100-249
02F1138	124-906	12	17.44	16.50	14.67	13.89
02F1139	124-907	24	17.27	16.34	14.53	11.46

SPNO 4 Ter./Isolated coil 3 1/8" × 3 9/16" × 2 1/4"

Stk. No.	Type	VDC Coil	1-24	25-49	50-99	100-249
02F1134	124-902	12	17.37	16.44	14.61	13.84
02F1135	124-903	24	17.64	16.69	14.83	14.05
02F1136	124-904	36	17.54	16.59	14.75	13.97

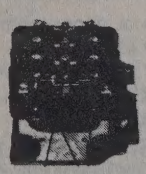
SPDT 8 Ter./Isolated coil 3 1/8" × 4 3/4" × 2 1/4"

Stk. No.	Type	VDC Coil	1-24	25-49	50-99	100-249
02F1142	124-910	12	27.28	25.81	22.94	21.74
02F1143	124-911	24	27.51	26.03	23.14	21.92

CONVERSION INSTRUCTIONS

All 10 and 15 ampere contact assemblies on standard type C contactors are normally open. To convert to normally closed, use screwdriver. No special parts needed.

1. Remove movable contact assembly and lock washer by backing off terminal nut "A".
2. Loosen screws "B" and remove stationary contact assemblies.
3. Invert movable contact assembly, and replace on contactor with flat "I" spring restiing on contact block. Contacts facing out.
4. Remove screws "B" from, and reinsert into opposite end of, stationary contact assembly. Re-install stationary contact assemblies, holding contacts in alignment with movable contacts while tightening screws.

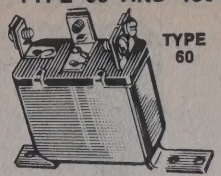


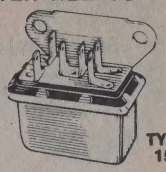
Normally Open

MAGNETIC COILS

Stk. No.	Type	Voltage (50/60 Hz)	1-24	25-49	50-99	100-249
60F2992	MC-902	110	5.48	5.19	4.61	4.37

TYPE 60 AND 150 DC POWER RELAYS





TYPE 150 Isolated coil in metal case totally enclosed. Has 1/4" quick-connect terminals with side mounting bracket. Coil voltage same as contact voltage.

TYPE 60 Same as above except: screw terminals (w/screws) and base mounted bracket.

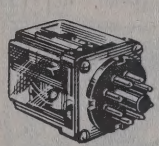
TYPE 150

Stk. No.	Type	Contacts Volts	Contacts Amps	Act.	1-9	10-24	25-49	50-99
60F2666	150-902	12	25	SPNO	6.21	5.88	5.22	4.95
02F1121	150-903	24	12	SPNO	6.34	6.00	5.33	5.05
60F2669	150-905	12	15	SPDT	8.40	7.95	7.07	6.70
02F1122	150-906	24	7.5	SPDT	8.19	7.75	6.89	6.53

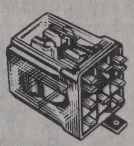
TYPE 60

Stk. No.	Type	Contacts Volts	Contacts Amps	Act.	1-9	10-24	25-49	50-99
02F1123	60-902	12	15	SPNO	9.71	9.19	8.17	7.74

A.C., D.C. GENERAL PURPOSE RELAYS



93 PIN PLUG-IN



93 QUICK-CONNECT

93-185-1 RECEPTACLE

Coil bobbin and contact block molded plastic resistant to arc tracking. Connections for contacts and coil located front of relay. Plug-in relay has high impact case and standard pin connections. Quick-connect type designed for front mounting or polarized socket. 10 A Button Contacts.

TYPE 83 PLUG-IN 1 3/8" × 1 3/8" × 2 1/8"

Stk. No.	Type	Coil Volt	Contacts	1-24	25-49	50-99	100-249
02F1125	93P-908	120 VAC	2PDT	12.13	11.47	10.20	9.66
02F1126	93P-909	120 VAC	3PDT	14.27	13.50	12.00	11.37

TYPE 83 QUICK-CONNECT 1 3/8" × 1 3/8" × 2"

02F1129	93Q-905	24 VAC	2PDT	12.19	11.54	10.25	9.71
60F2833	93Q-908	120 VAC	2PDT	12.26	11.60	10.31	9.77

QUICK-DISCONNECT MOUNTING SOCKET

02F1145	93-185-1	....	....	.53	.50	.44	.42

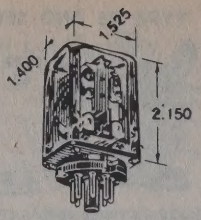
TYPE 75 AC POWER CONTACTORS

2PNO action, silver alloy contacts rated at 25 A, 240 VAC (per pole resistive; 18 A, 230 VAC inductive.) 1 hp per pole, 115/230 VAC, 2 pole rating—2 hp, 230 VAC. Electrical life, 100,000 operations at rated load. Sealed coil. Screw power terminals. Overall dimensions, 2 1/2 x 2 1/8 x 2 1/4". Approx. wt. 7 oz. Coil Rating: 10 V.A. (*) Qucik connect coil term.

Stk. No.	Type	AC Volts	1-24	25-49	50-99	100-249
60F2722	75-901	24	12.56	11.88	10.56	10.00
60F2723	75-902	115/120	13.60	12.86	11.43	10.83
60F2724	75-903	230/240	13.27	12.55	11.16	10.57
60F2690	75-905*	115/120	12.72	12.03	10.69	10.13

8

Type 158 General Purpose Plug-in Relay UL and CSA Recognized



Stk. No.	Type	Volts	Coil Res.	Cont.			1-24
SPDT Octal/Sil-Cad Contacts							
81F414	158-91A200	6VDC	40				9.70
81F415	159-91B200	12VDC	160	900			9.70
81F416	158-91C200	24VDC	650	milli-	SPDT	10	9.70
81F417	159-91D200	48VDC	2600	watts			9.70
81F418	159-91F200	110VDC	11000				10.95
81F419	159-91Q200	24VAC	155				9.90
81F421	159-91T200	120VAC	3900	1.2VA	SPDT	10	9.90
81F422	159-91U200	240VAC	14900				11.10
DPDT Octal/Sil-Cad Contacts							
81F423	159-92A200	6VDC	40				11.05
81F424	159-92B200	12VDC	160	900			11.05
81F425	158-92C200	24VDC	650	milli-	DPDT	10	11.05
81F426	159-92D200	48VDC	2600	watts			11.05
81F427	159-92F200	110VDC	11000				12.20
81F392	158-92Q200	24VAC	155				11.20
81F394	158-92T200	120VAC	3900	1.2VA	DPDT	10	11.20
81F395	158-92U200	240VAC	14900				12.50

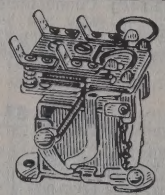
SURFACE MOUNT SCREW TERMINAL SOCKETS FOR TYPE 158 OCTAL RELAYS

670-D127

Stk. No.	Type	Description	Each
23F5333	670-0127	8 pin	3.80

TYPE 48 LATCHING RELAY

TWO POLE MOTOR REVERSING RELAY FOR AUTOMATIC GARAGE DOOR OPENERS
2.21"L x 1.75"W x 2.40"H

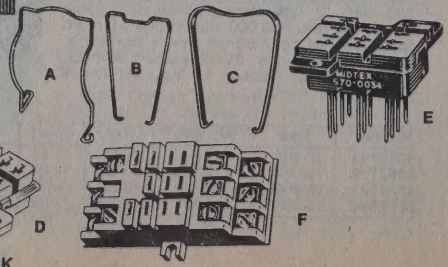


50 ms pulse will trigger latch or unlatch. UL recognized. Type 48-3 has ¼" QC/solder terminals on contacts. Type 48-1 has 7¼" leads on coil and ¼" QC/solder terminals on contacts. DPDT contacts rated 15 amps. 28VDC/120VAC 80% pf. Wt. 7 oz.

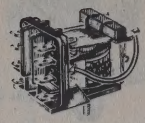
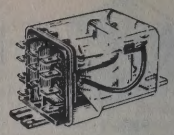
Stk. No.	Type	Volts	1-24	25-49	50-99	100-249
23F5334	48-12Q100	24VAC				
23F5335	48-12T100	120VAC	13.50	12.83	12.15	9.45
33F1400	48-32Q100	24VAC				
33F1401	48-32T100	120VAC				

TYPE 48 RELAY SIX-PAK
Contains six individually packaged 48-12Q100 relays.

Stk. No.	Type	One 6-Pak	Five 6-Pak's
23F5336	48-12Q1DP	81.00	76.98



TYPE 157 GENERAL PURPOSE RELAY, UL RECOGNIZED

Open Style
2.090"L x 1.468"W x 1.282"H

Dust Cover With Mounting Flanges
2.900"L x 1.525"W x 1.400"H

Plug-In With Dust Cover
1.525"W x 1.400"H x 1.905"L

Industrial design power driver. Cool running coil insures over-voltage and high ambient temperature performance. Max contact resistance .1 ohms. Coil rated 6 to 240 VAC 50/60 hz. 6 to 110 VDC, cont. duty. Contact ratings 10 or 15 amps. 28 VDC/120/240 VAC, 80% pft. Operate make time 20 MS max. Operate release time 10 MS max. Wt. open 2.3 oz. enclosed 3.0 oz.

157-1 OPEN STYLE WITH MTG. STUD, 2PDT 10 AMPS

Stk. No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5338	157-12C200	24VDC	470	7.05	6.70	6.35	4.94
23F5339	157-12F200	110VDC	10,000	8.10	7.70	7.29	5.67
23F5340	157-12Q200	24VAC	75	7.80	7.41	7.02	5.46
23F5341	157-12T200	120VAC	2,250	7.80	7.41	7.02	5.46

157-1 OPEN STYLE WITH MTG. STUD, 2PDT 15 AMPS

23F5346	157-12Q300	24VAC	75	8.60	8.17	7.74	6.02
23F5347	157-12T300	120VAC	2,250	8.60	8.17	7.74	6.02

157-1 OPEN STYLE WITH MTG. STUD, 3PDT 10 AMPS

33F1467	157-13Q200	24VAC	72	8.75	8.32	7.88	6.13
33F1468	157-13T200	120VAC	1,700	8.75	8.32	7.88	6.13

157-2 PLUG-IN WITH COVER, 2PDT 10 AMPS

23F5351	157-22B200	12VDC	120	7.30	6.94	6.57	5.11
33F1471	157-22T200	120VAC	2,250	8.05	7.65	7.25	5.64

157-2 PLUG-IN WITH COVER, 2PDT 15 AMPS

23F5355	157-22B300	12VDC	120	8.10	7.70	7.29	5.67
23F5359	157-22T300	120VAC	2,250	8.85	8.41	7.97	6.20
23F5360	157-22U300	240VAC	9,100	9.70	9.22	8.73	6.79

157-2 PLUG-IN WITH COVER, 3PDT 10 AMPS

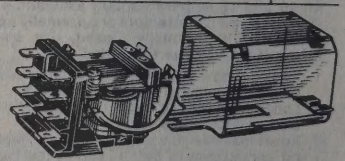
33F1472	157-23B200	12VDC	120	8.35	7.94	7.52	5.85
33F1473	157-23C200	24VDC	470	8.35	7.94	7.52	5.85
33F1475	157-23Q200	24VAC	72	9.00	8.55	8.10	6.30
33F1476	157-23T200	120VAC	1,700	9.00	8.55	8.10	6.30

SOCKETS, HOLD DOWN SPRINGS FOR 157

Stock No.	Type	Fig.	Description	Each
33F1484	670-0009	D	Solder Lug	1.25
33F1485	670-0012		3/16" QC	1.25
33F1486	670-0013		PCB	1.25
33F1487	670-0034	E	WW & Termi-point	2.15
23F5361	670-0125	F	Screw	6.00
23F5362	139-0029	A	Round Wire	.35
33F1488	139-0032	C	River Mount WW	.25
23F5363	248-6041	B	Round Wire	.35

- **UL RECOGNIZED**
- **UP TO 1½ hp.**
- **DUST PROOF COVER**

20 AMP. 2 POLE INDUSTRIAL RELAY, TYPE 187



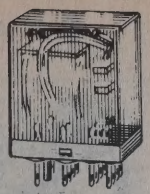
20 amp power relay. Available in DPDT style with UL ratings of 20 amps at 28 VDC/120 VAC and ¾ hp at 120 VAC or 1½ hp at 240 VAC. Open stud mounted or dust covered version. ¼" QC terminals available. UL recognized. Wt. 3 oz.

TYPE 187 WITH FLANGE MOUNT COVER

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
23F5370	187-32B200	12VDC	120	10.55	10.03	9.50	7.39
23F5371	187-32C200	24VDC	470	10.55	10.03	9.50	7.39
23F5372	187-32F200	110VDC	10,000	11.25	10.69	10.13	7.88
23F5373	187-32Q200	24VAC	72	11.10	10.55	9.99	7.77
23F5374	187-32T200	120VAC	1,700	11.10	10.55	9.99	7.77

Midtex General Purpose Relays MIDLAND ROSS

MINIATURE 4PDT RELAYS UL RECOGNIZED TYPE 156



Low cost versatile switching. For use in data processing and industrial control applications. Silver contacts are rated at 3 amps 28 VDC/ 120 VAC. 80% Silver cad. oxide contacts are 5 amps 28 VDC/120 VAC 80% pf. 1.281″L x .859″W x 1.109″H. Weight 1.5 oz.

4PDT 3 AMP SILVER, SOLDER-PLUG-IN, LEXAN COVER

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
33F1402	156-14B100	12VDC	160	8.85	8.41	7.97	6.20
33F1403	156-14C100	24VDC	650	8.85	8.41	7.97	6.20
33F1404	156-14F100	110VDC	11000	9.75	9.27	8.78	6.83
33F1405	156-14Q100	24VAC	155	8.95	8.51	8.06	6.27
33F1406	156-14T100	110VAC	3900	9.60	9.12	8.64	6.72
33F1407	156-14U100	240VAC	14900	9.60	9.12	8.64	6.72

4PDT 5 AMP SILVER CAD, SOLDER PLUG-IN, LEXAN COVER

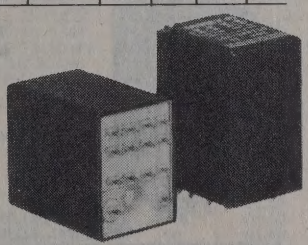
33F1408	156-14B200	12VDC	160	8.85	8.41	7.97	6.20
33F1409	156-14C200	24VDC	650	8.85	8.41	7.97	6.20
33F1410	156-14F200	110VDC	11000	9.75	9.27	8.78	6.83
33F1411	156-14Q200	24VAC	155	8.95	8.51	8.06	6.27
33F1412	156-14T200	120VAC	3900	9.60	9.12	8.64	6.72
33F1413	156-14U200	240VAC	14900	9.60	9.12	8.64	6.72

4PDT 3 AMP SILVER, PC TERMINALS .112″ LONG, NYLON COVER

33F1414	156-24B100	12VDC	160	8.85	8.41	7.97	6.20
33F1415	156-24C100	24VDC	650	8.85	8.41	7.97	6.20
33F1416	156-24F100	110VDC	11000	9.75	9.27	8.78	6.83
33F1417	156-24Q100	24VAC	155	8.95	8.51	8.06	6.27
33F1418	156-24T100	110VAC	3900	9.60	9.12	8.64	6.72
33F1419	156-24U100	240VAC	14900	9.60	9.12	8.64	6.72

4PDT 5 AMP SILVER CAD, PC TERMINALS .112″ LONG, NYLON COVER

33F1420	156-24B200	12VDC	160	8.85	8.41	7.97	6.20
33F1421	156-24C200	24VDC	650	8.85	8.41	7.97	6.20
33F1422	156-24F200	110VDC	11000	9.75	9.27	8.78	6.83
33F1423	156-24Q200	24VAC	155	8.95	8.51	8.06	6.27
33F1424	156-24T200	110VAC	3900	9.60	9.12	8.64	6.72
33F1425	156-24U200	240VAC	14900	9.60	9.12	8.64	6.72

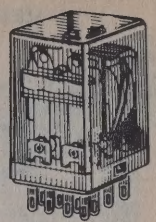


MINIATURE 4PDT RELAYS PC TERMINALS/SEALED COVER UL RECOGNIZED TYPE 156

Stk. No.	Type 156-	Coil Volts	Coil Res.	Power MW	Poles	Amp Rating	1-24	25-49	50-99	100-249
81F396	24A1S0	6VDC	40				9.15	8.70	8.24	6.93
81F397	24B1S0	12VDC	160	900			9.15	8.70	8.24	6.93
81F398	24C1S0	24VDC	650	milli-	4PDT	3	9.15	8.70	8.24	6.93
81F399	24D1S0	48VDC	2600	watts			9.80	9.31	8.82	6.86
81F400	24F1S0	110VDC	1100				10.05	9.54	9.05	7.04
81F401	24N1S0	6VAC	10				9.25	8.79	8.33	6.48
81F402	24Q1S0	24VAC	155	1.2VA	4PDT	3	9.25	8.79	8.33	6.48
81F403	24T1S0	120VAC	3900				9.90	9.41	8.91	6.93
81F404	24A2S0	6VDC	40				9.15	8.70	8.24	6.93
81F405	24B2S0	12VDC	160	900			9.15	8.70	8.24	6.93
81F406	24C2S0	24VDC	650	milli-	4PDT	5	9.15	8.70	8.24	6.93
81F1260	24D2S0	48VDC	2600	watts			9.80	9.31	8.82	6.86
81F407	24F2S0	110VDC	11000				10.05	9.54	9.05	7.04
81F408	24N2S0	6VAC	10				9.25	8.79	8.33	6.48
81F409	24Q2S0	24VAC	155	1.2VA	4PDT	5	9.25	8.79	8.33	6.48
81F428	24T2S0	120VAC	3900				9.90	9.41	8.91	6.93

MINIATURE 10 AMP INDUSTRIAL CONTROL RELAY UL RECOGNIZED

TYPE 158



Silver cadmium oxide contacts rated at 10 amps, 28 VDC/120 VAC with a 80% pf. maximum contact resistance of .1 ohms. Coil voltage 6 to 240 VAC 50/60 Hz and 6 to 110 VDC. Coil has nominal power rating of 1.3 VA AC and .9 watts DC plus a maximum continuous rating of 2 VA AC and 2 watts DC. Rated at continuous duty operation. All ratings at 25 degrees C ambient. 1.28″L x .859″W x 1.109″H. Wt. 1.5 oz.

USES SAME SOCKET AS 156 RELAY

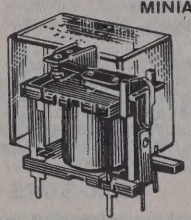
1PDT 10 AMP SILVER CAD, PLUG-IN TERMINALS

Stock No.	Type	Coil Volts	Coil Res.	1-24	25-49	50-99	100-249
33F1431	158-21B200	12VDC	160	6.40	6.08	6.26	4.48
33F1432	158-21C200	24VDC	650	6.40	6.08	6.26	4.48
33F1433	158-21F200	110VDC	11000	7.30	6.94	6.57	5.11
33F1434	158-21T200	110VAC	3900	6.60	6.27	5.94	4.62
33F1435	158-21U200	240VAC	14900	7.30	6.94	6.57	5.11

2PDT 10 AMP SILVER CAD, PLUG-IN TERMINALS

33F1436	158-12B200	12VDC	160	7.20	6.84	6.48	5.04
33F1437	158-12C200	24VDC	650	7.20	6.84	6.48	5.04
33F1438	158-12F200	110VDC	11000	8.30	7.89	7.47	5.81
33F1439	158-12T200	110VAC	3900	7.95	7.56	7.16	5.57
33F1440	158-12U200	240VAC	14900	8.80	8.36	7.92	6.16

MINIATURE RELAY TYPE 310

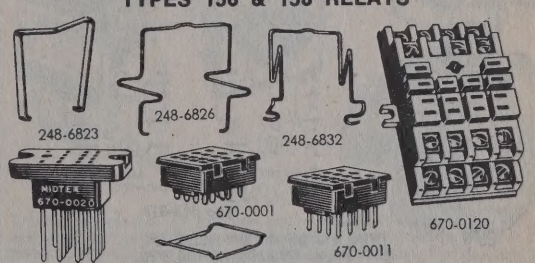


Designed for PC board applications. SPDT contacts rated at 5 amps @ 28VDC or 120 VAC. Operate and release times are typically 4 ms. Occupies 0.666 sq. in. of board space with a total volume of .546 cu. in., yet it performs equally against devices many times its size and cost. Life expectancy: 100,000 operations (electrical); 10,000,000 operations (mechanical). Designed for recognition under UL 508, Industrial Control Equipment.

SPDT

30F1306	11A200	6VDC	50	2.50	2.38	2.25	1.75
30F1307	11B200	12VDC	200	2.50	2.38	2.25	1.75
30F1308	11C200	24VDC	300	2.50	2.38	2.25	1.75

SOCKETS AND HOLDDOWN SPRINGS FOR TYPES 156 & 158 RELAYS



SOCKETS

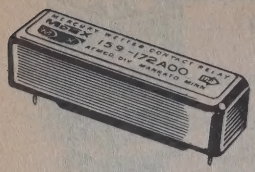
Stock No.	Type	Description	1-24	25-49	50-99	100-249
33F1446	670-0001	Solder Terminals	.90	.86	.81	.63
33F1447	670-0011	PC Term. w/Gnd.	.90	.86	.81	.63
33F1720	670-0014	PC Term. w/o Gnd.	.90	.86	.81	.63
23F1448	670-0020	Wire Wrp. & Ter. Pt.	2.50	2.38	2.25	1.75
23F1721	670-0120	Screw Terminals	9.25	8.79	8.33	6.48

HOLDDOWN SPRING

Use for 2 pole 156 & 1 pole 158

Stock No.	Type	Description	Each
33F1489	248-6823	Socket Clip	.10
28F1722	248-6826	Round Wire	.15
28F1723	248-6832	Wire Wrap	.32
28F1449	139-0021	Flat Wire	.14

MERCURY WETTED RELAYS



Miniature mercury wetted contact relays feature long life, low power operation and no contact bounce. Life is rated in the billions of operations with fast operate time. Must be operated in the upright position but variations up to 30° will cause only slight changes in operation. Contact rating is 2 amps max, 500 volts max, 100 VA max for switching and 5 amps max for non-switching loads. Contact protection must be provided, circuit information provided with each unit.

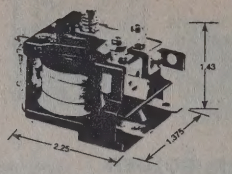
TYPE 159

Stk. No.	Type	Res. Ohms	Open VDC	1-24	25-49	50-99	100-249
81F429	159-117G00	450	6.4	13.50	12.83	12.15	9.45
81F430	159-117H00	675	9.6				
81F431	159-117500	940	10.5				
81F432	159-117M00	1425	13				
81F433	159-117Q00	2400	20.6				

TYPE 160

Stk. No.	Type	Res. Ohms	Open VDC	1-24	25-49	50-99	100-249
81F434	160-111M00	325	3.8	13.50	12.83	12.15	9.45
81F435	160-111Q00	1120	7.2				
33F1455	160-111T00	2650	11				
33F1456	160-111U00	3900	14				
81F438	160-151H00	50	1.4				
81F439	160-151K00	125	2.3				
33F1457	160-151M00	325	3.8				

30 AMP, N/O Contacts

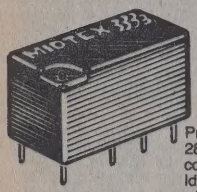


The Type 189 relay is an economy power switching relay capable of switching 30 amps through its single pole normally open double make contacts. Coil voltages are available in both DC and AC voltages. Contacts are available in silver and silver cadmium oxide. The Type 189 is available in open style construction with 6-32 stud mount and anti-rotational tab for mounting and .250" quick connect terminals. Options include location of coil terminals either on the header block or directly on the sides of the relay coil. Designed to meet U/L 508. Weight 2.3 oz.

Stk. No.	Type	Coil Volts	Coil Res.	Power	Poles	Amp Rating	1-24	25-49	50-99	100-249
Open Style Solder or QC Terminals										
81F442	189-11A100	6VDC	32	1.2 watts	X SPST-NO-DM	Silver	7.75	7.37	6.98	5.43
81F443	189-11B100	12VDC	120				7.75	7.37	6.98	5.43
81F444	189-11C100	24VDC	470			30	7.75	7.37	6.98	5.43
81F445	189-11D100	48VDC	1800				8.00	7.60	7.20	5.60
81F446	189-11F100	110VDC	10000				8.60	8.17	7.74	6.02
81F410	189-11Q100	24VAC	72	2.0 VA	X SPST-NO-DM	30	8.20	7.79	7.38	5.74
81F411	189-11T100	120VAC	1700				8.20	7.79	7.38	5.74
81F412	189-11M100	208VAC	5400				8.50	8.08	7.65	5.95
81F413	189-11U100	240VAC	7200				8.35	7.94	7.52	5.85

8

DUAL-IN-LINE POWER DPDT 2 AMPERE RELAY TYPE 190



- **Sealed For PCB Cleaning**
- **Gold Alloy Contacts**
- **Dip Socket Plug-in**

Provides full DPDT gold contact pair rated at 2 amps at 28VDC, or 120 VAC, resistive. Gold alloy and sealed construction provides low level switching performance. Ideal for semi-conductor or microprocessor systems where adequate isolation is required between the I/O circuit, can also be used for telecommunications. Operate and release times are 2-3 milli-seconds.

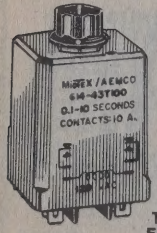
Suited for DIP socket plug-in, may be automatically soldered and immersion cleaned directly on a PCB, by virtue of a high density seal and inert gas treatment, which eliminates costly PCB masking and hand soldering. May be vented after insertion in a PC board by clipping the vent tab.

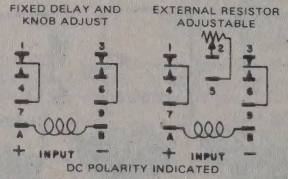
Stock No.	Type	Coil Volts	Coil Res.	Each
28F1728	190-22E100	5VDC	45	4.50
28F1724	190-22A100	6VDC	60	4.50
28F1725	190-22B100	12VDC	280	4.50
28F1726	190-22C100	24VDC	1070	4.70
28F1727	190-22D100	48VDC	4000	4.90

SOLID STATE TIME DELAY RELAYS

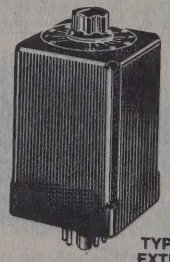
Time delay relays provide a wide selection of operational configurations, rapid reset times, and repeatability which is desirable when accurate recycling is required. Two types of timing circuits, depending on accuracy, repeatability, and environmental requirements, are employed: economy version, Type 613 series, Type 612, 614, and 615 series. Type 612, 613, 614 use same socket as Type 157 relay. Type 615 uses same socket as Type 158 octal relay. Delay on operate. When external power is applied and on completion of timing cycle, output relay transfers and holds. On removal of power output relay de-energizes.

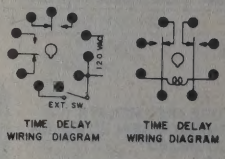
Delay on release. External power is applied continuously when external switch is closed. The output relay transfers and holds. Time delay is initiated and output relay de-energized at end of timing cycle. Timing range. External resistor adjustments require approximately 20K ohms per sec. through 120 seconds. Variable delays achieved by integral potentiometer. Internally fixed Time Delay Relays available on special order. Note Type 613 will momentarily transfer on cycle interruption.





Type 613-614





Type 615

TYPE 612 DELAY ON RELEASE, EXTERNAL ADJUST 1.2-120 SEC.

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5416	612-12C400	24VDC	32.25	30.64	29.03	22.58
23F5418	612-12T400	120VAC	33.75	32.07	30.38	23.63

TYPE 613 DELAY ON OPERATE, EXTERNAL ADJUST 1-120 SEC.

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5422	613-12C400	24VDC	28.75	27.32	25.88	20.13
23F5423	613-12Q400	24VAC	28.75	27.32	25.88	20.13
23F5424	613-12T400	120VAC	29.75	28.27	26.78	20.83

KNOB ADJUST 1-120 SEC.

23F5425	613-43C400	24VDC	34.50	32.78	31.05	24.15
23F5426	613-43Q400	24VAC	34.50	32.78	31.05	24.15
23F5427	613-43T400	120VAC	36.00	34.20	32.40	25.20

TYPE 614 DELAY ON OPERATE, EXTERNAL ADJUST .1-120 SEC.

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5428	614-12C400	24VDC	32.25	30.64	29.03	22.58
23F5429	614-12Q400	24VAC	32.25	30.64	29.03	22.58
23F5430	614-12T400	120VAC	33.75	32.07	30.38	23.63

TYPE 615 DELAY ON OPERATE, KNOB ADJUST 1-100 SEC.

Stock No.	Type	Coil Volt	1-24	25-49	50-99	100-249
23F5434	615-21C400	24VDC	37.00	35.15	33.30	25.90
23F5435	615-21Q400	24VAC				
23F5436	615-21T400	120VAC	38.00	36.10	34.20	26.60

DELAY ON RELEASE, KNOB ADJUST 1-100 SEC.

23F5437	615-22C400	24VDC	46.75	44.42	42.08	32.73
23F5439	615-22T400	120VAC				

UL LISTED INDUSTRIAL SOLID STATE TIMING RELAYS

MODEL SCC

8 Pin Base		11 Pin Base		
Stock No.	Type	Stock No.	Type	Range
28F1933	SCCLA012ABA	**28F1942**	SCCLC022ABA	.5 to 15 sec.
28F1939	SCCLA012ADA	**28F1936**	SCCLC022ADA	2 to 60 sec.
28F1940	SCCLA012AMA	**28F1937**	SCCLC022AMA	.5 to 15 min.
28F1935	SCCLA012ANA	**28F1944**	SCCLC022ANA	1 to 30 min.
28F1941	SCCLA012AIA	**28F1938**	SCCLC022AIA	2 to 60 min.

Series SCC Supplied with Socket. UL Listed

MODEL SSC

28F1946	SSC12ABA*	**28F1950**	SSC22ABA†	.5 to 15 sec.
28F1947	SSC12ACA*	**28F1951**	SSC22ACA†	1 to 30 sec.
28F1948	SSC12AGA*	**28F1952**	SSC22AGA†	10 to 300 sec.
28F1949	SSC12ANA*	**28F1953**	SSC22ANA†	1 to 30 min.

MODEL SCB

28F1954	SCBRX012ABA*	**28F1958**	SCBRX022ABA†	.5 to 15 sec.
28F1955	SCBRX012ACA*	**28F1959**	SCBRX022ACA†	1 to 30 sec.
28F1956	SCBRX012AGA*	**28F1960**	SCBRX022AGA†	10 to 300 sec.

U.L. Recognized

	Price	
Type	8-Pin	11-Pin
SCC	69.00	76.50
SSC	45.00	50.50
SCB	63.00	69.50

MODEL SCA

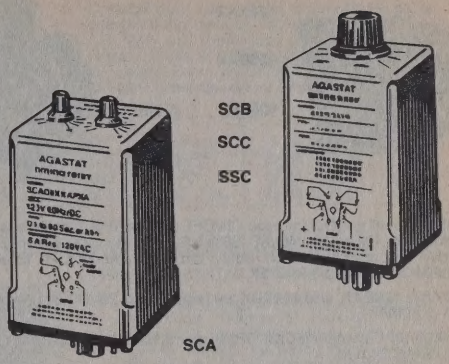
Stk. No.	Type	Range	Each
28F1945	SCA011APA#	.1 to 60 sec. or min.	37.00

U.L. Recognized

SOCKETS FOR ABOVE

Stk. No.	Type	Description	Each
28F1962	BCSA08SC	8-Pin Octal	4.00
28F1963	BCSA11SC	11-Pin Socket	5.50

* Delay on Energization †Delay on deenergization # 8-Pin



Timing relays are stocked in 2 different operating modes. Type 1: Time delay occurs after input voltage is applied, thereby delaying output current for the duration of the time delay. Type 2: Output relay is energized whenever input voltage is applied, when input is removed output will remain on for the duration of the delay. **Type SCA:** Repeat accuracy: 0.5% +4 msec. Overall accuracy: ±5%. Reset time: 0.030 second min. between deenergization and reenergization. Time adj.: Dual internal pots with external knobs for "Fine" and "Coarse" adjustment. Operating temperature range: —20°C to 50°C. Current drain: During timing 5 ma, after timing 17 ma. Output: SPDT relay, 6 A resistive at 120VAC. Power: 120VAC 50/60 Hz or 120 VDC, +10% to —15%. **Type SCB & SCC.:** Repeat accuracy: 0.5% +4 msec. Overall accuracy. ± 2%. Reset time: 0.025 sec. minimum between deenergization and reenergization. Time adj.: Internal pot with external knob. Operating temp. range: —28.9° C to 49°C. Current drain: .015 A energized, .005 A deenergized. Output: DPDT relay;, ⅓ HP, 345VA @ 120/240VAC, 10 A @ 28 VDC/120VAC. Power: 120VAC, + 10% to —15%, 50/60 Hz. **Type SSC.:** Repeat accuracy: ±1%. Overall acuracy ± 5.25%. Time adjustment: Internal pot with external knob. Operating temp. range: —30°C to 65°C. Current drain: 25 ma. max. Output: DPDT relay, 10 A resistive rating. Power: 120 VAC: +10% to —15% voltage variation; 50/60 Hz.

8

AGASTAT TIME DELAYS, RELAYS AND SWITCHES

Provides industrial control designers the accuracy and reliability of high grade time delays, relays, and switches at industrial price levels. Extreme reliability under severe operating conditions. Options available on special order.

Stk. No.	Type	Fig.	Time Delay	VAC	NET
57F1550	7012AB	A	0.5 to 5 sec.	120	91.50
57F1551	7012AD	A	5.0 to 50 sec.	120	91.50
57F1552	7012AH	A	3 to 30 min.	120	105.50
57F1553	7012BB	A	0.5 to 5 sec.	240	91.50
57F1554	7012BD	A	5.0 to 50 sec.	240	91.50
57F1555	7012BH	A	3 to 30 min.	240	105.50
57F1556	7022AB	A	0.5 to 5 sec.	120	91.50
57F1557	7022AD	A	5.0 to 50 sec.	120	91.50
57F1558	7022AH	A	3 to 30 min.	120	105.50
57F1559	7022BB	A	0.5 to 5 sec.	240	91.50
57F1560	7022BD	A	5.0 to 50 sec.	240	91.50
57F1561	7022BH	A	3 to 30 min.	240	105.50
57F1581	7012AC	A	1.5 to 15 sec.	120	91.50
57F1582	7022AC	A	1.5 to 15 sec.	120	91.50
57F1583	7012AE	A	20 to 200 sec.	120	91.50
57F1584	7022AE	A	20 to 200 sec.	120	91.50
57F1585	7012AF	A	1 to 10 min.	120	98.00
57F1586	7022AF	A	20 to 200	120	91.50
28F1929	7012AK	A	1 to 300 sec.	120	91.50
28F1930	7012BK	A	1 to 300 sec.	240	91.50
28F1931	7022AK	A	1 to 300 sec.	120	91.50
28F1932	7022BK	A	1 to 300 sec.	240	91.50
57F1566	700042	D	Relay Enclosure w/bottom knockouts . . .		21.00
57F1565	700047	E	Aux. switch kit (L) 30 sec.		10.50
57F1564	700121	E	Aux. switch kit (T) 30 sec.		12.00
57F1900	700041	C	Panel Mtg. Kit		6.50

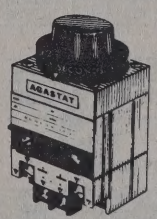


Fig. A

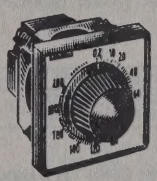


Fig. D

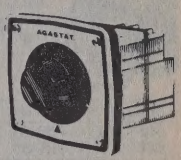


Fig. C

Fig. E

Model 7012

Time delay on pull-in. Timing cycle begins when coil is energized. Coil kept energized throughout delay period preceding DPDT contacts transfer. Coil de-energized: contacts retransfer immediately (50 m-sec). Coil de-energized during time cycle, contacts transferred & timing mech. resets to start position for full time cycle on next energizaton of coil. UL listed.

Model 7022

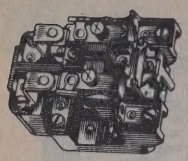
Time delay on drop-out. Coil energized: DPDT contacts transfer & stay in transfer position. Coil de-energized: Time delay begins. Timing cycle contacts stay transferred. End time delay setting: contacts transfer back to de-energized position. Coil re-energized during time cycle; contacts remain transferred, produce full time delay upon next de-energization if coil remains de-energized through time setting. UL listed.

Auxiliary Switch-Kits

SPDT contacts rated 10A/120, 250, 480 VAC. Type "T" provides immediate transfer of contacts for 7022 and two step timing to 100 sec. for both 7012 and 7022 models. Type "L" provides immediate transfer of contacts for 7012 models.

Struthers-Dunn Relays and Contactors

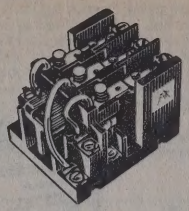
TYPE 425 30-AMP POWER RELAY



425XAX

425BXX

425XBX



425XCX

425CXX

Suitable for all general purpose ON/OFF applications. Continuous duty coils. Motor load 1 HP at 120-240VAC (80% P.F.) Base 2½ × 2½, except 2½ × 3½ for models with auxiliary switch. Screw terminals standard. UL listed. File No. E13224 CSA File No. LR40787.

425XAX, 425BXX, and 425XBX are rated 30A @ 28VDC or 120-240VAC and 10A @ 600VAC.

525XCX (3PDT) and **425CXX** (3PN0) are rated for loads up to 10A @ 600VAC and 25A @ 240VAC.

Type 425 General Purpose 30-Amp Power Relays

Stock No.	Type No.	Coil Volts	Contacts	1-24	25-49	50-74
67F602	425XAX	120AC	SPDT	11.09	10.54	9.43
67F605	425XAX	12DC	SPDT	10.76	10.22	9.15
67F617	425BXX	24AC	DPST-NO	12.39	11.77	10.53
67F618	425BXX	120AC	DPST-NO	12.39	11.77	10.53
67F620	425BXX	240AC	DPST-NO	12.60	11.97	10.71
67F626	425XBX	120AC	DPDT	15.95	15.15	13.56
67F628	425XBX	240AC	DPDT	16.17	15.36	13.74
67F630	425XBX	12DC	DPDT	15.63	14.85	13.29
67F631	425XBX	24DC	DPDT	15.63	14.85	13.29
67F634	425XBX90*	120AC	DPDT*	20.54	19.51	17.46
67F5940	425XCX	120AC	3PDT	26.92	25.57	22.88
67F5945	425CXX	120AC	3PNO	23.61	22.43	20.07
67F5948	425CXX	24DC	3PNO	22.60	21.47	19.21

**SPDT Auxiliary Contacts. UL Recognized, CSA Listed.*

TYPE 415XBX DPDT COMPACT POWER RELAYS

DPDT contacts rated at 15 amperes, 120VAC. Motor load ½ HP at 120VAC. Screw terminals for two No. 14 wires. Epoxy encapsulated coil. 20,000,000 mechanical operations. 1¾ high × 1⅞ × 2¾. Wt. 8 oz. UL listed. File No. E13224A.

Stock No.	Type No.	Contacts	Volts	1-49	50-99	100-249
60F3129	415XBX	DPDT	24DC	24.19	21.77	19.35
60F3128	415XBX	DPDT	120AC			

TYPE B1 OPEN-TYPE MIDGET RELAY

Resistive rating 6 amps at 24 or 120VAC or 24VDC; 3 amps at 240VAC or 0.5 amps at 115VDC. Inrush, motor, or lamp loads should not exceed 20 amperes. Insulation spacing meets UL requirements for 300 volts. Base 1⅞ × 2¾. Wt. 1 pound.

Type B1 Midget Relay—120VAC

Stock No.	Type No.	Contacts	1-49	50-99	100-249
60F3119	B1XAX	SPDT	41.68	37.51	33.34
60F3120	B1XBX	DPDT	51.23	46.11	40.98

TYPE B11 6-AMP SEQUENCE RELAY

Cam-operated contacts repeat predetermined sequence as coil is energized and de-energized. The contacts open and close alternately in type B11AXA. Rated at 6 amps for 120VAC or 24VDC. 3 amps at 240VAC and ½ amp at 115VDC. Eight-tooth ratchets. Stud terminals. Base is 2 × 3 13/16 inch. Wt. 1 lb. CSA listed.

TYPE C85 POWER SEQUENCE RELAY

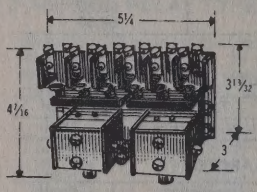
Contacts open and close alternately. Contacts rated at 20 amps, 120VAC. Eight-tooth ratchets. Stud terminals Base is 3 × 5. Wt. 1 lb. CSA listed.

Type B11 6-Amp Sequence Relay—120VAC

Stock No.	Type No.	Contacts	Cont. Transfer	1-49	50-99	100-249
60F3125	B11AXA	1 NO, 1NC	Alternately	99.14	89.23	79.31

Type C85AXA 20-Amp Sequence Relay—120VAC

Stock No.	Type No.	Contacts	Cont. Transfer	1-49	50-99	100-249
60F3127	C85AXA	1 NO, 1NC	Alternately	156.34	140.71	125.07

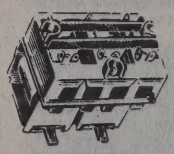


TYPE 575 KXX 7.5 H.P. REVERSING CONTACTOR

Controls reversal of AC/DC motors. Withstands frequent jogging service, shock, and vibration. Two 3PDB contactors mounted on single frame. Mechanically interlocked to prevent simultaneous closure. Rated at 1½ HP at 120VAC single phase; 3 HP at 208-240VAC single phase; 5 HP at 208-240VAC 2-3 phase. 7½ HP at 480-600VAC 2-3 phase. 5¼ × 4 7/16 × 3. UL listed File No. E13224.

Type A575KXX Reversing Contactor—7.5 HP, 3P-NO-DB

Stock No.	Type No.	Coil-Volts	1-49	50-99	100-249
26F773	A575KXX	120AC	84.20	75.78	67.36



TYPE 275KXX COMPACT REVERSING CONTACTOR

Controls reversal of AC motors. For continuous heavy duty service. Two 3PDB contactors mounted on a single frame. Mechanically interlocked to prevent simultaneous closure. Rated at 120VAC 1, 2 or 3 phase for 1 HP (15 amps) or 480VAC 3 phase for 1 HP (5 amps). 0.250" tab terminals. 2 9/16 × 2 7/8 × 3 7/32. UL and CSA listed.

Type A275KXX Compact Reversing Contactor—1 HP, 3P-NO-DB

Stock No.	Type No.	Coil-Volts	1-49	50-99	100-249
60F3177	A275KXX	24AC	32.87	29.58	26.30
60F3178	A275KXX	120AC			
60F3062	A275KXX91*	24AC	45.85	41.27	36.68
60F3063	A275KXX91*	120AC			

**Two DPDT Auxiliary Contacts for coil interlock or electrical lockup.*

TYPE 229 INTERFACE RELAY

Interfaces between DC control circuit and AC or DC loads up to 2 A. Mounts directly on printed circuit boards. Polycarbonate cover. Available with 2 A-gold-plated silver, or 5 A gold-plated scd, SPDT contacts.

Type 229XAXCY 2-Amp Interface Relay

Stock No.	Type No.	Volts	Ohms	1-24	25-49	50-74
26F760	229XAXCY	3DC	11	2.72	2.58	2.31
26F761	229XAXCY	6DC	45			
26F762	229XAXCY	9DC	100			
26F763	229XAXCY	12DC	180			
26F764	229XAXCY	24DC	720			

Type 229XAXC 5-Amp Interface Relay

26F765	229XAXC	3DC	11	2.72	2.58	2.31
26F766	229XAXC	6DC	45			
26F767	229XAXC	9DC	100			
26F768	229XAXC	12DC	180			
26F769	229XAXC	24DC	720			

Struthers-Dunn Plug-in and Reed Relays

S-D

TYPE 219 12-PIN GENERAL PURPOSE RELAY

Clear thermoplastic enclosure. Contacts, 10A, 120VAC res. Max. Amb. 53° C. Overload 100% nominal voltage. Must operate 85% AC, 80% DC volts. Base 1½ × 2⅛″, Ht. 2 19/32. Wt. 7 oz. Manual actuator available on all models. Neon lamp indicates coil energized. (Available with 120V AC only.) U.L. listed No. E31620 CSA listing (9494).

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3101	219XBXP	24DC	DPDT	36.11	34.30	32.50
60F3102	219XBXP	125DC	DPDT			
60F3100	219XBXP	120AC	DPDT			
60F3104	219BBXP	24DC	DPDT + 2NO	43.16	41.00	38.84
60F3105	219BBXP	125DC	DPDT + 2NO			
60F3103	219BBXP	120AC	DPDT + 2NO			
60F3107	219ABAP	24DC	DPDT, 1NO, 1NC	43.16	41.00	38.84
60F3108	219ABAP	125DC	DPDT, 1NO, 1NC			
60F3106	219ABAP	120AC	DPDT, 1NO, 1NC			

TYPE 219 RELAY WITH INDICATING LAMP

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3194	219BBXPL	120AC	DPDT + 2NO	46.80	44.46	42.12
60F3193	219ABAPL	120AC	DPDT, 1NO, 1NC			

TYPE 219 14-PIN GENERAL PURPOSE RELAY

Stock No.	Type No.	Volts	Contacts	1-24	25-49	50-74
60F3050	219XDXP	24DC	4PDT	49.00	46.55	44.10
60F3051	219FXXP	24DC	6PNO			
60F3052	219DXBP	24DC	4NO + 2NC			
60F3053	219XDXP	120AC	4PDT	49.00	46.55	44.10
60F3054	219FXXP	120AC	6NO			
60F3055	219DXBP	120AC	4 NO + 2NC			

TYPE A311 12-PIN SEQUENCE RELAY

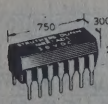
Contacts transfer on each impulse. 8-tooth ratchets provide eight steps with double-cam action each step. 150V insulation meets U.L. requirements. Rated at 5 amps, 120VAC. Must operate at 85% AC or 80% DC volts. 1,000,000 cycles no-load. Base 2⅝″ × 1 15/32″. Ht. 3¾″. Wt. 6 oz.

Stock No.	Type No.	Volts	Contacts	1-24	24-49	50-74
29F2873	A311XBXP*	120AC	DPDT*	70.58	67.05	63.52
29F2874	A311XBXPR**	120AC	DPDT**			

**Contacts transfer when coil is energized. **Contacts transfer on release.*

BASIC CHARACTERISTICS OF REED RELAYS

Contamination-proof, glass-sealed reed switches, non-critical mounting, and complete magnetic shielding for exceptionally fast low-level and light duty switching. Most are available with either miniature or standard size reed switches, in a wide selection of SPST-NO, SPST-NC, SPDT contact arrangements.



MRR-D REED RELAYS

Compatible with dual-in-line IC's including size and operating sensitivities that eliminate or minimize interface buffering. Pin spacing is industry standard. Contact rated at 10 VA max., .250 Amp max., 100 volt max. Wt. 1 oz.

DUAL-IN-LINE REED RELAY, 14-PIN CASE

Stock No.	Type No.	Contacts	Volts, DC	Ohms	1-24	25-49	50-74
60F3800	MRR1ADSR	1A	5	500	4.66	4.43	3.96
60F3801	MRR1ADS	1A	5	360	3.98	3.78	3.38
60F3802	MRR1ADS	1A	12	1440	3.98	3.78	3.38
29F2773	MRR1CDL	1C	5	100	7.97	7.57	6.77
29F2774	MRR1CDL	1C	12	500	7.97	7.57	6.77
29F2775	MRR1ADLX	2A	5	125	6.66	6.33	5.66
29F2776	MRR1ADLX	2A	12	500	6.66	6.33	5.66

DUAL-IN-LINE REED RELAY, 8-PIN CASE

29F2778	MRR1ADS8	1A	12	1440	3.98	3.78	3.38
29F2781	MRR1CDL8	1C	5	100	7.97	7.57	6.77
29F2799	MRR1CDL8	1C	12	500	7.97	7.57	6.77

TYPE B256 12-PIN LATCHING RELAY

Contacts latch mechanically when operate coil is energized momentarily. To reset, energize separate reset coil. Continuous duty coils. Contacts rated 10 amps at 120VAC res. Insulation ¼″ air, ⅛″ surface. Base 1 15/32 × 2⅝″. Ht. 3¾″. Common armature prevents contact overlap.

Stock No.	Type No.	Volts	Contacts	1-24	24-49	50-74
60F3112	B255XBXP	120AC	DPDT	64.58	61.35	58.12
60F3113	B255XCXP	120AC	3PDT	69.68	66.20	62.71
60F3114	B255BXBP	120AC	2 NO, 2 NC	69.68	66.20	62.71

TYPE 236 12-PIN DELAY-ON-OPERATE RELAY
TYPE 237 12-PIN DELAY-ON-RELEASE RELAY

Solid state timing network. 90:1 range. Contact rating 10-amps at 120VAC. Repeat accuracy ±5% at fixed voltage. Will operate at 95 to 125 VAC, but timing varies inversely with voltage. 20,000,000 mechanical operations. Type 236: Contacts transfer after preset delay when power is applied. Type 237: Contacts transfer after pre-set delay when control circuit is de-energized.

TYPE 236XBXP 12-PIN PLUG-IN DELAY-ON-OPERATE RELAY

Stock No.	Type No.	Volts	Delay	1-24	25-49	50-74
60F3115	236ABXP	120AC	0.2-20 Sec.	150.76	143.22	135.68
60F3116	236ABXP	120AC	2-200 Sec.			

TYPE 237XBXP 12-PIN PLUG-IN DELAY-ON-RELEASE RELAY

29F2702	237XBXP-20	120AC	0.2-20 Sec.	177.07	168.22	159.36
29F2703	237XBXP-200	120AC	2-200 Sec.			

TYPE RSX1800 12-PIN ALARM RELAY

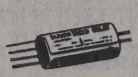
Type RSX1800Z is initiated by momentary, intermittent or sustained signal from N.O. trouble contacts. RSX1800S is initiated by signal from N.C. contacts. Operator silences alarm with push-button. Alarm can be turned off manually or automatically when condition clears. Contact rating 10 amps at 120VAC res.

Stock No.	Type No.	Volts	Signal	1-24	25-49	50-74
29F2700	RSX1800Z	120AC	N.O.	55.71	52.92	50.14
29F2701	RSX1800S	120AC	N.C.			

CX3671, CX3672 PLASTIC ENCLOSURE

12-pin plug-in base. Use for experimental circuits, timing devices, etc. Same construction as enclosures for relays on this page. Fits type 27390 socket. CX3671 is 2⅝″ high. CX3672 is 3¾″ high.

Stock No.	Type No.	Size	1-24	25-49	50-74
60F3131	CX3671	2⅝″ high, less pins	8.31	7.89	7.48
60F3132	CX3672	3¾″ high, less pins			



TYPE MRR MINIATURE MOLDED SHIELD REEDS

Operating time is .5–2.5 msec. Release time less than 0.3 msec. MRR1A, 1 N.O.; .425 dia. × 1.062″. MRR2A, 2 N.O.; .424 × .515 × 1.062″.

Stock No.	Type No.	Contacts	Volts DC	Ohms	1-24	25-49	50-74
60F3154	MRR1A	1A	6	288	10.23	9.72	9.21
60F3155	MRR1A	1A	12	1152	10.23	9.72	9.21
60F3156	MRR1A	1A	24	4600	15.05	14.30	13.55
60F3158	MRR2A	2A	12	576	15.50	14.73	13.95
60F3159	MRR2A	2A	24	2300	18.64	17.71	16.76

TYPE 27390 12-PIN SOCKET

Heavy duty socket for all 12-pin relays on this page. Front connected screws with clamp plates for No. 14 wires. 2 3/16

TYPE 33377 14-PIN SOCKET

Socket for 14-pin type 219 4PDT and 6-pole relays. Front connected screws with clamp plates for No. 14 wires. 2 3/16

Stock No.	Type No.	Pins	Size	Net Price
60F3117	27390	12	2 3/16W × 3 9/64L × 27/32H	6.09
60F3065	33377	14	2 3/16W × 3 9/64L × 27/32H	6.90

8

Struthers-Dunn Time Delay —G.P. and Sensitive Relays

TYPE A314 OPEN TYPE OR OCTAL BASE RELAY

Open types have solder lugs, and enclosed types plug into octal type base. General purpose relays rated at 10 amps. 120VAC. Available with neon indicating lamp and /or push-to-test manual actuator. Enclosed relay is 2¼" high × 1½" × 1½". Open type is 1⅞" high × 1⅜". U.L Recognized, File No. E13224.

Type A314 General Purpose 10-Amp Relay (Open Type)

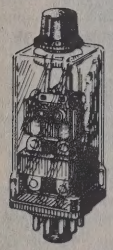
Stock No.	Type No.	Contacts	Volts	Ohms	1-24	25-49	50-74
29F2709	A314XBX	DPDT	120AC	2,250	9.73	9.24	8.27
29F2715	A314XCX	3PDT	125DC	10,000	13.20	12.54	11.22

Type A314—48P General Purpose 10-Amp Relay (Enclosed, Octal Plug)

29F2717	A314XAX48P	SPDT	120AC	2,250	13.08	12.43	11.12
60F3187	A314XBX48P	DPDT	120AC	2,250	14.55	13.82	12.37
60F3188	A314XBX48P	DPDT	24DC	472	14.38	13.66	12.22
29F2721	A314XBX48P	DPDT	125DC	10,000	15.68	14.90	13.33
60F3189	A314XCX48P	3PDT	120AC	2,250	17.68	16.80	15.03
60F3190	A314XCX48P	3PDT	24DC	472	17.63	16.75	14.99
29F2723	A314XCX48P	3PDT	125DC	10,000	18.93	17.98	16.09

Type A314 General Purpose Indicator Light (Enclosed, Octal Plug)

29F2724	A314XAX48PL	SPDT	120AC	2,250	15.06	14.31	12.80
67F640	A314XBX48PL	DPDT	120AC	2,250	16.52	15.69	14.04
67F641	A314XCX48PL	3PDT	120AC	2,250	19.66	18.68	16.71



TYPE 326 OCTAL BASE DELAY-ON-OPERATE RELAY

Hybrid thick film timing element. Contacts transfer after pre-set delay when energized. Accuracy ±10% with ±3% repeatability. Rated at 10 amps, 120VAC. Transient protection for 20 microsecond peaks of ±2000V. No false transfer of contacts if power is interrupted during timing. U.L. Recognized File No. 13224.

Stock No.	Type No.	Volts	Seconds	Contacts	1-24	25-49
29F2856	326XBX48P-001	120AC	0.1-1	DPDT*	35.69	32.12
29F2859	326XBX48P-030	120AC	3-30	DPDT		
29F2862	326XBX48P-300	120AC	30-300	DPDT	38.40	34.56
29F2865	326XCX48P-001	120AC	0.1-1	3PDT	38.40	34.56

TYPE C281 MINIATURE PLUG-IN RELAY

General purpose relay relay available with 4PDT 3-amp contacts, 4PDT 1-amp bifurcated contacts, or DPDT 10-amp contacts. Available for plug-in, solder connect, or p.c. mounting. Clear plastic cover standard, available hermetically sealed. 50,000,000 mechanical operations. 1⁹⁄₃₂ high × 1⅛ × ⅞. Standard 3-amp models are U.L. Recognized. File No. E13224.

Type C281XDX100 4PDT Miniature Relay, 3-Amp Silver Contacts, Solder/Plug-in

Stock No.	Type No.	Volts	Ohms	1-24	25-49	50-74
60F3281	C281XDX100	24AC	170	9.13	8.67	7.76
60F3282	C281XDX100	120AC	4,500	9.13	8.67	7.76

Type C281XDX320 4PDT Miniature Relay, 1-Amp Bifurcated Contacts, Solder/Plug-in

29F2729	C281XDX320	12DC	150	10.38	9.86	8.82

Type C281XDX103 4PDT Miniature Relay, 3-Amp Silver Contacts Printed Circuit

29F2735	C281XDX103	12DC	150	7.63	7.25	6.49

Type C281XBX411 DPDT Miniature Relay, 10-Amp SCO Contacts, Solder/Plug- in

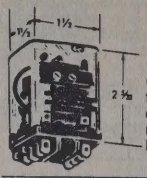
29F2740	C281XBX411	24DC	650	6.14	5.83	5.22

Type C281XBX413 DPDT Miniature Relay, 10-Amp SCO Contacts, Printed Circuit

29F2743	C281XBX413	12DC	160	6.14	5.83	5.22

SOCKETS FOR C281 AND 282 RELAYS

Stock No.	Type No.	Termination	1-24	25-49	50-74
60F3286	32844	Solder (except 10A)	1.42	1.35	1.21



TYPE A283 SQUARE BASE 10-AMP RELAY

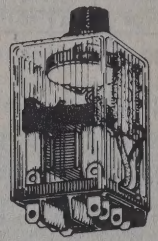
General purpose industrial relay. Long-life 10-amp contacts. Clear polycarbonate covers. 0.187" flat male quick connect terminals pieced for solder connection or relay plugs into matching socket. U.L. Recognized, File No. E13224 CSA listed (9494).

Type A283 10-Amp General Purpose Relay (Enclosed, Plug-in Square Base)

Stock No.	Type No.	Volts	Ohms	Contacts	1-24	25-49	50-74
67F650	A283XBXC	120AC	2,250	DPDT	8.70	8.27	7.40
67F656	A283XCXC	120AC	1,700	3PDT	9.90	9.41	8.42
67F658	A283XCXC	24DC	472	3PDT	9.19	8.73	7.81

Type A283 10-Amp General Purpose Relay (Enclosed, Bracket Mount)

67F668	A283XBXC1	120AC	2,250	DPDT	9.03	8.58	7.68
67F673	A283XCXC1	24AC	72	3PDT	10.22	9.71	8.69
67F674	A283XCXC1	120AC	1,700	3PDT	10.22	9.71	8.69



TYPE 286 SQUARE BASE DELAY-ON-OPERATE RELAY*

Hybrid thick film timing element. Type 286 delays transfer of contacts when energized. Transient protection for 20 microsecond peaks of ±2000V. Stock items are enclosed plug-in, adjustable timing. Accuracy ±10% with ±3% repeatablity. Contacts rated at 10 amps, 120VAC. U.L. Rec. File No. 13224.

Type 286XBXC DPDT, 10-Amp Delay-on-Operate (Square Base)

Stock No.	Type No.	Volts	Seconds	Contacts	1-24	25-49
29F2811	286XBXC-001	120AC	0.1-1	DPDT	32.01	28.81
29F2814	286XBXC-030	120AC	3-30	DPDT		
29F2824	286XCXC-030	24DC	3-30	3PDT	32.99	29.69

TYPE 292 SENSITIVE RELAY

Requires only 125mW per pole to operate. Contact rated at 5 amps. Square base or octal type plug-in.

Type 292XBXC* Sensitive Relay—DPDT, 250 mW, Plug-in

Stock No.	Type No.	Ohms	mA	Contacts	1-24	25-49	50-74
29F2756	292XBXC	2,500	10.0	DPDT	9.09	8.64	7.73

TYPE 285XBX MAGNETIC LATCH RELAY

Compact magnetic latch relay rated at 10 amps 120-240VAC. Terminals pierced for solder connection or plugs into mating socket.

Stock No.	Type No.	Contacts	Volts	Ohms	1-24	25-49	50-74
28F1738	285XBXC	DPDT	24DC	472	12.99	12.34	11.04
28F1739	285XBXC	DPDT	120VAC	10,000	16.74	15.90	14.23

SOCKETS FOR TYPE A283, 285, 286, 287, AND 292 PLUG-IN RELAYS

Stock No.	Type No.	Termination	1-24	25-49	50-74
67F679	36580	0.187 Quick Connect	2.02	1.92	1.72
67F680	36581	Solder Terminals	2.02	1.92	1.72

TYPE A42 AND A45 OCTAL BASE RELAYS

Solid state timing network with transient protection. Type A45 contacts transfer after pre-set relay when energized. Type A42 contacts transfer after pre-set delay when de-energized. Accuracy ±10% with ±2% repeatability. DPDT 10-amp contacts. NOTE: Power interruption during timing may cause momentary transfer of contacts.

A42 Delay-on-Release, DPDT Relay, 10 Amps, 11-Pin

Stock No.	Type No.	Coil	Seconds	Contacts	1-24	25-49
67F681	A42-010	120VAC	0.1-10	DPDT	63.25	60.09
67F685	A42-060	120VAC	0.6-60	DPDT		
67F686	A42-060	24VAC	0.6-60	DPDT		
67F689	A42-180	120VAC	1.8-180	DPDT		
67F690	A42-180	24VAC	1.8-180	DPDT		

Type 45 Delay-on-Operate, DPDT Relay, 10 Amps, 8-Pin

67F693	A45-010	120VAC	0.1-10	DPDT	52.59	49.96
67F694	A45-010	24VAC	0.1-10	DPDT		
67F697	A45-060	120VAC	0.6-60	DPDT		
67F701	A45-180	120VAC	1.8-180	DPDT		

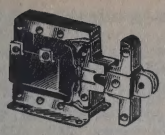
8

Relays and Coaxial Switches

SINGER CONTROLS DIVISION AC SOLENOIDS

Amphenol
An ALLIED Company

801



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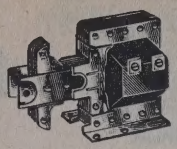

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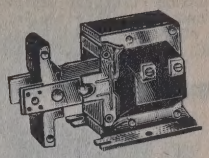

AC solenoids are available in both intermittent and continuous layer of epoxy. Zinc dichromate finish. Made by the world's largest duty types. Coil windings are imbedded in a heavy stock resistent manufacturer of solenoids.

Stk. No.	Part Number	Volts	Duty	Ohms	Amps	Adj. Stroke (in.)	Max-Lift Minimum Stroke	Shpg. Wt. Oz.	1-24	25-49	50-99	100-249
24F1600	801-101-2	115	Continuous	71	.30	1/8-5/8	53	8	7.56	6.87	6.33	5.82
24F1601	801-102-2	115	Intermittent	48.8	.50	1/8-5/8	75	8				
24F1602	801-103-2	230	Continuous	284	.15	1/8-5/8	53	8				
24F1603	812-101-2	115	Continuous	17.7	.58	1/8-1 1/16	154	18	10.35	9.39	8.65	7.95
24F1604	812-102-2	115	Intermittent	12.35	.97	1/8-1 1/16	192	18				
24F1605	812-103-2	230	Continuous	70.8	.29	1/8-1 1/16	154	18				
24F1606	813-101-2	115	Continuous	12.6	.60	1/8-1 1/16	196	22	10.75	9.75	8.97	8.25
24F1607	813-102-2	115	Intermittent	8.04	1.41	1/8-1 1/16	292	22				
24F1608	813-103-2	230	Continuous	50.4	.30	1/8-1 1/16	196	22				
24F1609	821-101-2	115	Continuous	4.68	.97	1/8-1 3/8	300	40	13.10	11.90	10.98	10.10
24F1610	821-102-2	115	Intermittent	3.17	1.77	1/8-1 3/8	460	40				
24F1611	821-103-2	230	Continuous	18.7	.485	1/8-1 3/8	300	40				

AMPHENOL COAXIAL SWITCHES—MANUAL AND SOLENOID OPERATED

Popular selection of coaxial switches for a wide variety of commercial and industrial applications. Requires only 20 millisecond max. operate and release time. Mechanical life exceeds 1 million cycles. Silver plated for comp. shielding. Gold over silver plated contacts: 100 watt RF power rating. Vacuum impregnated coils withstand adverse environmental conditions including high humidity. Rating: −65°C to +85°C. Terminations are all shorting except those indicated (*). In Volts col. (**) denotes that the switches are either rotary manual (57F1108) or lever manual (57F1104 and 57F1106). Available in a wide range of function designs. All types have BNC plug.

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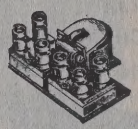

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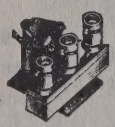

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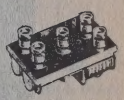

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Stock No.	Type No.	Freq. MC	Volts	Funct.	1-4	5-9	10-24	25-49
57F1100	315-10002-3*	1000	26DC	SPDT	64.71	52.49	45.25	40.27
57F1104	318-10381-0*	2750	**	SPDT	77.94	63.22	54.50	48.51
57F1106	321-11062-0*	1000	**	DPDT	132.63	107.59	92.75	82.55
57F1107	321-11064-3*	1000	26DC	DPDT	119.76	97.15	83.75	74.54
57F1108	322-11431-0*	2750	**	SP4T	167.67	136.01	117.25	104.35
57F1142	323-11651-3	1250	26DC	SP4T	159.80	129.63	111.75	99.46

AMPERITE THERMOSTATIC DELAY RELAYS

OCTAL BASE TUBE SHELL

Delay Seconds	Stock No.	6.3 NO	Stock No.	26V NO	Stock No.	115V NO	Stock No.	115V NC	1-9	10-49
					24F2328	115 NO2	**24F2342**	115 C2		
					24F2329	115 NO3	**24F2343**	115 C3		
5	**24F2302**	6 NO5	**24F2316**	26 NO5	**24F2330**	115 NO5	**24F2344**	115 C5		
8	.....	.....	.....	.....	.....	.....	.....	.....		
10	**24F2303**	6 NO10	**24F2317**	26 NO10	**24F2331**	115 NO10	**24F2345**	115 C10		
15	**24F2304**	6 NO15	**24F2318**	26 NO15	.....	.....	**24F2346**	115 C15		
20	**24F2305**	6 NO20	.....	.....	**24F2333**	115 NO20	**24F2347**	115 C20		
30	**24F2306**	6 NO30	.....	.....	**24F2334**	115 NO30	**24F2348**	115 C30	9.84	8.48
45	.....	.....	**24F2321**	26 NO45	**24F2335**	115 NO45	**24F2349**	115 C45		
60	**24F2308**	6 NO60	**24F2322**	26 NO60	**24F2236**	115 NO60	**24F2350**	115 C60		
90	.....	.....	**24F2324**	26 NO90	**24F2338**	115 NO90	.....	.....		
	.....	.....	.....	.....	**24F2339**	115 NO120	**24F2353**	115 C120		
150	.....	.....	.....	.....	**24F2340**	115 NO150	.....	.....		
180	.....	.....	**24F2327**	26 NO180	.....	.....	**24F2355**	115 C180		

MINIATURE 9 PIN TUBE SHELL

2	.....	.....	**24F2381**	26 NO2T	**24F2392**	115 NO2T	**24F2403**	115 C2T		
3	.....	.....	**24F2382**	26 NO3T	**24F2393**	115 NO3T	**24F2404**	115 C3T		
5	**24F2372**	6 NO5T	**24F2383**	26 NO5T	**24F2394**	115 NO5T	**24F2405**	115 C5T		
			24F2384	26 NO10T	**24F2395**	115 NO10T	.....	.....		
15	.....	.....	**24F2385**	26 NO15T	**24F2396**	115 NO15T	**24F2407**	115 C15T		
	.....	.....	.....	.....	**24F2397**	115 NO20T	**24F2408**	115 C20T	9.84	8.48
30	**24F2376**	6 NO30T	**24F2387**	26 NO30T	**24F2398**	115 NO30T	**24F2409**	115 C30T		
45	**24F2377**	6 NO45T	**24F2388**	26 NO45T	**24F2399**	115 NO45T	**24F2410**	115 C45T		
60	.....	.....	**24F2389**	26 NO60T	**24F2400**	115 NO60T	**24F2411**	117 C60T		
90	.....	.....	.....	.....	.....	.....	**24F2412**	115 C90T		
120	**24F2380**	6 NO120T	**24F2391**	26 NO120T	**24F2402**	115 NO120T	.....	.....		

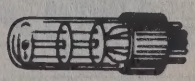
24F2414. Type 26C5T. Normally closed. Delay 5 sec. 26 V. NET 9.84 8.48

Hermetically-sealed, heater-actuated relays for AC or DC operation. SPST—Normally open (NO); Normally closed (C). Draw 2 W. Contact rating—115v at 3A AC and 220v at 1A AC. Breakdown voltage: delays 2-5 sec. between contacts 250 V; heater to contacts 500 V. Compensated for 55°C to 70°C ambient. Diameter, 1¼". Height, less prongs, 2¾". Min. 9 pin. ¾x2½". U.L. approved through 115V. Shpg. wt. 4 oz.

OCTAL BASE TUBE SHELL

Delay Seconds	Stock No.	6.3 V	Stock No.	26.0 V	1-9	10-49
2	.....	....	**24F2362**	26C2	9.84	8.48
30	.....	....	**24F2358**	26C30		

AMPERITE BALLAST TUBES



Rugged units provide low-cost automatic voltage and current regulation. As supply voltage increases, ballast tube resistance increases. Regulating action is based on high temperature coefficient of resistance element and heat dissipation qualities of gas-filled tube. Shpg. wt. 8 oz.

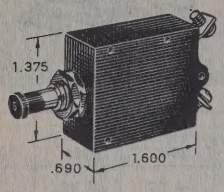
Stk. No.	Type	NET
24F726	3TFV4	3.25
24F723	10-4C	

8

Potter & Brumfield Circuit Breakers

Thermal Circuit Breakers contain a trip-free mechanism which allows the contacts to open on overload even if the breaker is manually held in the reset (ON) position. Pushbutton reset models have a white band around the button which becomes visible on trip. Trip times shown for each model are 200% of rating. •Denotes UL/CSA. *Not UL/CSA in ratings of 30A and above @ 125VAC. All DC units UL/CSA except for 60A models.

BIMETALLIC & FAST TRIP—MODELS 109, 842



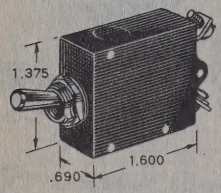
- **Pushbutton Reset**
- **Trip-free mechanism**
- **Fast Reaction**
- **Easily Mounted**

Model 109. Must trip between 101-135% of rating @ 25°C; will interrupt 2000A @ 250VAC (to 400 Hz), or 3500A @ 32VDC. **Model 842** has heater wire for fast trip; must trip between 101-135% of rating @ 25°C; will interrupt over 1000% of current rating. **Models 109** and **842** terminals are 90° to each other as shown. Mounting is ⅜-24 bushing nut.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
56F716	109-205-101	5 •		**57F259**	109-240-101	40*	
56F717	109-507-101	7.5•		**56F724**	109-250-101	50*	8-20
56F718	109-210-101	10 •		**57F260**	109-260-101	60*	
56F719	109-215-101	15 •	8-20	**56F734**	842-201-101	1	
56F720	109-220-101	20 •		**56F735**	842-202-101	2	
56F721	109-225-101	25 •	8-20	**56F736**	842-203-101	3	11-42
56F722	109-230-101	30 *		**56F737**	842-204-101	4	
56F723	109-235-101	35 *		.....	.....	...	.....

• Denotes UL/CSA

SWITCH/CIRCUIT BREAKER—MODELS 112, 548



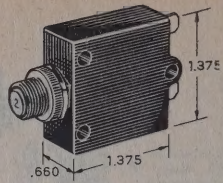
- **Toggle switch action**
- **Flatted Bushing Mounting**
- **8-32 Screw Termination**
- **8-20 Sec. Trip Time**

Models 112 and **548** offer the combination of toggle switch/circuit breaker in a single package. Trips between 101-135% of rating @ 25°C. Both will interrupt 2000A @ 250VAC, 3500A @ 50VDC. 548 will interrupt 3000A @ 250VAC (to 400 Hz) pr 5000A @ 32VDC. Mounting: 15/32-32 flatted bushing. **Model 112** has steel toggle with rate marking on end. **Model 548** has silver toggle with no marking. *Not UL/CSA in ratings of 30 amps and above @ 125VAC.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
56F725	112-205-101	5 •		**56F731**	112-230-101	30	
56F726	112-507-101	7.5•	6-20	**56F732**	112-235-101	35*	8-20
56F727	112-210-101	10 •		**56F742**	112-241-101	40*	
56F728	112-215-101	15 •		**56F733**	112-250-101	50*	
56F729	112-220-101	20 •	6-20				8-20
56F730	112-225-101	25 •		**57F263**	548-210-106	10	

•Denotes UL/CSA

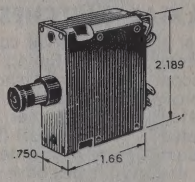
RECESSED BUTTON—MODEL W58



Series W58 breakers are UL Recognized as circuit protectors. File E69543 and CSA certified as appliance component protectors, File 30671. Red band on reset button becomes visible on trip. Must trip between 101% and 145% of rating @ 25°C. All models interrupt 1000 amps @ 250VAC, 2000 amps @ 50VDC. Termination: .250 × .032 Q.C.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
56F870	W58XB1A4A-1	1•		**57F281**	W58XC4C12A-1	1•	
56F871	W58XB1A4A-2	2•	9-40	**57F282**	W58XC4C12A-2	2•	9-40
56F872	W58XB1A4A-3	3•		**57F283**	W58XC4C12A-3	3•	
56F873	W58XB1A4A-4	4•					
56F874	W58XB1A4A-5	5•		**57F285**	W58XC4C12A-5	5•	
57F275	W58XB1A4A-6	6•		**57F286**	W58XC4C12A-6	6•	
56F875	W58XB1A4A-7	7•	5.8-30				5.8-30
57F276	W58XB1A4A-8	8•		**57F288**	W58XC4C12A-8	8•	
56F876	W58XB1A4A-10	10•		**57F289**	W58XC4C12A-10	10•	
57F277	W58XB1A4A-12	12•		**57F291**	W58XC4C12A-12	12•	
56F877	W58XB1A4A-15	15•		**57F292**	W58XC4C12A-20	20*	
56F878	W58XB1A4A-20	20•					
57F278	W58XB1A4A-25	25*					
57F279	W58XB1A4A-30	30*					

• Denotes UL/CSA * Not UL/CSA

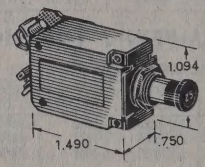


Model 436

- **Screw-Mounted**
- **Interrupts To 400 Hz**
- **8-32 Screw Termination**

Model 438. Must trip between 116% and 138% of ratings @ 25°C. Will interrupt 6000A @ 32VDC or will interrupt over 3500A @ 120VAC (to 400 Hz). Mounting: Screw mounted. 6-32. Termination: 8-32 screw terminals.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip TIme Sec.
57F296	436-205-101	5	15-55	**57F305**	436-250-101	50	15-55



MODELS 492, 507

- **Glass Melamine Barrier on Housing**
- **Interrupts to 400 Hz**
- **Bushing Mounted**

Model 492 has glass melamine barrier on one side of housing. Model 507 has no barrier. Both models must trip between 116% and 138% of rating @ 25°C, and will interrupt 6000A @ 32VDC or will interrupt over 3500A @ 120VAC (to 400 Hz). Bushing mounted. 15-32 bushing. Termination: 8-32 screw terminals.

Stock No.	Type	Amps	Trip Time Sec.	Stock No.	Type	Amps	Trip Time Sec.
56F710	507-210-101	10		**56F713**	507-225-101	25	
56F711	507-215-101	15	15-55	**57F317**	507-230-101	30	15-55
56F712	507-220-101	20					

PRICE CHART

Type	1-9	10-24	25-99	Type	1-9	10-24	25-99
109- 205, 507, 210, 215, 220	8.75	8.23	7.18	**492-215**	27.90	26.23	22.88
109- 225, 230, 235, 240, 250	8.95	8.41	7.34	**507-210**	24.80	23.31	20.34
109-260	9.80	9.21	8.04	**507- 215, 220, 225, 230, 235, 240**	26.60	25.00	21.81
112-205	11.05	10.39	9.06	**548-205**	13.20	12.41	10.82
112-210	11.10	10.43	9.10	**548-210**	13.45	12.64	11.03
112- 215, 220	11.25	10.58	9.23	**842- 201, 202, 203, 204**	16.45	15.46	13.49
112- 225, 230, 235, 240, 250	11.50	10.81	9.43	**W58XB1A4A-1-4**	4.54	4.27	3.72
112-507	10.90	10.25	8.94	**W58XB1A4A-5-35**	2.92	2.74	2.39
436-205	33.15	31.16	27.18	**W58XC4C12A-1-4**	6.55	6.16	5.37
436-250	32.10	30.17	26.32	**W58XC4C12A-5-35**	4.93	4.63	4.04

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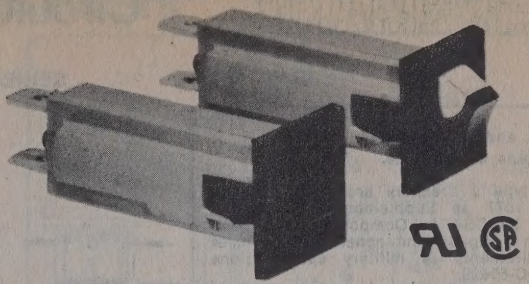
Circuit Breakers

Potter & Brumfield

Why hassle with replacing fuses when you can simply press a button to restore a circuit?

New P&B breaker fits the same cutout as ⅝" fuseholders.

- Snaps in from front
- Quick connect terminals
- Trip-free mechanism
- UL Recognized
- CSA Certified



W28 series circuit breakers from Potter & Brumfield represent convenient, inexpensive alternatives to twist-cap, panel- or chassis-mounted fuseholders and slowblow glass cartridge fuses. These single pole, thermal type breakers are ideal for a wide range of applications in equipment for industrial and consumer markets. Approximately the same size as many fuseholders, they securely snap into standard .625" round, single "D" or double "D" cutouts from the front of the panel. This allows W28 breakers to be prewired in front of the panel, then snapped into place. W28 breakers feature a reset button which cannot be manually pulled out to disconnect the circuit. When an overload occurs and the breaker opens, the reset button and a white indicator extend for visual trip indication. A trip-free feature allows the contacts to open even if the reset button is held in manually against an overload. All models will continuously carry 100% of rating. They may trip between 101% and 103% of rating, but must trip at 135% of rating within one hour at +25 C. Maximum operating voltages are 32V DC and 250V AC, 50/60 Hz. Models rated at 0.25 through 2 amps can be reset after overload currents six times their rating, while 3 through 15 amp models have resettable overload capacity of ten times their rated current. All have a short circuit interrupt capacity of 1000 amps at 250V AC, 50/60 Hz. or 32V DC.

W28 FUSEHOLDER TYPE CIRCUIT BREAKERS

Stock No.	Type	Trip Time Amps	@200% of Load	1-9	10-49	50-99	100-249
75F005	W28XQ1A-0.25	0.25		4.60	2.99	2.71	2.44
75F006	W28XQ1A-0.5	0.5	4.5–28 sec.	4.60	2.99	2.71	2.44
75F007	W28XQ1A-1	1	@ +25°C	4.60	2.99	2.71	2.44
75F008	W28XQ1A-2	2		4.80	3.12	2.83	2.54
75F009	W28XQ1A-3	3		2.60	1.69	1.53	1.38
75F010	W28XQ1A-5	5		2.60	1.69	1.53	1.38
75F011	W28XQ1A-7	7	2–15 sec.	2.60	1.69	1.53	1.38
75F012	W28XQ1A-8	8	@ +25°C	2.60	1.69	1.53	1.38
75F013	W28XQ1A-10	10		2.60	1.69	1.53	1.38
75F014	W28XQ1A-12	12		2.60	1.69	1.53	1.38
75F015	W28XQ1A-15	15		2.60	1.69	1.53	1.38

Magnetic Hydraulic Circuit Breakers

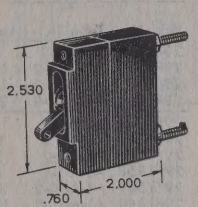
Magnetic Hydraulic Standard and Mini-Mag models are U/L Recognized. All types contain a trip-free mechanism which allows the contacts to open on overload even if the handle is held in the reset (ON) position. Must trip value is 101%–125% of rating @ 25°C. Models are temperature stable from −40°C to +85°C. All models mount with 6-32 screws. Standard models terminate to 10-32 studs; Mini-mag models, to .032 × .250 quick-connect terminals. UL File E69543. CSA File 30671. *AC Models not UL-CSA.

STANDARD TYPES

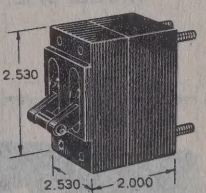
Stock No.	Type	Amps	Trip Time @ 200% of Load	Stock No.	Type	Amps	Trip Time @ 200% of Load
56F762	W91X11-2-1	1		**56F790**	W92X11-2-1	1	
56F763	W91X11-2-2	2		**56F791**	W92X11-2-2	2	
56F766	W91X11-2-5	5		**56F792**	W92X11-2-3	3	
56F767	W91X11-2-7	7		**56F794**	W92X11-2-5	5	
56F768	W91X11-2-10	10	2.2-20	**56F795**	W92X11-2-7	7	
56F769	W91X11-2-15	15	sec.	**56F796**	W92X11-2-10	10	2.2-20
56F770	W91X11-2-20	20	60 Hz	**56F797**	W92X11-2-15	15	sec.
56F771	W91X11-2-25	25		**56F798**	W92X11-2-20	20	60 Hz
56F772	W91X11-2-30	30		**56F799**	W92X11-2-25	25	
56F774	W91X11-2-40	40		**56F810**	W92X11-2-30	30	
56F775	W91X11-2-50	50		**56F812**	W92X11-2-40*	40	
57F220	W91X11-3-5	5	.15-1.5	**56F813**	W92X11-2-50*	50	
57F221	W91X11-3-10	10	sec.	**57F237**	W92X11-3-15	15	.15-1.5
57F222	W91X11-3-15	15	60 Hz	**57F239**	W92X11-3-30	30	sec. 60 Hz
13F3616	W91X15-0-5	5	30 Ms Max.	**56F832**	W93X11-2-5	5	
13F3620	W91X15-2-10	10		**56F834**	W93X11-2-10	10	
13F3621	W91X15-2-15	15		**56F835**	W93X11-2-15	15	
13F3622	W91X15-2-20	20	.60-8.0	**56F836**	W93X11-2-20	20	2.2-20
13F3623	W91X15-2-25	25	sec.	**56F837**	W93X11-2-25	25	sec.
13F3624	W91X15-2-30	30		**56F838**	W93X11-2-30	30	60 Hz
13F3626	W91X15-2-40	40*		**56F840**	W93X11-2-40	40	
13F3626	W91X15-2-50	50*		**56F841**	W93X11-2-50	50	
13F3631	W91X15-3-50	50*	.16-1.5 sec.				

MINI-MAG TYPES

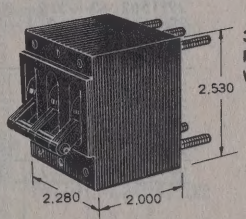
Stock No.	Type	Amps	Trip Time @ 200% of Load	Stock No.	Type	Amps	Trip Time @ 200% of Load
57F245	W67A2Q1-2-5	5		**56F888**	W68X2Q1-2-3	3	
57F246	W67X2Q1-2-5*	0.5		**56F890**	W68X2Q1-2-5	5	
56F806	W67X2Q1-2-2	2		**56F891**	W68X2Q1-2-7	7	
56F807	W67X2Q1-2-3	3		**56F892**	W68X2Q1-2-10	10	2.2-20
56F809	W67X2Q1-2-5	5	2.2-20	**56F893**	W68X2Q1-2-15	15	sec.
56F879	W67X2Q1-2-7	7	sec.	**56F894**	W68X2Q1-2-20	20	60 Hz
56F880	W67X2Q1-2-10	10	60 Hz	**56F895**	W68X2Q1-2-25	25	
56F881	W67X2Q1-2-15	15		**56F896**	W68X2Q1-2-30	30	
56F882	W67X2Q1-2-20	20		**56F993**	W69X2Q1-2-5	5	
56F883	W67X2Q1-2-25	25		**56F995**	W69X2Q1-2-10	10	2.2-20
56F884	W67X2Q1-2-30	30		**56F997**	W69X2Q1-2-20	20	sec.
57F247	W67X2Q1-3-5*	0.5		**56F998**	W69X2Q1-2-25	25	60 Hz
57F248	W67X2Q1-3-1	1		**56F999**	W69X2Q1-2-30	30	
57F249	W67X2Q1-3-2	2		.....	.....	..	
57F252	W67X2Q1-3-5	5		.....	.....	..	
57F253	W67X2Q1-3-7	7	.15-1.5	.....	.....	..	
57F254	W67X2Q1-3-10	10	sec.	.....	.....	..	
57F255	W67X2Q1-3-15	15	60 Hz	.....	.....	..	
57F256	W67X2Q1-3-20	20		.....	.....	..	
57F257	W67X2Q1-3-25	25		.....	.....	..	
57F258	W67X2Q1-3-30	30		.....	.....	..	



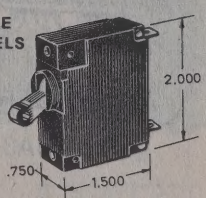
1-POLE MODELS W-91



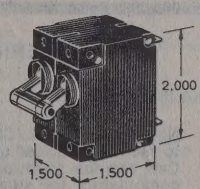
2-POLE MODELS W-92



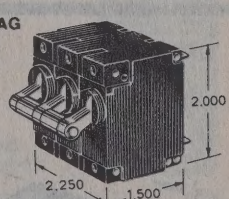
3-POLE MODELS W-93



MINI-MAG 1-POLE MODELS W67



MINI-MAG 2-POLE MODEL W68



MINI-MAG 3-POLE MODEL W69

Interrupt Capacity:

Voltage	Frequency	UL Capacity in Amps W67-W69	UL Capacity in Amps W91-W93
50	DC	2000	3500
250	AC, 50/60 Hz.	5000	5000

PRICE CHART

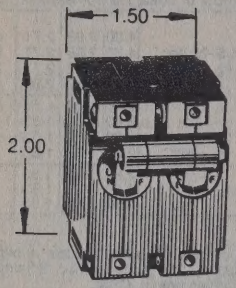
Type	1-9	10-49	50-99	Type	1-9	10-49	50-99
W91X11-2	17.25	11.21	10.18	W67A2Q1-2	19.00	12.35	11.21
W91X11-3	17.25	11.21	10.18	W67X2Q1-2*	16.90	10.99	9.97
W91X15-0	17.25	11.21	10.18	W67X2Q1-2	14.10	9.17	8.32
W91X15-2	17.25	11.21	10.18	W67X2Q1-3*	16.90	10.99	9.97
W91X15-3	17.25	11.21	10.18	W67X2Q1-3	14.10	9.17	8.32
W92X11-2	41.40	26.91	24.43	W67X2Q1-3-30	12.95	8.42	7.64
W92X11-3	41.40	26.91	24.43	W68X2Q1-2	33.60	21.84	19.82
W93X11-2	64.90	42.19	38.29	W69X2Q1-2	52.85	34.35	31.18

Circuit Breakers

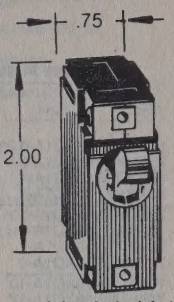
SERIES JA

- **UL and CSA listed**
- **Meets MIL-C-55629.**

All type J breakers are recognized by UL 1077 as Supplementary Protectors and by CSA as Components. All have been designed and constructed to meet requirements of military specifications MIL-C-55629.



Model JA2

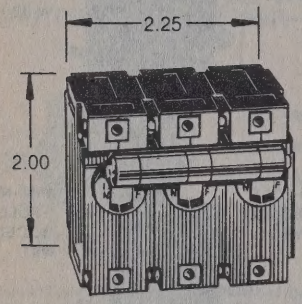


Model JA1

SERIES JA. UL recognized under 1077. 2 inches (51mm) in height, requires a minimum behind-the-panel space. White toggle handle. Each pole measuring 0.75 inches (19mm) width. A sustained overcurrent or short circuit sensed by one pole triggers all other poles. In case of short circuits, tripping is instantaneous, bypassing the time delay characteristic provided to accommodate brief inrush currents which might otherwise cause nuisance tripping during motor starting or light source or power supply turn on. Quick on rear connectors make for fast and clean wiring. "B" type breakers are 65V max DC, all others 250V, 50/60 Hz.

TIME DELAY DATA—(SECONDS)

		60HZ 125% Min./Max.	60HZ 200% Min./Max.
CD/CE/CF	Curve 1	100/880	20/110
JA/AM	Curve 2	10/175	2.5/20
JA/AM	Curve 3	1/17	0.16/1.6
(Hi-Inrush) (8X)			
JA/AM	Curve 10	75/400	15/70
JA/AM	Curve 20	10/100	2.5/20
DC			
JA/AM	Curve 2	2.1/55	0.6/7.5
JA/AM	Curve 3	0.6/7	0.15/1.4



Model JA3

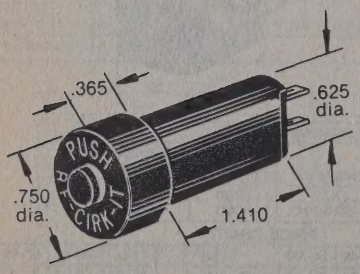
Stk. No.	Type JA1-	Amps	1-9	10-24	25-49
29F1548	A2-A-5-2	5	16.75	14.24	12.06
29F1549	A2-A-10-2	10			
29F1550	A2-A-15-2	15			
29F1551	A2-A-20-2	20			
29F1555	A3-A-1-2	1	13.70	11.65	9.86
29F1556	A3-A-2 2	2			
29F1557	A3-A-3-2	3			
29F1558	A3-A-5-2	5			
29F1559	A3-A-10-2	10			
29F1560	A3-A-15-2	15			
29F1561	A3-A-20-2	20			
29F1562	A3-A-30-2	30			
29F1563	A3-A-1-3	1			
29F1564	A3-A-2-3	2			
29F1565	A3-A-5-3	5			
29F1566	A3-A-10-3	10			
29F1567	A3-A-15-3	15			
29F1568	A3-A-20-3	20			
29F1591	A8-A-10-10	10	15.35	13.05	11.05
29F1592	A8-A-15-10	15			
29F1554	B2-A-30-2	30	16.75	14.24	12.06

Stk. No.	Type JA1-	Amps	1-9	10-24	25-49
29F1569	B3-A-5-2	5	13.70	11.65	9.86
29F1570	B3-A-10-2	10			
29F1571	B3-A-15-2	15			
29F1573	B3-A-30-2	30			
29F1576	B3-A-10-3	10			
29F1577	B3-A-15-3	15			

Stk. No.	Type JA2	Amps	1-9	10-24	25-49
29F1583	A3-A-5-3	5	30.70	26.10	22.10
29F1584	A3-A-10-3	10			
29F1585	A3-A-15-3	15			
29F1586	A3-A-20-3	20			
29F1587	A3-A-30-3	30			
29F1598	A8-A-20-10	20	32.35	27.50	23.29
29F1599	A8-A-15-20	15			
29F1600	A8-A-20-20	20			

Stk. No.	Type JA3-	Amps	1-9	10-24	25-49
29F1588	A3-A-15-2	15	49.95	42.46	35.96
29F1589	A3-A-30-2	30			
29F1590	A3-A-15-3	15			

SERIES KD-1 "RE-CIRK-IT" PROTECTOR



Non-magnetic, UL/CSA recognized push to reset cylindrical overcurrent protector. Can replace traditional fuse and holder combination for sump pumps, industrial power supplies, medical equipment, copiers, camping vehicles, and vending machines. Fits standard ⅝" dia. panel cutout, clips on without screw mounting, has quick-on terminals. Current range 0.25 to 15 amps, ac or dc. Time delay prevents nuisance tripping by starting inrushes. 250V, 50/60 Hz, 32 Vdc.

- **UL-recognized Control Component**
- **Pushbutton reset**
- **Fits into "D" Panel cutout**

Stk. No.	Type	Amps	1-9	10-49	50-99
10F8608	KD1-0.25	.25	6.35	5.10	4.75
10F8609	KD1-0.5	.50	6.35	5.10	4.75
29F1601	KD1-1	1	6.35	5.10	4.75
81F1729	KD1-1.5	1.50	6.35	5.10	4.75
81F1730	KD1-1.75	1.75	6.35	5.10	4.75
29F1602	KD1-2	2	6.35	5.10	4.75
29F1603	KD1-3	3	4.25	3.40	3.20
29F1604	KD1-4	4	4.25	3.40	3.20
29F1605	KD1-5	5	4.25	3.40	3.20
29F1606	KD1-6	6	4.25	3.40	3.20
29F1607	KD1-7	7	4.25	3.40	3.20
29F1608	KD1-8	8	4.25	3.40	3.20
29F1609	KD1-9	9	4.25	3.40	3.20
29F1610	KD1-10	10	4.25	3.40	3.20
81F1731	KD1-12	12	4.25	3.40	3.20
29F1611	KD1-15	15	4.25	3.40	3.20

TX CIRCUIT PROTECTORS

Non-magnetic Series TX Circuit Protectors are available in one and two pole models. Attractive design compliments your product while adding overload and short circuit protection and doubling as an On/Off switch. Snap-in mounting and .250 quick-connect terminals allow front panel installation without the need of hardware or tools. Current ratings from 2 amp to 20 amp at 125 VAC, 50/60Hz or 32 VDC, also rated 250 VAC, 50/60Hz up to and including 10 amps.

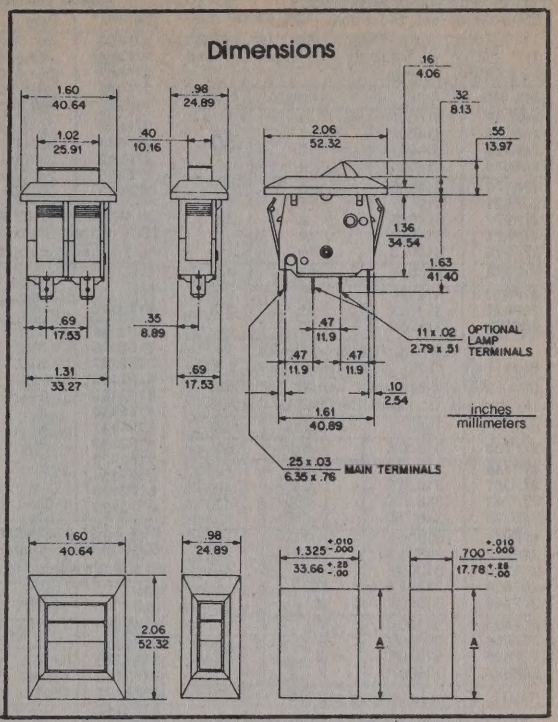
The TX is CSA certified and UL recognized under Standard 1077. Unlighted versions meet the requirements of VDE 0730 and IEC 380. Standard colors are black body with white lens having On/Off legend. Other colors and legends are available as well as mixed ratings on two pole units.

PANEL THICKNESS		.062/1.58	.093/2.36	.125/3.18
DIMENSION A	MIN.	1.770/44.96	1.770/44.96	1.770/44.96
	MAX.	1.780/45.21	1.815/46.10	1.855/47.12

SERIES TX UNLIGHTED

Stk. No.	Type	Amps	Poles	1-9	10-49
81F1717	TX1-P2-U00-WH2	2	1	6.25	5.63
81F1718	TX1-P3-U00-WH2	3	1		
81F1719	TX1-P5-U00-WH2	5	1		
81F1720	TX1-P7-U00-WH2	7	1		
81F1721	TX1-P10-U00-WH2	10	1		
81F1722	TX1-P15-U00-WH2	15	1		
81F1723	TX1-P20-U00-WH2	20	1		
81F1724	TX2-P2P2-U00-WH2	2	2	12.75	11.43
81F1725	TX2-P3P3-U00-WH2	3	2		
81F1726	TX2-P5P5-U00-WH2	5	2		
81F1727	TX2-P7P7-U00-WH2	7	2		
81F1728	TX2-P10P10-U00-WH2	10	2		

Dimensions



9

SERIES AM

Similar to JA SERIES. Recognized under UL 1077. Includes current rating to 60 amps, ac or dc. 2.5" (63.5mm) high. 1, 2 or 3 pole. Fully magnetic. Meets military requirements MIL-C-55629. Max. 250V, 50/60 Hz. "B" type, e.g. type AM1-B3-A-10-2, 65Vdc max.

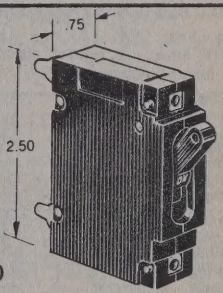
Trip time at 40°C in seconds
100% No Trip, Must Trip 101-140% (10-250 sec.)
200% (6-41 sec.)

Stk. No.	Type AM1	Amps	1-9	10-24	25-49
29F1485	A2-A-10-2	10	21.20	18.02	15.26
29F1486	A2-A-15-2	15			
29F1487	A3-A-5-2	5	16.70	14.20	12.02
29F1488	A3-A-10-2	10			
29F1489	A3-A-15-2	15			
29F1490	A3-A-20-2	20			
29F1491	A3-A-25-2	25			
29F1492	A3-A-30-2	30			
29F1493	A3-A-50-2	50			
29F1494	A3-A-5-3	5	12.70	14.20	12.02
29F1495	A3-A-10-3	10			
29F1496	A3-A-15-3	15			
29F1497	A3-A-20-3	20			
29F1498	A3-A-30-3	30			
29F1511	A8-A-10-10	10	18.40	15.64	13.20
29F1512	A8-A-15-10	15			
29F1513	A8-A-20-10	20			
29F1514	A8-A-10-20	10			
29F1515	A8-A-15-20	15			
29F1516	A8-A-20-20	20			
29F1499	B3-A-10-2	10	16.70	14.20	12.02
29F1500	B3-A-15-2	15			
29F1501	B3-A-20-2	20			
29F1502	B3-A-30-2	30			
29F1503	B3-A-40-2	40			
29F1504	B3-A-50-2	50			
29F1505	B3-A-5-3	5			
29F1506	B3-A-10-3	10			

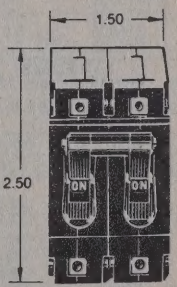
Stk. No.	Type AM1	Amps	1-9	10-24	25-49
29F1507	B3-A-15-3	15	16.70	14.20	12.02
29F1508	B3-A-20-3	20			
29F1509	B3-A-30-3	30			
29F1510	B3-A-50-3	50			

Stk. No.	Type AM2	Amps	1-9	10-24	25-49
20F1517	A3-A-5-2	5	41.45	35.23	29.84
29F1518	A3-A-10-2	10			
29F1519	A3-A-15-2	15			
29F1520	A3-A-20-2	20			
29F1521	A3-A-30-2	30			
29F1522	A3-A-50-2	50			
29F1612	A3-A-5-3	5	41.45	35.25	29.84
29F1613	A3-A-10-3	10			
29F1614	A3-A-15-3	15			
29F1615	A3-A-20-3	20			
29F1616	A3-A-30-3	30			
29F1617	A3-A-50-3	50			

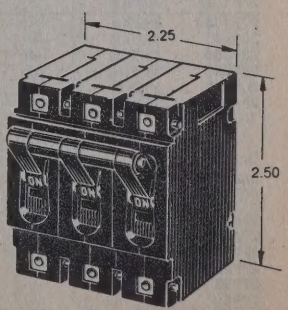
Stk. No.	Type AM3	Amps	1-9	10-24	25-49
29F1523	A3-A-5-2	5	59.00	50.15	42.48
29F1524	A3-A-10-2	10			
29F1525	A3-A-15-2	15			
29F1526	A3-A-20-2	20			
29F1527	A3-A-30-2	30			
29F1528	A3-A-50-2	50	59.00	50.15	42.48
29F1529	A3-A-5-3	5			
29F1530	A3-A-10-3	10			
29F1531	A3-A-15-3	15			
29F1532	A3-A-20-3	20			



AM1
(1 pole)



AM2
(2 poles)



AM3
(3 poles)

3AG, 8AG, Midget, and Electrical Fuses

3AB CERAMIC BODY

250 volts or less. Blow time 110% 4 hour min; 135% 1 hour max. 200% 15 sec. max. Length 1¼", dia ¼", UL listed thru 15 amps. Certified by CSA thru 5 amps.

Stk. No.	Type	Amps	5-up
20F617	314001	1	.50
20F618	314002	2	
20F619	314003	3	
20F620	314004	4	
28F170	314005	5	.44
20F621	314007	7	
27F670	314008	8	
27F671	314010	10	
27F672	314012	12	
27F673	314015	15	.44
27F674	314020	20	.79
20F622	314025	25	
20F623	314030	30	

3AG PIGTAIL FUSES—250 VOLT

Blow time: 110%, 4-hour min.; 135% 1 hour max.; 200%, 5-sec. max. Length 1¼", Dia. ¼", 1½" pigtails. UL listed. Certified by C.S.A.

Stk. No.	Type	Amps	5-up
27F739	318.125	.125	.86
27F740	318.250	.25	.60
27F341	318.375	.375	
27F742	318.500	.500	
27F743	318.750	.750	
27F943	318001	1.0	.47
28F187	31801.5	1½	
27F945	318002	2.0	
20F624	31802.5	2½	
27F946	318003	3	
20F625	318004	4	.49
27F948	318005	5	
20F626	318006	6	
20F627	318007	7	

*NOTE: 7 amp fuse rated at 125V.

3AG SLO BLO PIGTAIL FUSES—250 VOLT

Blow time: 110%, 4 hr. min.; 135%, 1 hr. max; 200%, 5-sec. min. Lg. 1¼" dia, ¼", 1½" pigtails. UL listed. Certified by C.S.A.

27F928	315.100	1/10	.95
27F734	315.250	¼	
27F735	315.300	.3	
20F628	315.375	⅜	
27F737	315.500	.5	
27F930	315.600	.6	
27F932	315001	1.0	
27F934	31501.5	1.5	.93
27F935	31501.6	1.6	
27F936	315002	2.0	
28F188	31502.5	2½	.77
27F937	315003	3:0	
27F940	315004	4.0	
27F941	315005	5.0	
20F629	315007	7	

8AG FUSES

Blow time; 110%, 4-hour min; 135%, 1 hr. max; 200%, 10-sec. max. L. 1", dia. ¼", UL listed thru 5 amps.

Stk. No.	Type	Amps	5-up
20F630	362.125	⅛*	.62
28F189	362.250	¼*	.36
28F191	362.500	½*	
27F1080	362001	1*	.26
28F192	36201.5	1.5*	
27F1081	362002	2†	
20F631	36202.5	2½†	
27F1082	362003	3†	
27F1083	362005	5†	.19
20F632	362006	6†	
28F394	362008	8•	
28F395	362010	10•	
20F633	362015	15•	
20F634	362020	20•	

*250V †125V •32V

8AG INSTRUMENT FUSES

Blow time; 100%, 4-hour min., 200%, 5-sec. max. Length 1", dia. ¼".

Stk. No.	Type	Amps	5-Up
27F614	361.002	1/500	4.04
27F600	361.005	1/200	1.80
27F601	361.010	1/100	1.80
27F602	361.031	1/32	1.80
27F603	361.062	1/16	.75
27F604	361.125	⅛	.62

8AG INSTRUMENT FUSES CON'T.

Stk. No.	Type	Amps	5-up
27F605	361.250	¼	.35
27F606	361.375	⅜	
27F607	361.500	½	
27F608	361.750	¾	
27F609	361001	1	.23
27F610	36101.5	1½	
27F611	361002	2	
27F612	361003	3	
27F615	361004	4	
27F613	361005	5	

FLM TIME DELAY FUSES

250V or less. Short circuit rating: 10,000 amps AC For use in circuits with hi in-rush currents.

Stk. No.	Amps	5-95	100-495	500-995
81F2124	½	1.57	1.42	1.18
81F2125	1	1.51	1.37	1.13
81F2126	1 6/10			
81F2127	2			
81F2128	2½			
81F2129	3 2/10			
81F2130	4			
81F2131	5			
81F2132	6¼			
81F2133	8			
81F2134	10			
81F2135	12			
81F2136	15			

KLK FAST-ACTING FUSES (13/32" × 1½")

600V or less. Hi-interrupting capacity. For use in circuits with up to 200,000 amps short circuit

Stk. No.	Amps	5-95	100-495	500-995
81F2137	1/10	3.67	3.33	2.80
81F2138	¼			
81F2139	3/10			
81F2140	½			
81F2141	¾			
81F2142	1			
81F2143	1½			
81F2144	2			
81F2145	3			
81F2146	4			
81F2147	5			
81F2148	6	3.67	3.33	2.80
81F2149	8			
81F2150	10			
81F2151	15			
81F2152	20	3.82	3.47	2.92
81F2153	25			
81F2154	30			

NLN "ONE-TIME" FUSES

250V or less. Interrupting rating: 10,000 amps AC UL Listed. Class H.

Stk. No.	Amps	Size	1-99	100-499	500-999
81F2212	1	9/16X2	.70	.54	.45
81F2213	3	9/16X2			
81F2214	6	9/16X2			
81F2215	10	9/16X2	.98	.74	.64
81F2216	15	9/16X2			
81F2217	20	9/16X2			
81F2218	25	9/16X2			
81F2219	30	9/16X2			
81F2220	35	13/16X3			
81F2221	40	13/16X3			
81F2222	45	13/16X3			
81F2223	50	13/16X3			
81F2224	60	13/16X3			
81F2225	100	1x5⅞	4.23	3.22	2.70

ALARM INDICATING FUSES 125VAC.60VDC

Color-coded by amperage. Blown fuse indicating flag can activate alarm circuit. Multiple panel mounting in limited space. .585" × .775".

Stk. No.	Type	Amp	Color	1-99	100-499	500-999
81F2226	401.180	18/100	Yellow	2.20	1.32	1.10
81F2227	401.250	¼	Violet			
81F2228	401.500	½	Red			
81F2229	401.600	65/100	Black			
81F2230	401.750	¾	Brown			
81F2231	401001	1	Gray			
81F2232	4011.33	1⅓	White			
81F2233	401002	2	Orange			
81F2234	401003	3	Blue			
81F2235	401005	5	Green			
81F2236	40107.5	7½	Blk/Wht			
81F2237	401010	10	Red/Blk			

FLN-R SLO-BLO® CURRENT LIMITING FUSES

250V or less. For protection against fault currents up to 200,000 amps in motor branch circuitry, transformers, etc. Class R reject feature. UL Listed, Class RK-5.

Stk. No.	Amps	Size	1-99	100-499	500-999
81F2170	1	9/16X2	2.00	1.81	1.51
81F2171	1¼	9/16X2	2.00	1.81	1.51
81F2172	1 6/10	9/16X2	2.00	1.81	1.51
81F2173	2	9/16X2	2.00	1.81	1.51
81F2174	2½	9/16X2	2.00	1.81	1.51
81F2175	3 2/10	9/16X2	1.82	1.65	1.38
81F2176	4	9/16X2	1.82	1.65	1.38
81F2177	5	9/16X2	1.82	1.65	1.38
81F2178	6¼	9/16X2	1.82	1.65	1.38
81F2179	8	9/16X2	1.82	1.65	1.38
81F2180	10	9/16X2	1.82	1.65	1.38
81F2181	15	9/16X2	1.68	1.52	1.25
81F2182	17½	9/16X2	1.68	1.52	1.25
81F2183	20	9/16X2	1.68	1.52	1.25
81F2184	25	9/16X2	1.68	1.52	1.25
81F2185	30	9/16X2	1.68	1.52	1.25
81F2186	35	13/16X3	3.00	2.81	2.36
81F2187	40	13/16X3	3.10	2.81	2.36
81F2188	50	13/16X3	3.10	2.81	2.36
81F2189	60	13/16X3	3.10	2.81	2.36
81F2190	100	1x5⅞	6.96	6.32	5.28

FLS-R SLO-BLO® CURRENT LIMITING FUSES

Similar to above but rated at 600V or less.

Stk. No.	Amps	Size	1-99	100-499	500-999
81F2191	1	13/16X5	4.54	4.12	3.44
81F2192	1¼	13/16X5	4.54	4.12	3.44
81F2193	1 6/10	13/16X5	4.54	4.12	3.44
81F2194	2	13/16X5	4.54	4.12	3.44
81F2195	2½	13/16X5	4.54	4.12	3.44
81F2196	3 2/10	13/16X5	4.25	3.86	3.24
81F2197	4	13/16X5	4.25	3.86	3.24
81F2198	5	13/16X5	4.25	3.86	3.24
81F2199	6¼	13/16X5	4.25	3.86	3.24
81F2200	8	13/16X5	4.25	3.86	3.24
81F2201	9	13/16X5	4.25	3.86	3.24
81F2202	10	13/16X5	4.25	3.86	3.24
81F2203	15	13/16X5	3.76	3.41	2.86
81F2204	20	13/16X5	3.76	3.41	2.86
81F2205	25	13/16X5	3.76	3.41	2.86
81F2206	30	13/16X5	3.76	3.41	2.86
81F2207	35	1 1/16X5½	6.44	5.85	4.89
81F2208	40	1 1/16X5½	6.44	5.85	4.89
81F2209	50	1 1/16X5½	6.44	5.85	4.89
81F2210	60	1 1/16X5½	6.44	5.85	4.89
81F2211	100	1¼x7⅞	13.35	12.13	10.15

FLQ MIDGET FUSES (13/32" × 1½")

500V or less. Short Circuit Rating 10,000 amps (AC) Dual element, time delay for protection of control circuit transformers and other circuits with high in rush currents.

Stk. No.	Amps	Quantity	1-99	100-499	500-999
81F2155	⅛	10	4.29	3.90	3.30
81F2156	¼	10			
81F2157	½	10			
81F2158	1	50			
81F2159	1 6/10	20			
81F2160	2	30			
81F2161	2½	10			
81F2162	3 2/10	30			
81F2163	4	40			
81F2164	5	50			
81F2165	6¼	20			
81F2166	8	20			
81F2167	10	30			
81F2168	12	10			
81F2169	15	30			

Fuses are sold in multiples of 5

Subminiature and 3AG Fuses

LITTELFUSE

PICO II™ SUB-MINIATURE FUSES

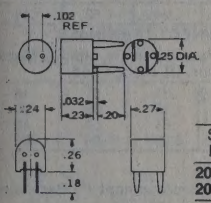
255, 256 Series supercedes 275 and 276 Picofuses shown below. Ultra-small fuses for space-saving circuit protection. Totally encapsulated epoxy-coated body. Color-coding indicates current rating and time-current characteristics. For circuits of 125 volts or less where short circuit currents may be as high as 300 amperes. Blow Time: 4 hours, min. at 100%; 5 seconds max. at 200% (1/16-10 amperes); 10 seconds max. at 200% (12-15 amperes). Body is .280" x .095" dia.; Leads are 1½" long by .025" dia. (1/16-10 amps) or .032" dia. (12-15 amps) 255 series has axial leads; 256 series has radial leads. U.L. Recognized.

Stock No.	Type	Stock No.	Type	Amps	EACH 1-99	EACH 100-499
81F2100	255.125	81F2112	256.125	1/8	1.01	.84
81F2101	255.250	81F2113	256.250	1/4	1.01	.84
81F2102	255.375	81F2114	256.375	3/8	1.01	.84
81F2103	255.500	81F2115	256.500	1/2	1.01	.84
81F2104	255.750	81F2116	256.750	3/4	.83	.69
81F2105	255001	81F2117	256001	1	.83	.69
81F2106	25501.5	81F2118	25601.5	1½	.83	.69
81F2107	255002	81F2119	256002	2	.83	.69
81F2108	255003	81F2120	256003	3	.83	.69
81F2109	255004	81F2121	256004	4	.83	.69
81F2110	255005	81F2122	256005	5	.83	.69
81F2111	255010	81F2123	256010	10	.83	.69

SUBMINIATURE PICOFUSES

275 Series has axial leads. 276 Series has radial leads.

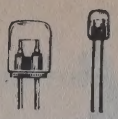
28F128	275.125	27F1072	276.125	1/8	1.20	1.00
28F129	275.250	27F1073	276.250	1/4		
28F130	275.375	28F141	276.375	3/8		
28F131	275.500	27F1074	276.500	1/2		
28F132	275.750	20F600	276.750	3/4	.86	.72
28F133	275001	27F1075	276001	1		
28F134	27501.5	20F601	27601.5	1½		
28F135	275002	27F1076	276002	2		
28F136	275003	20F602	276003	3		
28F137	275004	20F603	276004	4		
28F138	275005	27F1077	276005	5		
20F604	275010	20F605	276010	10		



P.C. MOUNTED MICROFUSE/ PICOFUSE HOLDERS

Fuseholder body molded in white acetal resin, terminals are silver plated brass. Rated at 5 amps, 125 volts max.

Stk. No.	Type	Mtg.	1-249	250-499
20F615	281005	Vertical	.91	.76
20F616	281007	Horizontal		



SUBMINIATURE MICROFUSES

Only .250" dia. x .348" long exclusive of leads. Ideal for printed circuits. Features low resistance and high reliability in ultrafast blowing characteristics. Series 279000 has 1 inch leads for wiring into circuit. Short circuit interrupting capacity 125 volts 10,000 amps DC.

Series 27300 has .170 inch leads for plugging into subminiature fuse holder. Blowing specifications: 100%-4 hrs. min.-200% 5 sec. max. Transparent glass cap. 125 V rating. **Sold in multiples of 5.** UL recognized.

273000 Plug-in-Type Stk. No.	273000 Plug-in-Type Type	27900 Pigtail Type Stk. No.	27900 Pigtail Type Type	Amps	5-95 Ea.	100-495 Ea.
28F060	273.002	28F083	279.002	1/500	3.88	3.24
28F061	273.005	28F084	279.005	1/200		
28F062	273.010	28F085	279.010	1/100		
28F063	273.015	28F086	279.015	1/64		
28F064	273.031	28F087	279.031	1/32		
28F065	273.050	28F088	279.050	1/20		
28F066	273.062	28F089	279.062	1/16		
28F067	273.100	28F090	279.100	1/10		
28F068	273.125	28F091	279.125	1/8		
28F069	273.200	28F092	279.200	2/10		
28F070	273.250	28F093	279.250	1/4	1.59	1.33
28F071	273.300	28F094	279.300	3/10		
28F072	273.400	28F095	279.400	4/10		
28F073	273.500	28F096	279.500	1/2		
28F074	273.600	28F097	279.600	6/10		
28F075	273.700	28F098	279.700	7/10		
28F125	273.750	28F126	279.750	3/4		
28F076	273.800	28F099	279.800	8/10		
28F077	273.001	28F100	279001	1		
28F078	27301.5	28F101	27901.5	1½		
28F079	273002	28F102	279002	2		
28F080	273003	28F103	279003	3		
28F081	273004	28F104	279004	4		
28F082	273005	28F105	279005	5		

SUBMINIATURE MICROFUSE HOLDER

Type 281001. Subminiature holder ideal for chassis mounting. Rated at 5 amps. 125 volts max. With Spring nut. Avg. Shpg. wt., 3 oz.

28F106. . . . NET EA. 1-249 . . . . .71 250-499 60

MICROFUSE HOLDER

Type 281006. Front panel mount microfuse holder. Body and cap are molded of black phenolic. Heavy duty terminals are electrotin plated brass. Rated at 5 amperes, 125 volt max.

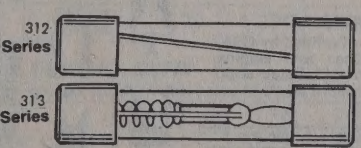
Type 282002. Rear panel mount RF shielded microfuse holder. Housing and knob are aluminum. Body is molded of black phenolic. Rated at 5 amperes, 125 volts max.

Stk. No.	Type	1-249	250-499
27F1078	281006	4.94	1.73
27F1079	282002	4.94	4.11

3 AG-250 VOLT OR LESS

For low time lag usage. 1¼" x ¼" Max. 250V except (*) denotes 125 Volt. **Sold in multiples of 5 only.** UL Listed thru 8 amps.

Stk. No.	Type	Amp	1-99	100-499
27F650	312.062	1/16	.62	.50
27F651	312.125	1/8		
27F663	312.175	.175		
27F664	312.187	3/16		
27F652	312.250	1/4	.37	.28
27F667	312.300	3		
27F653	312.375	3/8		
27F654	312.500	1/2		
27F655	312.750	3/4		
27F656	312001	1	.25	.22
27F657	31201.5	1½		
27F658	312002	2		
27F659	312003	3		
27F660	312004	4	.28	.25
27F661	312005	5		
27F662	312006	6		
27F665	312008	8*	.43	.38
27F856	31225	1.25*	.25	.22
27F857	31202.5	2.5	.25	.22
27F858	312007	7*	.28	.25
27F859	312010	10*	.43	.38



3 AG SLO BLO FUSES

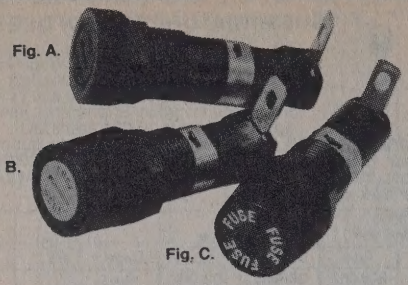
For circuits with high inductive surge. Length: 1¼" Diam: ¼" Max. 250 V except (†) denotes 32 volt. **Sold in multiples of 5 only.** UL Listed thru 7 amps.

Stk. No.	Type	Amps	1-99	100-499
27F680	313.010	1/100	1.00	.85
27F681	313.031	1/32.		
27F682	313.062	1/16	.76	.65
27F683	313.100	1/10		
27F915	313.125	1/2		
27F684	313.150	.150		
27F666	313.176	.175		
27F916	313.187	3/16		
27F685	313.200	2/10		
27F686	313.250	1/4		

3 AG SLO BLO (CONT.)

27F687	313.300	3/10	.76	.65
27F917	313.375	3/8		
27F688	313.400	4/10		
27F689	313.500	1/2		
27F690	313.600	6/10		
27F699	313.700	7/10		
27F918	313.750	3/4		
27F691	313.800	8/10		
27F692	313.001	1		
27F693	3131.25	1¼	.72	.63
27F705	31301.5	1½		
27F919	31301.6	1.6		
27F694	313002	2		
27F695	31302.5	2½	.65	.53
27F920	313003	3		
27F706	31303.2	3 2/10		
27F696	313004	4		
27F697	313005	5		
27F700	3136.25	6¼		
20F636	313007	7		
27F701	313008	8†		
27F702	313010	10†		
27F703	313015	15†		
27F704	313020	20†		

Fuseholders, Fuse Blocks, Fuse Clips



SHOCK-SAFE FUSEHOLDERS

U.L. Recognized
For ¼" x 1¼" or 5mm x 20mm fuses

Designed to meet International Electrotechnical Commission specifications 65 and 257. Eliminates any possibility of electric shock. Bodies accept ¼" x 1¼" fuses or 5mm x 20mm fuses for use in the U.S. or Europe. 20 amps max. up to 300 volts. Terminals accept solder or 3/16" female connector.

LOW PROFILE STYLE

Fig. A
- Extends only .160" from panel
- Screw-driver slot knob (Gray knob for ¼" x 1¼" fuses; black knob for 5mm x 20mm fuses)

Stock No.	Type Fuses	Bottom Terminal	1-99	100-499	500-999
81F4177	345601 ¼"x1¼"	Rt. Angle	1.35	1.13	1.02
81F4178	345611 ¼"x1¼"	Straight	1.35	1.13	1.02
81F4179	345621 5mmx20mm	Rt. Angle	1.44	1.20	1.08
81F4180	345631 5mmx20mm	Straight	1.44	1.20	1.08

HIGH PROFILE STYLE

Fig. B
- Less space behind panel
- Screw-driver slot knob (Gray for ¼" x 1¼" fuses; black for 5mm x 20mm fuses)

Stock No.	Type Fuses	Bottom Terminal	1-99	100-499	500-999
81F4181	345602 ¼"x1¼"	Rt. Angle	1.35	1.13	1.02
81F4182	345612 ¼"x1¼"	Straight	1.35	1.13	1.02
81F4183	345622 5mmx20mm	Rt. Angle	1.44	1.20	1.08
81F4184	345632 5mmx20mm	Straight	1.44	1.20	1.08

FINGER GRIP STYLE

Fig. C
- Finger grip style knob (Gray lettering for ¼" x 1¼" fuses; black for 5mm x 20mm fuses)

Stock No.	Type Fuses	Bottom Terminal	1-99	100-499	500-999
81F4185	345603 ¼"x1¼"	Rt. Angle	1.35	1.13	1.02
81F4186	345613 ¼"x1¼"	Straight	1.35	1.13	1.02
81F4187	345623 5mmx20mm	Rt. Angle	1.44	1.20	1.08
81F4188	345633 5mmx20mm	Straight	1.44	1.20	1.08

5AG FUSEHOLDER

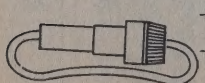
U.L. Recognized—Certified by CSA. For 13/32" dia. fuses with lengths between 1⅜" and 1½". Rated at 30 amps to 600V.

Stock No.	Type	1-99	100-499	500-999
81F4189	571007	2.51	2.09	1.89
Watertight Version				
81F4190	571007P	2.65	2.21	1.99

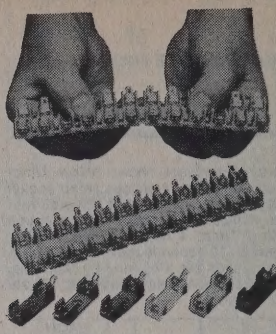
UNIVERSAL FUSE RETAINER

Type 150145. Comes with three different length springs for fuse sizes 7½ SFE through 3AG.
27F1071 NET 1.08

BAKELITE IN-LINE FUSE HOLDERS ASSEMBLED WITH 19" LEAD AND FUSE AS LISTED



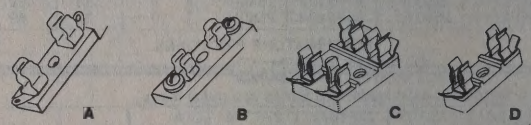
Stock No.	Type	With Fuses	Each 1-249
27F792	155009A	SFE 9	1.19
27F793	155014A	SFE 14	
27F766	155020A	SFE 200	



OMIN-BLOK™ 3AG FUSE MOUNTINGS

- 3 terminals styles
- low profile
- High current operation (up to 30 amps)
- Individual pole barriers
- Break-away poles
- U.L. Recognized

Stock No.	Type/ Terminal	No. of Poles	1-99	100-499	500-999
81F4191	354001-GY/Solder	1	.43	.36	.32
81F4192	354002-GY/Solder	2	.83	.69	.62
81F4193	354012-GY/Solder	12	4.78	3.98	3.59
81F4194	354601-GY/3/16" Q.C.	1	.43	.36	.32
81F4195	354602-GY/3/16" Q.C.	2	.83	.69	.62
81F4196	354612-GY/3/16" Q.C.	12	4.78	3.98	3.59
81F4197	354801-GY/¼" Q.C.	1	.43	.36	.32
81F4198	354802-GY/¼" Q.C.	2	.83	.69	.62
81F4199	354812-GY/¼" Q.C.	12	4.78	3.98	3.59



3AG FUSE MOUNTINGS—SCREW TERMINALS

Stock No.	Type	Fig.	Description	Each 1-99	Each 100-499	Each 500-999
27F756	356001	B	1 pole	1.28	1.07	.97
27F769	356002	B	2 pole	2.54	2.12	1.91
WITH SOLDER TERMINALS						
27F754	357001	A	1 pole	.58	.48	.43
27F758	357002	A	2 pole	1.00	.83	.75
8AG FUSE MOUNTINGS						
27F755	387001	A	Single Fuse (Lug)	.64	.53	.48

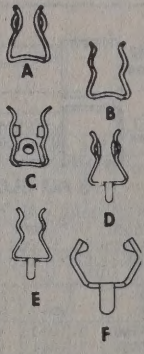
TYPE Q BLOCKS WITH QUICK CONNECT TERMINALS

Nickel plated spring brass clips, tin plated brass terminals. Molded black phenolic base. Rated for currents up to 15 amps. UL recognized.

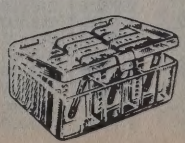
20F611	350327	D	1 pole 3/16" term.	.61	.51	.46
20F612	350328	C	2 pole 3/16" term.	1.19	.99	.90
20F613	350329	D	1 pole ¼" term.	.61	.51	.46
20F614	350330	C	2 pole ¼" term.	1.19	.99	.90

LITTLEFUSE CLIPS

Fits SFE, 3AG, 8AG, and 3AB fuses. Spring brass except (*) Beryllium copper. Shpg. Wt. per 100, 5 lbs.



Stk. No.	Type	Fig.	For	Each 1-249	Each 250-499	Each 500-999
27F772	101001	A	3AG	.10	.08	.07
27F773	101002	B	3AG	.12	.10	.09
27F1084	101003	C	3AG	.19	.13	.12
27F1085	102071	D	3AG	.10	.08	.07
27F1086	102074	F	3AG	.10	.08	.07
20F606	102078	F	3AG	.13	.11	.10
27F774	105002	B	5AG	.14	.12	.11
27F1087	121001*	A	3AG	.22	.17	.16
27F1088	121002*	B	3AG	.22	.17	.16
20F607	121004*	C	3AG	.49	.41	.37
20F608	122083*	D	3AG	.25	.22	.20
20F609	122087*	E	3AG	.25	.22	.20
20F610	122090	F	3AG	.21	.17	.16
27F775	123002*	B	4AG	.35	.30	.27
27F776	127002*	B	9/16"	1.42	1.18	1.07



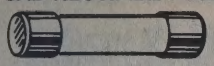
INDUSTRIAL FUSE CADDY

Type 094037. For almost universal use. Contains 3AG Reg. and 3AG Slo-Blo fuses. 75 fuses (15 boxes—5 per box) Size: 1⅞" x 3" x 4¼".
27F677 NET 30.00
Type 896-75. Plastic Fuse caddy case separately.
27F809 NET 1.80

Fuses and Fuse Holders

LITTELFUSE

3AB RECTIFIER FUSES



Protects silicon controlled rectifiers and like solid state devices. Blow time: 100% 4-hr. minimum all fuses; 250%—.2 sec max (pre-arcing) for 1-10 amp fuses—1 sec max. (pre-arcing) for 12-30 amp fuses. Length 1¼". 250 volts 10 amps or less, 65 volts 12 thru 30 amps.

Stk. No.	Type	Amps	5-245	245-495	495-995
28F171	326001	1	1.07	.91	.82
28F172	3261.25	1¼			
28F173	326002	2			
28F174	326003	3	.79	.67	.61
28F175	326004	4			
28F176	326005	5			
28F177	326006	6			
28F178	326007	7			
28F179	326008	8			
28F180	326009	9			
28F181	326010	10			
28F182	326012	12			
28F183	326015	15			
28F184	326020	20			
28F185	326025	25			
28F186	326030	30			

KLB RECTIFIER FUSES

250VAC or less. Interrupting rating: 200,000 amps AC. Blow Time: 100%: 4 hours min. UL Recognized.

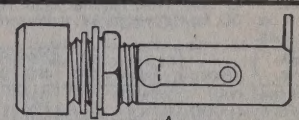
Stk. No.	Amps	1-99	100-495	500-999
81F4144	1	3.49	3.17	2.68
81F4145	3			
81F4146	5			
81F4147	6			
81F4148	8			
81F4149	10			
81F4150	12			
81F4151	15			
81F4152	20			
81F4153	25			
81F4154	30			
81F4155	35	12.30	11.18	9.38
81F4156	40			
81F4157	45			
81F4158	50			
81F4159	60			

KLB RECTIFIER FUSES

Stk. No.	Amps	1-99	100-495	500-999
81F4160	70	15.83	14.39	12.06
81F4161	80			
81F4162	90			
81F4163	100			
81F4164	125			
81F4165	150			
81F4166	200			

PANEL FUSEHOLDER FOR 3 AG AND 8 AG
UL recognized and certified by CSA

Stk. No.	Type	Fig.	Description	For	Each 1-249	250-499	500-999
27F750	341001	A	Panel Mtg. Screw Slot	3 AG	1.73	1.44	1.30
27F752	342001	B	Panel Mtg. Finger Grip	3 AG			
27F779	342004	D	Miniature Right Angle Terms	3 AG	1.13	.94	.85
27F780	342004PA	D	Drip Proof Rt. Angle Terms	3 AG	1.26	1.05	.95
27F720	342012	C	Miniature, Straight Terminal	3 AG	1.13	.94	.85
27F668	342014	H	Miniature, Straight Terminal	3 AG			
27F669	342022	E	Miniature, Rt. Angle Terms	3 AG			
28F150	342028	D	3/16" Quick-Connect Rt. Angle	3 AG	1.34	1.12	1.01
28F151	342038	H	3/16" Quick-Connect Straight Term	3 AG			
28F152	342048	E	3/16" Quick-Connect Rt. Angle Term	3 AG			
28F153	342058	C	3/16" Quick-Connect Straight Term	3 AG			
27F794	342828	D	¼" Quick-Connect Rt. Angle Term	3 AG			
27F795	342838	H	¼" Quick-Connect Straight Term	3 AG			
27F796	342848	E	¼" Quick-Connect Rt. Angle Term	3 AG			
27F797	342858	C	¼" Quick-Connect Straight Term	3 AG			
27F751	371001	A	Screw Panel Mtg.	8 AG	2.75	2.29	2.07
27F781	372001	B	Finger Knob	8 AG			



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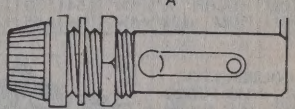

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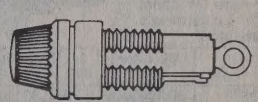

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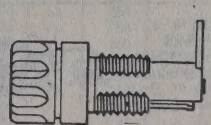

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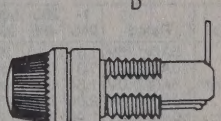

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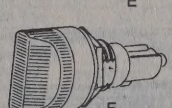
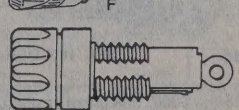


F



H

INDICATING FUSEHOLDER FOR 3 AG
UL recognized and certified by CSA

Lgt., 2⅜" front of panel, 13/16" Mtg. hole 57" Rated at 20A, 250V max.

Stk. No.	Type	Fig.	Voltage Range	Knob Color	Design Lamp Current	1-249 Each	250-499 Each	500-999 Each
27F790	344006	F	2.5-7V	Amber	.20 Amp	8.12	6.83	6.15
27F791	344012	F	7-16V	Amber	.08 Amp			
27F783	344024	F	16-32V	Amber	.04 Amp			
27F784	344125	F	100-125V	Clear	.002 Amp	5.03	4.23	3.81
27F785	344250	F	200-250V	Clear	.002 Amp			

3 AG LOW PROFILE FUSEHOLDERS Fig. L

Snap in to .625" sq. chassis or panel hole, no hardware required. Quick connect and solder type terminal.

Color	Stk. No.	Type	Term.	Stk. No.	Type	Term.	5-95	100-495	500-995
Red	**28F161**	348610	3/16"	**28F164**	348810	¼"	1.23	1.03	.93
White	**28F162**	348650	3/16"	**28F165**	348850	¼"			
Black	**28F163**	348670	3/16"	**28F166**	348870	¼"			

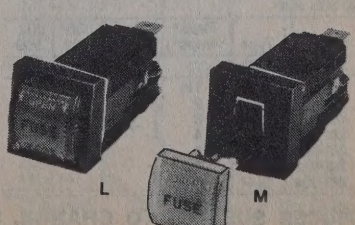
CAPS

Color	Stk. No.	Type	5-95	100-495	500-995
Red	**28F167**	348001	.35	.29	.27
White	**28F168**	348005			
Black	**28F169**	348007			

3 AG LOW PROFILE INDICATING FUSEHOLDERS Fig. M

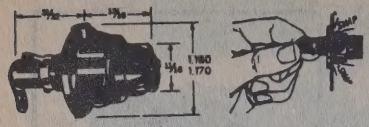
3/16" Terminals		¼" Terminals		Lamp Voltage	Lamp Current	1-99	100-499
Stk. No.	Type	Stk. No.	Type				
81F4167	344601*	**81F4172**	344801*	6	40 ma	5.55	4.63
81F4168	344602*	**81F4173**	344802*	14	80 ma	5.55	4.63
81F4169	344603*	**81F4174**	344803*	28	40 ma	5.55	4.63
81F4170	344604†	**81F4175**	344804†	120	1.2 ma	4.16	3.47
81F4171	344605†	**81F4176**	344805†	240	.3 ma	4.16	3.47

*Incandescent, amber lens, no resistor. †Neon, clear lens, resistor included.



L M

SNAP-LOCK FUSEHOLDERS



Rear-mounted in panels. .025-.085" thick. Rated 15A @ 250V. HTA-00 extends 1" behind panel. HLD-00 visual indicating type. Except (*) 5A @ 125V.

Stk. No.	Type	Fuse	1-249	250-499	500-999
27F850	HTA-00	¼" x 1¼"	1.75	1.47	1.33
27F851	HLD-00	¼" x 1¼"	2.00	1.68	1.52
27F852	HKP-00	¼" x 1¼"	1.75	1.47	1.33
27F853	HJM-00*	¼" x 1"	1.75	1.47	1.33

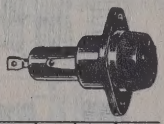
PANEL-MOUNTED FUSEHOLDERS

HMM HTA

Holders 1$^{25}/_{32}$ lg, extend 1" behind panel face. Mounts in ½" hole. HTA: bayonet knob. HMM: screw cap. DD, for $^{3}/_{16}$", HH for ¼": quick-connect terminals.

Stk. No.	Type	Fuse	1-249	250-499	500-999
28F454	HTA	¼" x 1¼"	1.31	1.10	.99
28F026	HTA-DD	¼" x 1¼"	1.54	1.29	1.17
28F027	HTA-HH	¼" x 1¼"	1.54	1.29	1.17
28F811	HMM	¼" x 1¼"	1.84	1.55	1.40

HOLDERS FOR $^{13}/_{32}$" x 1½" FUSES



Screw-on cap; mounts w/ flange on face of panel. HPF with ¼" q.c. terminals. HPC-D waterproof.

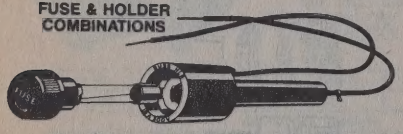
Stk. No.	Type	UL Listed for	1-249	250-499	500-999
27F818	HPF	30A@600V	2.76	2.32	2.09
28F029	HPC-D	30A@600V	6.92	5.82	5.24

HOLDERS FOR ¼" x 1¼" (3AG) FUSES

Mounts in ½" d-hole. HH is ¼": quick connect terminal. Series HJM—¼" x 1". Series HKP—¼x1¼". Series HCM—$^{9}/_{32}$x1¼".

Stk. No.	Type	Rated	1-249	250-499	500-999
27F819	HJM	5A@125V	1.31	1.10	.99
27F820	HKP	30A@250V	1.31	1.10	.99
28F031	HKP-HH	15A@250V	1.54	1.29	1.17
27F821	HCM	18A@250V	2.00	1.69	1.53
27F815	HKP-H	30A@250V	1.45	1.22	1.10

FUSE & HOLDER COMBINATIONS



GLR FUSE HLR HOLDER

Fuse holder panel mounts or can be used in line. UL recog. 15A @ 300V. Safeguard against use of wrong type fuse.(*) Current ratings for fuses are @ 300 volts.

Stk. No.	Type	Rated (amps*)	1-249	250-499	500-999
28F032	HLR	.....	.91	.77	.70
28F302	GLR	1½			
28F304	GLR	2			
28F306	GLR	3	.57	.48	.44
28F307	GLR	4			
28F308	GLR	5			
28F033	GLR	7			
28F034	GLR	10			

LAMP INDICATING FUSEHOLDER

Coilspring provides constant pressure. Accommodates ¼" x 1¼" fuse. (†)-Neon, (*)-Incand. HKL. UL recognized for 15 amps @ 250 volts.

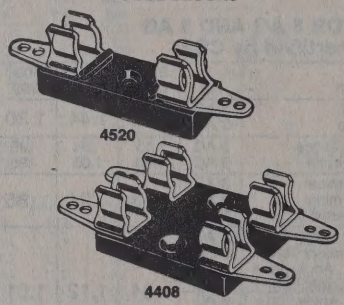
Stk. No.	Type	Lamp Volt.	Lens	1-249	250-499	500-999
27F813	HKL†	90-250	Clr.	5.73	4.82	4.34
27F814	HKL-X†	90-250	Clr.	5.73	4.82	4.34
27F812	HKR*	22-33	Amber	9.05	7.61	6.85
28F451	HKT*	13-22	Amber	9.05	7.61	6.85
28F452	HKU*	4-6	Red	9.05	7.61	6.85
28F453	HKX*	22-33	Amber	9.05	7.61	6.85

VISUAL INDICATING FUSEHOLDER

Transparent bayonet knob to accept GBA type indicating fuse. UL recognized for 15 amps at 250 volts. Mounts in ½" "D" hole.

Stk. No.	Type	1-249	250-499	500-999
28F293	HLD	1.54	1.29	1.17

FUSE BLOCKS



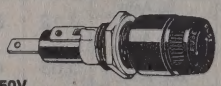
4520

4408

Bakelite base; mounting holes countersunk for #6 flat head screws. Rtd. 30A @ 250V. 4520, 4405 counterbored for #6 roundhead screw.

Stk. No.	Type	No. Poles	Fuse Size (inches)	1-249	250-499	500-999
28F040	4520	1	¼ x 1	.76	.64	.58
28F041	4405	1	¼ x 1¼	.76	.64	.58
28F042	4421	1	$^{13}/_{32}$ x 1½	1.60	1.35	1.22
28F038	4408	2	¼ x 1¼	1.32	1.11	1.00
28F039	4411	3	¼ x 1¼	2.01	1.69	1.53

SPACE-SAVING FUSE HOLDERS



- **Rated 15A @ 250V**

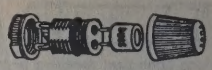
Mounts in ½" d-hole. Rated 30A @ 250V. HKP-CC has shorter distance behind panel.

Stk. No.	Type	Fuse	1-249	250-499	500-999
27F592	HKP-CC	¼"x1¼"	1.31	1.10	.99

Designed for Bussmann 70 Series alarm activating fuses (on this page). Rated 15 amps @ 300 volts. Terminals may be soldered or wire wrapped.

28F380	HWG	6.38	5.36	4.83

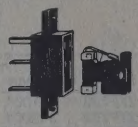
SUBMINIATURE FUSES AND HOLDER



Fuse size .270x.250 inches. Carry 100%, open at 200% within 10 sec. or less. Interrupting rating—35 amps at 125 volts. AF knob for holder makes holder waterproof. UL recognized.

Stk. No.	GMW-Amp.	1-249 Each	250-499 Each	500-999 Each
28F362	1/100			
28F363	1/64	2.61	2.19	1.98
28F364	1/32			
28F366	1/10			
28F368	1/4			
28F371	1/2			
28F373	3/4			
28F374	1	1.99	1.67	1.51
28F375	1-1/2			
28F376	2			
28F377	3			
28F379	5			
28F381	HWA-AF	2.46	2.07	1.87
28F380	HWA	2.22	1.87	1.69

GMT FUSES HLT HOLDER



Permits multiple mounting of fuses in limited space. Colored indicator spring when released makes contact with alarm terminal which can activate signal circuit. Size: ¼x1$^{15}/_{32}$".

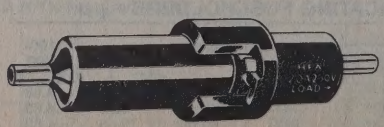
Stk. No.	Amps	Color	1-249	250-499	500-999
28F315	18/100	Yellow			
28F316	¼	Violet			
28F317	½	Red			
28F318	65/100	Black			
28F319	¾	Brown			
28F320	1	Gray	1.41	1.18	1.07
28F321	1⅓	White			
28F322	2	Orange			
28F323	3	Blue			
28F324	5	Green			
28F325	7½	Blk-White			
28F326	10	Red-White			
28F360	HLT holder Fits all GMT		1.60	1.35	1.22

TRON FUSE CLIPS

Rivet mounted. 1A1119-05, 1A1119-10 have end stops and tab clips for P. C. mount. 5960-09, 5960-63 have end stop. 5592-33 no end stop. Contain spring bronze or beryllium copper to retain spring tension. 1A1119-05, 5960-09 silver plated.

Stk. No.	Type	Fuse	1-249	250-499	500-999
27F594	1A1119-05	¼"	.29	.24	.22
27F595	1A1119-10	¼"	.15	.13	.12
27F596	5960-09	$^{13}/_{32}$"	.65	.55	.50
27F597	5960-63	$^{13}/_{32}$"	.22	.19	.18
27F598	5591-52	$^{9}/_{16}$"	.29	.24	.22
27F599	5592-33	$^{9}/_{16}$"	.31	.26	.24

MODEL HFA WATERPROOF IN-LINE FUSEHOLDER



For ¼" x 1¼" fuses. Rated 20 A @ 250V. Perfect for any exposed location. Protects fuse in corrosive conditions. Crimp type terminals to take #16 to #12 AWG copper wire.

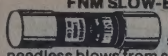
Stk. No.	Type	1-249	250-499	500-999
28F043	HFA	5.23	4.40	3.96

9

Fuses

BUSSMAN

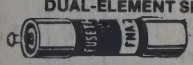
FNM SLOW-BLOWING FUSES



Dual elements, fibre tube, slow blowing fuses avoid needless blows from starting currents or surges. Fuse link operates only on dangerous overloads, or short circuits. $^{13}/_{32}$"x1½". Ship. wt. 1.5 lbs. per 100. Sold in mul. of 5 only. UL listed.

Stk. No.	Amp.	Volts	5-245	250-495	500-995
27F863	½	250	1.12	.92	.83
27F864	1	250			
27F865	$1^{6}/_{10}$	250			
27F866	2	250			
27F872	2½	250			
27F867	$3^{2}/_{10}$	250			
27F868	4	250	1.37	1.13	1.02
27F869	5	250			
27F873	6¼	250			
27F874	8	250			
27F870	10	250			
27F875	12	125			
27F876	15	125			

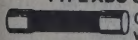
FNA SIGNAL FUSES DUAL-ELEMENT SLOW BLOWING



Has silver indicating pin which extends from fuse when fuse opens. Carry 110%, open at 135% in 1 hr. Can be used in Buss HPF-C indicating fuse-holder or pin can be used to actuate a signal. Sold in mult. of 5 only UL listed. Size: $^{13}/_{32}$" x 1½".

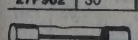
Stk. No.	Amp.	Volts	5-245	250-495	500-995
28F329	$^{2}/_{10}$	250			
28F330	$^{3}/_{10}$	250			
28F331	$^{4}/_{10}$	250			
28F332	½	250			
28F333	$^{6}/_{10}$	250			
28F334	$^{8}/_{10}$	250			
28F335	1	125	2.52	2.11	1.90
28F336	$1^{1}/_{8}$	125			
28F338	$1^{4}/_{10}$	125			
28F339	$1^{6}/_{10}$	125			
28F340	$1^{8}/_{10}$	125			
28F341	2	125			
28F344	$2^{8}/_{10}$	125			
28F345	3	125			
28F346	$3^{2}/_{10}$	125	2.82	2.37	2.14
28F349	4½	125			
28F350	5	125			
28F356	10	125			

TYPE ABC CERAMIC BODY FUSES



Can take 10,000 amps. @125v. without exploding. Carry 110%, open at 135% of rating within 1 hr. Size: ¼x1¼". Sold in mult. of 5 only.

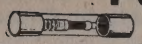
Stk. No.	Amp.	Volts	EACH 5-245	250-495	500-995
27F952	2	250			
27F953	3	250	.50	.44	.40
27F954	5	250			
27F955	6	250			
27F956	8	250			
27F957	10	250	.44	.37	.34
27F958	12	250			
27F959	15	250			
27F960	20	250			
27F961	25	125	.79	.67	.61
27F962	30	125			



TYPE MTH FUSES
- UL listed

Formerly called 3AG. Test Specifications: carry 110%, open at 135% within 1 hour. Size: 1¼"x¼". Shpg. wt., .91 lbs. per 100. Sold in mult. of 5 only.

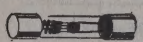
Stk. No.	Amp.	Volts	5-245	250-495	500-995
27F877	4	250			
27F878	5	250	.28	.26	.24
27F879	6	250			



MDL FUSETRON FUSES

Fuses with a long time lag. Avoid needless blows from starting curents or surges. At 200% load the minimum blowing time is 12 seconds. Size: ¼x1¼. Wt., 1 lb. per 100. Sold in mult. of 5 only.

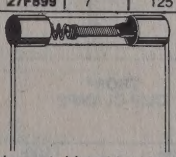
Stk. No.	Amp.	Volts	5-245	250-495	500-995
27F822	$^{1}/_{100}$	250			
27F823	$^{1}/_{32}$	250	1.00	.85	.77
27F824	$^{1}/_{16}$	250			
27F825	$^{1}/_{10}$	250			
28F045	⅛	250			
27F826	$^{15}/_{100}$	250			
27F569	$^{3}/_{16}$	250			
27F827	$^{2}/_{10}$	250			
28F046	¼	250			
27F828	$^{3}/_{19}$	250	.76	.65	.59
27F570	$^{3}/_{8}$	250			
27F829	$^{4}/_{10}$	250			
27F830	½	250			
27F831	$^{6}/_{10}$	250			
27F571	¾	250			
27F832	$^{8}/_{10}$	250			
27F833	1	250			
27F572	$1^{2}/_{10}$	125			
27F834	1¼	125			
27F573	1½	125			
27F835	$1^{6}/_{10}$	125	.72	.63	.57
27F574	$1^{8}/_{10}$	125			
27F836	2	125			
27F575	2¼	125			
27F837	2½	125			
27F838	$2^{8}/_{10}$	125			
27F576	3	32			
27F839	$3^{2}/_{10}$	32			
27F577	3½	32			
27F840	4	32			
27F841	5	32			
27F842	6¼	32	.65	.53	.48
27F578	7	32			
27F843	8	32			
27F844	10	32			
27F579	12	32			
28F047	15	32			
27F845	20	32			
27F846	25	32			
27F847	30	32			



TYPE MDX FUSES

These fuses have the same specifications as Type MDL. The main difference being that the voltage rating of the MDX is higher. .93 lbs/100. Size: ¼x1¼. Sold in mult. of 5 only. UL listed.

Stk. No.	Amp.	Volts	5-245	250-495	500-995
27F890	1¼	250			
27F891	1½	250			
27F892	$1^{6}/_{10}$	250	.81	.68	.62
27F893	2	250			
27F894	3	125			
27F895	$3^{2}/_{10}$	125			
27F896	4	125	.64	.53	.48
27F897	5	125			
27F898	6¼	125			
27F899	7	125	.70	.60	.54



TYPE MDV DUAL ELEMENT PIG-TAIL FUSES

¼ x 1¼ inch glass tube with 1¼ inch (minimum) leads of No. 20 tinned wire. Slow-blowing, dual element. Listed by Underwriters' Laboratories. Shipping weight 1.1 pounds per 100. Sold in multiples of 5 only.

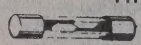
Stk. No.	Amp.	Volts	5-245	250-495	500-995
28F001	$^{1}/_{16}$	250			
28F002	⅛	250			
28F003	¼	250			
28F004	⅜	250	.95	.82	.74
28F005	½	250			
28F006	¾	250			
28F007	1	250			
28F008	1½	125			
28F009	2	125	.93	.77	.70
28F010	2½	125			
28F011	3	125	.77	.66	.60
28F012	5	125			

TYPE AGX FAST-ACTING FUSES

Provides high speed action necessary to protect sensitive instruments or delicate apparatus. $^{1}/_{16}$ to 5 ampere sizes have straight through element. U.L. Listed. Size: ¼"x1". Shpg. wt. .76 lbs. per 100. Sold in mult. of 5 only.

Stk. No.	Amp.	Volts	5-245	250-495	500-995
27F973	$^{1}/_{500}$	250	4.08	3.43	3.09
27F974	$^{1}/_{200}$	250	1.78	1.50	1.35
27F975	$^{1}/_{100}$	250	1.38	1.18	1.07
27F976	$^{1}/_{32}$	250	1.38	1.18	1.07
27F977	$^{1}/_{16}$	250	.73	.63	.57
27F978	$^{1}/_{10}$	250			
27F979	⅛	250			
27F980	$^{3}/_{16}$	250	.62	.50	.45
27F981	$^{3}/_{10}$	250			
27F982	¼	250			
27F983	⅜	250			
27F984	$^{4}/_{10}$	250	.36	.28	.26
27F985	½	250			
27F986	¾	250			
27F987	1	250			
27F988	1½	250	.26	.23	.21
27F989	2	250			
28F049	5	125	.19	.16	.15

TYPE AGC FUSES



Formerly called 3AG. Test specifications—carry 110%, open at 135% within 1 hour. UL Listed 250V, UL Recog. 32V. Size: ¼x1¼". Shpg. wt., 91 lbs. per 100. Sold in mult. of 5 only.

Stk. No.	Amp.	Volts	5-245	250-495	500-995
28F050	$^{1}/_{32}$	250	1.22	1.06	.96
28F051	$^{1}/_{16}$	250			
28F052	⅛	250			
27F080	$^{3}/_{16}$	250	.62	.50	.45
27F081	$^{2}/_{10}$	250			
28F053	¼	250			
27F582	$^{3}/_{10}$	250			
28F054	⅜	250			
28F055	½	250	.37	.28	.26
27F583	$^{6}/_{10}$	250			
28F056	¾	250			
28F057	1	250			
27F584	1¼	250			
28F058	1½	250			
27F585	1¾	250			
28F059	2	250	.25	.22	.20
27F586	2¼	250			
27F587	2½	250			
27F880	3	250			
27F881	4	32			
27F882	5	32			
27F883	6	32	.19	.16	.15
27F884	7½	32			
27F885	10	32			
27F886	15	32			
28F048	20	32	.17	.15	.14
27F887	25	32			
27F888	30	32			
27F588	35	32	.25	.22	.20

- UL recognized
- Time delay
- Ceramic

TYPE MDA

Time delay ceramic fuse. Carry 110%, open at 135% in 1 hour UL recognized except 25A. Current ratings below are @ 250V, except 25 @ 125. Sold in mult. of 5 only. Size: ¼"x1¼".

Stk. No.	Amp.	5-245	250-495	500-995
27F589*	1	1.07	.91	.82
27F590*	2			
28F013*	2½			
28F015*	3			
28F017*	4			
28F018†	5			
28F019†	6¼	.79	.67	.61
28F020†	7			
28F021†	10			
27F591†	12			
28F022†	15			
28F023†	20			
28F024†	25			

*Time Delay Dual Element † Time Delay

9

Bussmann

Fuses and Fuseholders

FUSETRON DUAL-ELEMENT FUSES

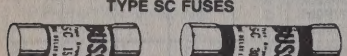
Type FRN. Long time lag prevents opening on starting currents or other harmless overloads. U/L listed for motor protection up to 250 volts.

Stk. No.	Amps.	Sizes	1-249	250-499	500-999
28F250	1	9/16×2"	2.50	2.27	1.92
28F251	1¼	9/16×2"			
28F252	1-6/10	9/16×2"			
28F253	2	9/16×2"			
28F254	2½	9/16×2"			
28F255	3-2/10	9/16×2"	2.29	2.08	1.76
28F256	4	9/16×2"			
28F257	5	9/16×2"			
28F258	6¼	9/16×2"			
28F259	8	9/16×2"			
28F260	10	9/16×2"			
28F262	15	9/16×2"	1.84	1.67	1.42
28F263	17½	9/16×2"			
28F264	20	9/16×2"			
28F265	25	9/16×2"			
28F266	30	9/16×2"			
28F267	35	13/16×3"	3.41	3.10	2.63
28F268	40	13/16×3"			
28F270	50	13/16×3"			
28F271	60	13/16×3"			
28F275	100	1×5⅞"	7.27	6.97	5.91

TYPE FRS—UL LISTED FOR 600 V

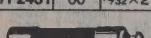
Stk. No.	Amps	Size (in.)	1-99	100-499	500-999
27F2400	1	13/16×5	5.00	4.54	3.85
27F2401	1¼	13/16×5			
27F2402	1-6/10	13/16×5			
27F2403	2	13/16×5			
27F2404	2½	13/16×5			
27F2405	3-2/10	13/16×5	4.65	4.22	3.58
27F2406	4	13/16×5			
27F2407	5	13/16×5			
27F2408	6¼	13/16×5			
27F2409	8	13/16×5			
27F2410	9	13/16×5			
27F2411	10	13/16×5			
27F2412	15	13/16×5	4.16	3.78	3.21
27F2413	20	13/16×5			
27F2414	25	13/16×5			
27F2415	30	13/16×5			
27F2416	35	1 1/16×5½	7.09	6.44	5.46
27F2417	40	1 1/16×5½			
27F2418	50	1 1/16×5½			
27F2419	60	1 1/16×5½			
27F2420	100	1¼×7⅞	14.68	13.34	11.31

TYPE SC FUSES



SC fuses have time delay feature. Ratings below are @ 300 volts AC.

Stk. No.	Amps.	Size (in.)	1-99	100-499	500-999
27F2421	1	13/32×1 5/16	1.81	1.64	1.39
27F2422	3	13/32×1 5/16			
27F2423	6	13/32×1 5/16			
27F2424	10	13/32×1 5/16			
27F2425	15	13/32×1 5/16	1.49	1.35	1.15
27F2426	20	13/32×1 13/32			
27F2427	25	13/32×1⅝	2.81	2.55	2.16
27F2428	30	13/32×1⅝			
27F2429	40	13/32×2¼	2.86	2.60	2.20
27F2430	50	13/32×2¼			
27F2431	60	13/32×2¼			



TYPE GLD INDICATING FUSES

Silver plated indicating pin extends when fuse is blown, or can activate signal light by using an HKA fuseholder. Carry 110% of rated current, open at 135% in 1 hr. Size ¼" × 1¼". Shipping weight 86 lbs. per 100. Sold in mult. of 5 only.

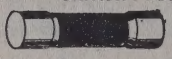
Stk. No.	Amps.	Volts	5-15 Ea.	20-95 Ea.	100-195 Ea.
27F964	¾	125	1.89	1.71	1.44
27F965	1	125	1.89	1.71	1.44
27F966	2	125			
27F967	3	125			
27F968	5	125			

TYPE NON ONE-TIME FUSES

UL and CSA listed. Ratings below are at 250 volts.

Stk. No.	Amps.	Size (in.)	1-249	250-499	500-999
27F2438	1	9/16×2	.62	.56	.48
27F2439	3	9/16×2			
27F2440	6	9/16×2			
27F2441	10	9/16×2			
27F2442	15	9/16×2	.58	.52	.44
27F2443	20	9/16×2			
27F2444	25	9/16×2			
27F2445	30	9/16×2			
27F2446	35	13/16×3	.91	.82	.70
27F2447	40	13/16×3			
27F2448	45	13/16×3			
27F2449	50	13/16×3			
27F2450	60	13/16×3			
27F2451	100	1×5⅞	3.93	3.57	3.03

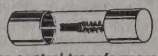
TYPE KTK—HIGH INTERRUPTING CAPACITY FUSES 13/32"×1½"



Use in circuits w/ up to 200,000 A.

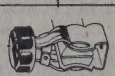
Stk. No.	Amps	Voltage	1-99	100-499	500-999
28F190	1/10	600 or less	4.04	3.82	3.11
28F193	¼	600 or less			
28F195	½	600 or less			
28F196	¾	500 or less			
28F197	1	600 or less			
28F198	1½	600 or less			
28F199	2	600 or less			
28F200	3	600 or less			
28F201	4	600 or less			
28F202	5	600 or less			
28F203	6	600 or less			
28F204	8	600 or less			
28F205	10	600 or less			
28F206	15	600 or less			
28F207	20	600 or less	4.21	3.82	3.24
28F208	25	600 or less			
28F209	30	600 or less			

TRON FNQ TIME DELAY FUSE—13/32"×1½



Protects motor-control transformers @ 440-480V. UL listed for 500 volts AC.

Stk. No.	Amps.	1-99	100-499	500-999
27F2454	⅛	4.98	4.52	3.83
27F2455	½			
27F2456	1			
27F2457	1-6/10			
27F2458	2			
27F2459	2½			
27F2460	3-2/10			
27F2461	4			
27F2462	5			
27F2463	6¼			
27F2464	8			
27F2465	10			
27F2466	12			
27F2467	15			



TRON® CLIP-CLAMPS

Stk. No.	Type	Fuse Size (amps.)	Volts	1-99	100-499
27F2468	1	0-30	250 or 600	5.20	4.72
27F2469	2	35-60	250	6.42	5.83
27F2470	4	35-60	600	7.52	6.83
27F2471	5	70-100	250 or 600	7.31	6.64

KAZ ACTUATOR DEVICE

Visually indicates opening of 50A or larger fuse. In special micro-switch fuse block (BUSS No. 2837, 2838) provides signal activating scheme announcing trouble at a distant station. 200,000A interrupting rating, 600V or less. Opens at 10A.

Stk. No.	Type	Size	1-249	250-499	500-999
30F160	KAZ	13/32"×2"	7.52	6.83	5.80

FUSTAT Type S Fuses

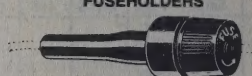
FUSETRON dual-element Plug Fuses

FUSTAT PLUG FUSES

Types T and S time-delaying, prevents blowing due to current surges or motor starting. Type S sized according to amperage, prevents oversizing.

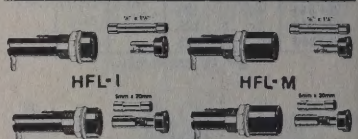
Stk. No.	Type	Amps.	1-99	100-499	500-999
30F165	T	15	.80	.72	.61
30F166	T	20			
30F167	T	25			
30F168	T	30			
30F169	S	15	.84	.76	.64
30F170	S	20			
30F171	S	25			

BUSS IN-THE-LINE FUSEHOLDERS



HMI and HMJ have 8" of #14 wire. HDJ has no wire. HDJ-A has contacts for #18-#22 wire. HDJ-B has contacts for #14-#16 wire.

Stk. No.	Type	Size	1-99	100-499	500-999
30F173	HDJ-A	¼"×1¼"	.60	.54	.45
30F174	HDJ-B	¼"×1¼"	.60	.54	.45
30F175	HMJ	¼"×1¼"	1.35	1.22	1.02
30F176	HMI	¼"×1"	1.35	1.22	1.02

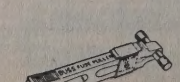


Buss International Standards Shock Safe Fuse Holder (For 5 × 20 mm and ¼" × 1¼" fuses

Panel mounted, shock-safe fuseholder accepts either 5 × 20 mm or ¼" × 1¼" fuses with interchangeable fuse carrier. Mounts in ½" "D" hole. High profile extends 1¼" behind panel. Low profile extends 1½" behind panel.

Stock No.	Part No.	Description	1,000-4,999	5,000-Up
81F1951	HFL-I	Low profile, ¼" × 1¼" fuse	1.62	1.47
81F1952	HFL-M	Low profile, 5 × 20 mm fuse	1.62	1.47
81F1953	HFH-I	High profile, ¼" × 1¼" fuse	1.62	1.47
81F1954	HFH-M	High profile, 5 × 20 mm fuse	1.62	1.47

FUSE PULLERS



A must for every electrician or maintenance man.

FP-1

Stk. No.	Type	Fuse Size (dia. in.)	Each
27F2473	FP-1	¼	1.70
27F2475	FP-2	13/32 to 13/16	3.80
27F2475	FP-3	1 to 1¾	4.47
27F2476	FP-4	1¾ to 2½	15.16

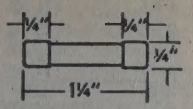
9

TRON Rectifier Fuses

For Protection of Semi-Conductor and Like Application

Bussmann

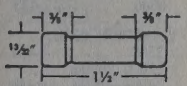
TYPE GBB

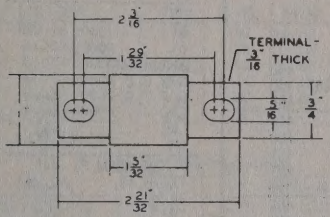


U.L. Recognized

Stk. No.	Amps.	Volts	Ea. 1-249	Ea. 250-499	Ea. 500-999
27F2477	1	60			
27F2478	2	60			
27F2479	3	60			
27F2480	4	60			
27F2481	5	60			
27F2482	6	60	1.59	1.32	1.19
27F2483	7	60			
27F2484	8	60			
27F2486	10	60			
30F178	15	60			
30F179	20	60			
30F181	30	60			

TYPE KAA

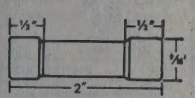


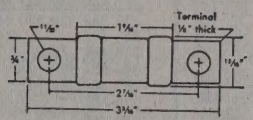


TYPE KAA 0-30 **TYPE KAA 70-400**

Stk. No.	Amps	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
30F182	½	130			
28F210	1	130			
28F211	2	130			
30F183	3	130			
28F213	4	130			
28F214	5	130	2.38	1.96	1.77
28F217	8	130			
28F219	10	130			
28F221	15	130			
28F222	20	130			
28F223	25	130			
28F224	30	130			
30F185	80	130			
30F186	100	130			
30F188	150	130	9.78	8.11	7.30
30F189	200	130			
30F193	400	130			

TYPE KAX AND KAB





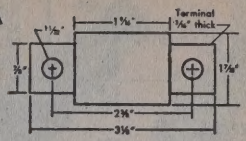
Type KAX or KAB 0-30A **Type KAB 35-60**

TYPE KAX is a faster blow fuse. Ratings are at 250V.

Type KAX Stk. No.	Type KAB Stk. No.	Amps.	Ea. 5-95	Ea. 100-495	Ea. 500-995
30F194	28F225	1			
30F196	28F229	5			
	28F230	6			
	28F232	8	2.70	2.25	2.03
30F199	28F234	10			
30F201	28F236	15			
30F202	28F238	20			
30F203	28F239	25			
	30F205	35			
	30F206	40	9.50	7.89	7.11
	30F208	50			
	30F209	60			

70-200A

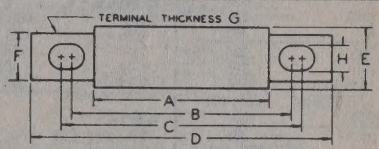
- **Fast acting**
- **Restricts let-thru current**



TYPE KAB (cont)

Stk. No.	Amps.	Volts	Ea. 1-249	Ea. 250-499	Ea. 500-999
30F210	70	250			
30F213	100	250			
30F214	125	250	12.24	10.15	9.14
30F215	150	250			
30F216	200	250			

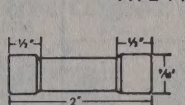
TYPE KAC

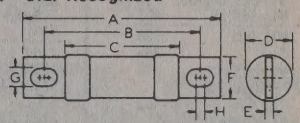


Amps.	Dimensions are in inches A	B	C	D	E	F	G
0-30	1⅞	....	2½	2⅞	9/16	13/32	1/16
35-60	2¾	....	3⅝	4⅜	13/16	⅝	3/32
65-100	2 29/32	3 21/32	4 1/16	5	1	¾	⅛

Stk. No.	Amps.	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
28F424	1	600	4.02	3.33	3.00
28F428	5	600			
28F435	15	600			
28F437	20	600	4.02	3.33	3.00
28F438	25	600			
28F439	30	600			
30F217	35	600			
30F218	40	600	9.10	7.53	6.78
30F219	50	600			
30F220	60	600			
30F221	70	600			
30F222	80	600	11.93	9.90	8.91
30F223	90	600			
30F224	100	600			

TYPE FWP—U.L. Recognized





Type FWP 0-30A **Type FWP 35-200**

Amps.	Dimensions are in inches A	B	C	D	E	F	G	H
35-70	4⅜	3⅝	2 3/32	1 3/16	⅛	¾	5/16	5/32
70-100	4⅜	3⅝	2⅛	1 1/16	3/16	1	5/16	5/32

Stk. No.	Amps.	Volts	Ea. 5-95	Ea. 100-495	Ea. 500-995
30F225	15	700			
30F226	20	700	4.75	3.95	3.56
30F227	30	700			
30F232	70	700	14.55	12.08	10.88

BUSS TINITRON SUB-MINIATURE FUSE

New from Buss. Sub-miniature fuse less than ¼" in length. For circuits up to 125 volts, A.C. Maximum short circuit current of 300 amperes. Fuse body 3/32" x 9/32" diameter. Available in both axial and radial leads. U.L. recognized.

Stock No.	Part # Axial	Stock No.	Part # Radial	Amps	1-249	250-499
81F1925	A-⅛	81F1938	A-⅛ RAD	⅛		
81F1926	A-¼	81F1939	A-¼ RAD	¼	1.02	1.01
81F1927	A-⅜	81F1940	A-⅜ RAD	⅜		
81F1928	A-½	81F1941	A-½ RAD	½		
81F1929	A-¾	81F1942	A-¾ RAD	¾		
81F1930	A-1	81F1943	A-1 RAD	1		
81F1931	A-1½	81F1944	A-1½ RAD	1½		
81F1932	A-2	81F1945	A-2 RAD	2		
81F1933	A-3	81F1946	A-3 RAD	3	1.07	.90
81F1934	A-4	81F1947	A-4 RAD	4		
81F1935	A-5	81F1948	A-5 RAD	5		
81F1936	A-7	81F1949	A-7 RAD	7		
81F1937	A-10	81F1950	A-10 RAD	10		

9

CONNECTOR INDEX

Manufacturer's Type Page

ADC
PC 438, 439
PF 438
AP, BC, BP, BR, CF 438
CJ, CP 439
CM, FP, RS 438
PJ 439
PM, RF 438

AMPHENOL
BNC 394
CP 399
C, HN 396
MB, MHV, TRIAX 397
MIP 399
MS 384, 382 383, 396
N 395
S 399
SMA 397
RF 396
TNC 394
UHF 395
10 to 18 385
17 D MINRAC 389, 401
26 396
27 396
31 387, 388, 394
44 381
57 391
77 MIP 391
78 399
80 404
82, 83 395, 396
86 399
91 399, 404
91T 404
97 Circular 385, 386
126 390
133 392
143 393
146 399
157 391
160 391
165 381
225, 227, 356 392
261 393
283, 284 391
285 391
840, 841-17, 842-86 400
842-57F, 842-800, 842-801, 842-807 402
843-SERIES 403
905, 906 398
3100 385
9760, 9767 385

AP PRODUCTS
ACE, PA 482
IC, Accessories 482, 483
IS 483

AUGAT
200, 800, 428, 468 434 Series
300 Series 469
400 Series 468
500 Series 468
600 Series 472
700 Series 468, 469
2P, 4P, 7P, 110 472
1P, 6P, 9P, 14008,TX 473
LSG, 8000 474
8136, 8170, Tools 470 473

CAMBION
140, 155, 160, 180 488
200 487
350 489
400, 415, 445, 450, 460, 461 487
435 489
570, 571 488
706 489
702, 703, 714, 715, 718, 706 486

ELCO
02 426
05, 06 429
32 430
6007, 6022, 6024, 6064, 6307, 6337 424
7008, 7015, 7024, 7038 425

Manufacturer's Type Page

ELCO Con't
7021, 7022, 7023 426
8016, 8026, 60 427
8017, 8016 428
8257, 8267 427
9016 430
Accessories 430

ELECTROVERT
21-311, 21-321, 21-340, 21-331, 25-104, 25-135, 29-401, 26-000, 07-410 431

HEYCO
1000, 1300, 2000, 2800 502
2600, 2700, 2800 503
KITS 503

JOHNSON, E.F.
105 462, 463
108 462, 463
111 462
142 463
KITS 463

FASTFIT
CP, CP88, CPF 411

KEYSTONE
300, 400, 4600, 15000, Accessories 491

KULKA
J, ST, Y, Z 435
0987 434
410, 600, 601 435
599, 699 434
602, 603, 670 435
671, 672 435
3797A, 3897A, 4697, 4797A 434

MUELLER
Clips 507

PANDUIT
CE, CTD, MCT, HFSS, PCT 405, 504
MLT, PLF, PLM, PLT, SSC,SSM SST,522
GS2, STS, STK 522
T25 522

POMONA ELECTRONICS
AL-B, P 455
B, BB, BNC, HB 454
MDP 457
TVS, XS 456
1081 454
1269, 1270, 1296, 1297 457
1432, 1452 457
1508 454
2103, 2104, 2105 458
2142 458
2224 457
2244, 2247, 2269 458
2390, 2391, 2392, 2397 458
2400, 2417, 2428 458
2451 457
2630, 2631 454
2708 454
2901, 2902, 2906 458
2957, 2945, 2970 457
3230, 3231, 3234, 3239 458
3269, 3296, 3276 457
3283, 3284, 3285 458
3286, 3287, 3288 457
3301, 3302, 3311 458
3312, 3316, 3326 458
3430, 3533, 3534 457
3553 458
3560, 3561, 3562, 3563, 3564, 3565 455
3601, 3602, 3603, 3606, 3751 458
3752, 3753, 3754 458
3780, 3781, 3782, 3783, 3784, 3785, 3786 453
3846 457
3850 458
3916, 3925, 4011 456
4119 455
4124, 4140 456
4160 457
4274 454

Manufacturer's Type Page

POMONA ELECTRONICS Con't
4225, 4233, 4236 456
4288, 4289 458
4324, 4340 456
4408 454
4545 456
4555, 4560-4565, 4587, 4741 453
4690, 4691, 4918 455
4909, 4923, 4924 455
5018, 5024, 5040 455

RDI
BC, JC6 436
3PCR, 3PCV, 4PCR, 4PCV, 6PCR, 6PCV 436
TK 437
8PCR, 8PCV 436
8, 11 437
22, 44, 204, 206, 208, 211 436
214, 218, 311, 312, 314, 318, 708, 711 437
802, 804, 806, 811

SMITH H.H.
100,101, 102, 105, 128 460
185, 186, 187, 200, 202, 205 460
216, 241, 255, 287 460
241, 257 459
321, 325, 359 459
455 460
300, 347, 350 461
600 Series 461
1275, 1463 459
1477, 1480 459
1499 460
1501, 1502, 1506, 1509 460
1513 460
1517, 1675, 1749, 1518 459
1595, 1596, 1682, 1519, 2600 497
3000 497
Spacers (Aluminum, Brass, Fibre) 496, 497
2709, 2809 459
8200, 8300, 8400, 8500, 9321, 9322, 9361 496 461

SPC TECHNOLOGY
Alligator Clips 452
A-mode 492, 534
APCS 449
BNC adaptors 407, 452
Banana plugs/jacks 448
BNC plugs/jacks 406
Binding Posts 451
CBS 528, 534
CCP, CCS 529, 534
CFS 530
CH 407, 514
CLS 528, 529
CMS 300, 530, 534
CP, CPFI, CPM, CPMC, CPFI-TNC 406, 407
CRS 526, 527, 533, 534
CSS 527
FC 494
FPCS 500
High temp terminals & butt splices 533
HMFB 499
HSS 500
HTB 498
Instruments adaptors 451
IT 490
LP 466
LPCS 499
LTS 510
LWS 514
MC 490
MINI BNC Plugs 407
MP 467
MRS 301
MSS 499
MTL 494
NSRS 500
Patch Cords 452

Manufacturer's Type Page

SPC TECHNOLOGY Con't
PEGE 495
PCS 500
PCT, PCTL 494
Phone Plugs/jacks 450
PL 258, PL 259 407
Polarized connectors 510
RA, RN, RS
RTA, RTB, TSS 498
RM, RS 300
R8T 301
SEWS 514
SP 466
SPCS 500
Spade lug Spacers 451 498, 499, 500, 536
Tip plugs/jacks 449
TO 528, 529, 530, 533
TPES 499
UG-88-1, UG 88-2 535
UHF plugs, jacks 406, 407
UMS 514
UT 490
WS 514
WT 490

SWITCHCRAFT
A, B, C, D, K, R, P, T, G, J, 440
EAC 440
LAC 440
MT 445
P-2392, S3FM, SL 440
TA, TB, TY, 442, 461
TR-2A 443
TR 443
TT 460, 461
01, 02 440
05 440, 456
11 443
12 440
13 443
14 443
15 442
25, 26 442
40 442, 445
41-43 443
57 440
60 440, 458
61 445
70 445
80, 88 443
120, 121 443
126, 128, 131 443
151, 152 443
160, 170 445
172 444
190, 220, 227, 228, 238 444, 445
240, 245, 250, 255, 260, 267, 269 444
270, 280, 290, 297,444
330, 332, 336, 340 444
345, 349 444
360-365, 370, 374-380, 361, 362, 364, 365, 374-376 444
386, 387, 389, 390 444
430, 440 445
480, 482, 483 445
515 443
712, 722 442
740, 745, 750, 755 444
760, 765 442
780 445
830 443
850, 855, 880 445
1230 443

TEXAS INSTRUMENTS
H41, H-42, H-43 Sockets 465
C72, C81, C82 464
C84, C88, C89 464
C91, C92 464
C93, C98 464
1KS, 6KS 11KS 465

Manufacturer's Type Page

THOMAS & BETTS
A,B,C 524, 525
AD, BD 524
RA 524, 525
RAD 524
RB 524, 525
RBD 524
RC 524, 525
TC, TY 517
WT 525
KITS 525
TOOLS 525

VECTOR
BR 481
CCM, CCK, CMA, EFP P160, P180, P184, 478
W28, W30, P158, P187, P138 480
R600 477
TS, SW 481
W20, W30, W45 WA1 481
42G, 64A, 85G, 59P, 169P 479
812, 827, 848 477
3682, 4066, 4493, 4494 477
3719, 3677, 3690 477
4600, R681 476
8000 479

VERNITRON (BEAU)
3300 432
22000, 26000, 76000, 77000 446
72000, 73000 447

TRW/CINCH
D-SUB 410, 411
ICS 417
MSS 417
160-162 422
140-142, 150, 540 421
7E, 7PC, 7X 416
2R2, 2TS, 8VT 417
8A, 8E, 8PB, 9E 416
9PC 416
9X, 11PB, 11RB 416
16E, 18E, 22E, 24E, 40E 417
14-DIP, 16-DIP 417
24-DIP 417
97 412
140, 141 420
150, 164, 171, 172, 176 421
142 421
170 423
540-542 416
2400 416

Terminal Strips
QC, 51, 52, 53, 54, 55, 56 423
17, 2000 423
LPS, 8E, 50 417 417, 418, 419
57, 77 413
63 415
97 SUPER RIBBON 412
202 416
93 415
P300 414, 415
P400 414

Connectors
TA, TB, TC, TE 408
SD, SDH 409
TOOLS 413
SUPER-D 409

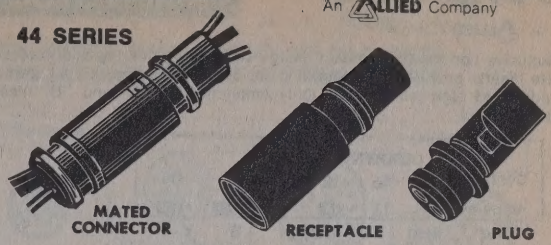
WALDOM/MOLEX
HD-4209, K120, K130 446
K140, K170, K180 446
K220, K210 446
WM-50, WM-72 446
02 446
03 447
05, 11 446
16 446
15 447

AMPHENOL CONNECTORS

Amphenol
An ALLIED Company

All resilient, one piece, waterproof connector. Incorporates crimp Poke-Home contacts. High performance, low cost. Ideally suited for applications where an environmentally sealed, inexpensive connector is needed. Waterproof seals to prevent liquid entry. One piece shell and insert construction for longer service life. Abrasion resistant. Impervious to water, lubricants, fuel, ozone and road salts. Hooded female contacts and molded-in polarizing flat for high reliability. Installed and maintained with inexpensive hand crimp and insertion tools. Simple, positive, push-pull coupling for easy mating. Cable to cable or panel mounting. Voltage Rating: limiting operating voltage at sea level DC 250 volts, AC 200 volts RMS. Current Rating: 8 amps continuous. Temperature Range: Continuous operation from −40°C to +105°C.

44 SERIES

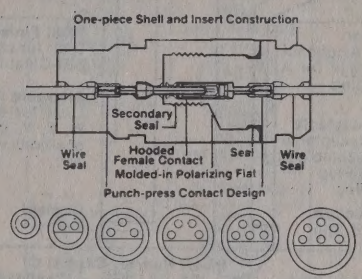


RECEPTACLES

Stock No.	Contacts	Type	1-9	10-49	50-99
61F1699	1	44-104-10001-02	.80	.64	.54
61F1700	2	44-104-10002-02	.82	.65	.56
61F1706	3	44-104-10003-02	.86	.68	.58
61F1710	4	44-104-10004-02	.97	.77	.66
61F1730	5	44-104-10005-02	1.05	.84	.72
61F1749	6	44-104-10006-02	1.12	.89	.76

PLUGS

Stock No.	Contacts	Type	1-9	10-49	50-99
61F1698	1	44-103-10001	.76	.61	.52
61F1715	2	44-103-10002	.78	.62	.53
61F1741	3	44-104-10003	.82	.65	.56
61F1726	4	44-103-10004	.92	.74	.63
61F1745	5	44-103-10005	1.00	.80	.68
61F1712	6	44-103-10006	1.07	.85	.73



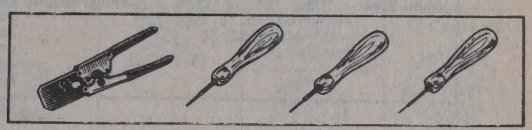
INSERTS AVAILABLE

CONTACTS

Stk. No.	Contacts	Type	Per Pkg. of 100 1-4	5-9	10-49
61F1733	Pin	44-100-1414P-100	6.70	5.55	5.24
61F1718	Socket	44-102-1414S-100	15.77	13.29	12.43

Stk. No.	Contacts	Type	Per Pkg. of 500 Each	2-9	10-19
38F916	Pin	44-100-1414P-500	27.45	25.86	20.16
38F917	Socket	44-102-1414S-500	64.37	60.08	43.90

Stk. No.	Contacts	Type	Per Pkg. of 1000 1-4	5-9	10-19
38F918	Pin	44-100-1414P-1000	50.86	39.12	31.30
38F919	Socket	44-102-1414S-1000	117.49	85.76	73.75



INSERTION AND REMOVAL TOOLS

61F1702. 294-562 Full cycle hand crimp tool ..... Each 58.65
61F1703. 356-258 Hand contact insertion tool ..... Each 5.87
61F1724. 356-260 Socket contact removal tool ..... Each 10.13
61F1754. 356-259 Pin contact removal tool ..... Each 7.72

Selection Chart

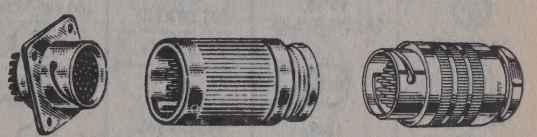
	Part Number	Insertion Tool	Removal Tool
Pin Contact	44-100-1414P	294-553	294-556
Socket Contacts	44-102-1414S	294-553	294-557

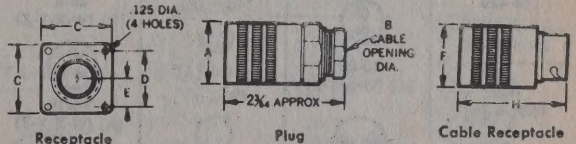
10

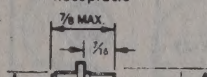
165 SERIES MINIATURE MS TYPE CONNECTORS

- Pressure-proof and waterproof, mated or apart
- Extremely efficient in operation
- Built-in cable clamp
- U.L. Recognized

Pressure-proof and completely waterproof mated or apart. Withstand government saltspray tests by many hours in excess of standards. Extremely efficient in operation, contacts are bronze, gold plated over silver. Features built-in cable clamp. Average Shpg. wt. 3 oz.

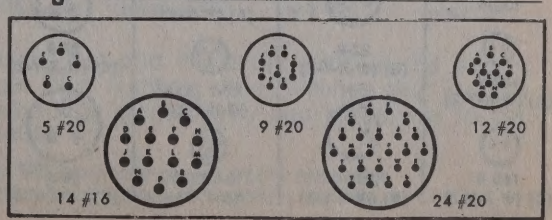






	A	B	C	D	E	F	G	H
Small	5/64	3/8	1 1/16	2 5/32	2 5/64	7/8	1 3/16	1 5/64
Large	1 3/64	2 1/32	1 5/16	3 1/32	3 1/64	1 1/8	1 1/16	1 5/16

No.	Type	Description	Contacts @ AWG	1-9	10-49	50-99
38F300	165-9	Sml. plug	12-#20 male	16.04	12.19	10.26
38F301	165-10	Sml. plug	12-#20 female	21.30	16.18	13.62
38F302	165-11	Sml. recpt.	12-#20 male	12.03	9.14	7.69
38F303	165-12	Sml. recpt.	12-#20 female	17.09	12.98	10.93
40F008	165-11-1002	Cable recpt.	12-#20 male	19.45	14.77	12.43
40F009	165-12-1002	Cable recpt.	12-#20 female	24.61	18.69	15.74
38F304	165-13	Sml. plug	9-#20 male	14.10	10.71	9.01
38F305	165-14	Sml. plug	9-#20 female	18.75	14.24	11.99
38F306	165-15	Sml. recpt.	9-#20 male	10.02	7.61	6.40
38F307	165-16	Sml. recpt.	9-#20 female	14.61	11.10	9.34
40F010	165-15-1002	Cable recpt.	9-#20 male	17.43	13.24	11.14
38F312	165-25	Lge. plug	24-#20 male	28.62	21.74	18.30
38F313	165-26	Lge. plug	24-#20 female	33.91	25.77	21.69
38F314	165-27	Lge. recpt.	24-#20 male	20.46	15.54	13.08
38F315	165-28	Lge. recpt.	24-#20 female	25.69	19.51	16.42
38F316	165-29	Lge. plug	14-#16 male	21.42	16.27	13.69
38F317	165-30	Lge. plug	14-#16 female	27.34	20.76	17.48
38F318	165-31	Lge. recpt.	14-#16 male	13.33	10.12	8.52
38F319	165-32	Lge. recpt.	14-#16 female	28.97	22.00	18.52
38F320	165-33	Sml. plug	5-#20 male	13.64	10.36	8.72
38F321	165-34	Sml. plug	5-#20 female	16.98	12.90	10.86
38F322	165-35	Sml. recpt.	5-#20 male	9.27	7.04	5.93
38F323	165-36	Sml. recpt.	5-#20 female	12.59	9.56	8.05
40F011	165-35-1002	Cable recpt.	5-#20 male	16.75	12.72	10.71

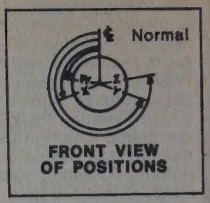


Amphenol

An ALLIED Company

AMPHENOL® CONNECTORS

Exclusive non-rotating contact design simplifies soldering and lowers termination cost. Blue diallyl phthalate inserts provide high insulating resistance and dimensional stability in the presence of both high humidity and high temperature. Only Amphenol MS "A" and "B" inserts feature molded barriers between each contact.



CURRENT RATING:

Contact Size	16	12	8	4	0
Amperes	13	23	46	80	150

POLARIZATION

Alternate Insert Positions Are Listed Under Each Insert In Parenthesis

97 3601 A 28-21 S Y

Series Number
Like MS but Amphenol exclusive design for A & B construction.

Shell Type
3100 Wall Receptacle
3101 Cable Receptacle
3102 Box Receptable
3106 Straight Plug
3108 Angle Plug

Shell Construction
A-Solid B-Split

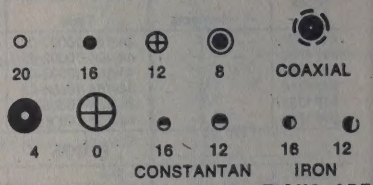
Shell Finish
Omit for standard finish
639-Clear cadmium plate

Alternate Insert Position
Omit for standard position W, X, Y, or Z for alternate positions, depending on insert.

Contact
P-Pin S-Socket

Insert Number Consist Of
Shell Size: 10SL, 12S, 12, 14S 14, 16S, 16, 18, 20 22, 24, 28, 32, 36 **Configuration** Code numbers are listed under each insert below.

CODE OF WIRE SIZES



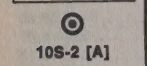
ALTERNATE SERVICE POSITIONS ARE LISTED IN BRACKETS UNDER EACH INSERT.

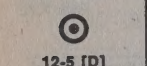
Service*	Inst	A	D	E	B	C
DC**	250	700	1250	1750	2450	4200
AC (rms)**	200	500	900	1250	1750	3000

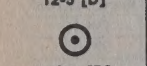
(*) codes are listed under each insert configuration below. Inst. service normally for low voltage and currents.
(**) limiting oper. volts at sea level.

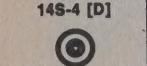
10

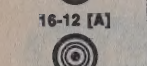
1 Contact

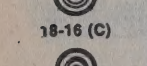

10S-2 [A]


12-5 [D]

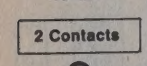

14S-4 [D]

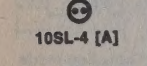

16-12 [A]

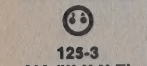

18-16 (C)

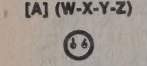

18-420

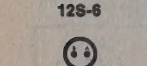
2 Contacts


10SL-4 [A]

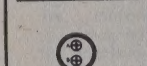

12S-3 [A] (W-X-Y-Z)

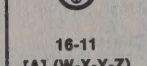

12S-6

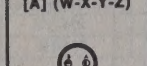

14S-9 [A] (W-X-Y-Z)

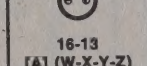

16S-4 [D] (W-X-Y-Z)

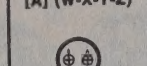
2 Contacts

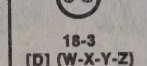

16-11 [A] (W-X-Y-Z)

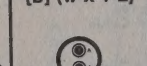

16-13 [A] (W-X-Y-Z)


18-3 [D] (W-X-Y-Z)

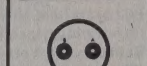

20-23 [A] (W-X-Y-Z)

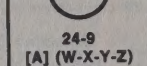

22-1 [D] (W-X-Y-Z)


22-8 [E] (W-X-Y-Z)

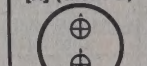

22-11 [B] (W-X-Y-Z)

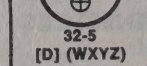
2 Contacts

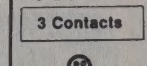

24-9 [A] (W-X-Y-Z)

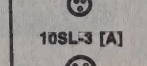

32-5 [D] (WXYZ)

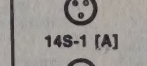
3 Contacts

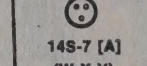

10SL-3 [A]

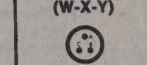

14S-1 [A]


14S-7 [A] (W-X-Y)

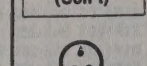

16S-5 [A] (W-X-Y-Z)

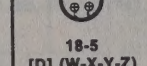

16S-6 [A] (W-X-Y)

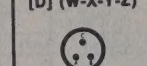

16-7 [A] (W-X-Y-Z)

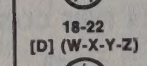

16-10 [A] (W-X-Y)

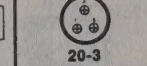
3 Contacts (Con't)

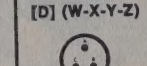

18-5 [D] (W-X-Y-Z)

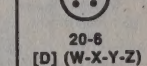

18-22 [D] (W-X-Y-Z)

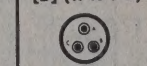

20-3 [D] (W-X-Y-Z)


20-6 [D] (W-X-Y-Z)

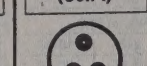

20-19 [A] (W-X-Y-Z)


22-2 [D] (W-X-Y-Z)

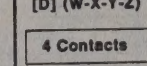

22-9 [E] (W-X-Y-Z)

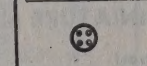

28-3 [E] (W-X-Y-Z)

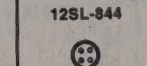
3 Contacts (Con't)

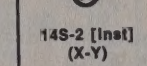

28-6 [D] (W-X-Y-Z)

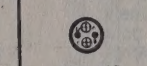
4 Contacts

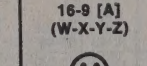

12SL-844

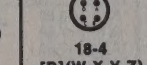

14S-2 [Inst] (X-Y)


16-9 [A] (W-X-Y-Z)

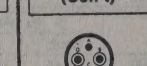

18-4 [D](W-X-Y-Z)

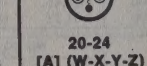

18-10 [A] (X-Y)

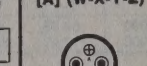

18-13 [A] (W-X-Y-Z)

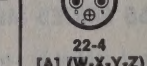

20-4 [D] (W-X-Y)

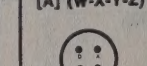
4 Contacts (Con't)

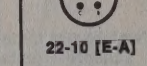

20-24 [A] (W-X-Y-Z)

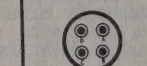

22-4 [A] (W-X-Y-Z)


22-10 [E-A]

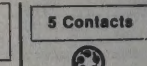

22-22 [A] (X-Y)

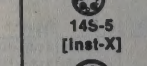

24-22 [D] (W-X-Y)

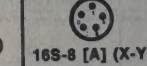

32-17 [D] (W-X-Y)

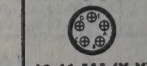

36-5 [A] (X-Y)

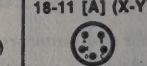
5 Contacts

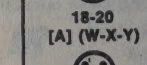

14S-5 [Inst-X]

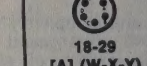

16S-8 [A] (X-Y)

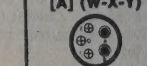

18-11 [A] (X-Y)

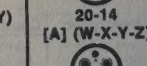

18-20 [A] (W-X-Y)

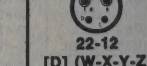

18-29 [A] (W-X-Y)


20-14 [A] (W-X-Y-Z)

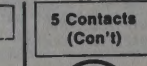

22-12 [D] (W-X-Y-Z)


22-13 [D-A] (W-X-Y-Z)

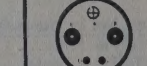

22-34 [D] (W-X-Y-Z)

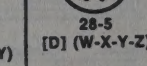

24-12 [A] (W-X-Y-Z)

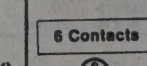
5 Contacts (Con't)

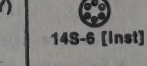

28-5 [D] (W-X-Y-Z)

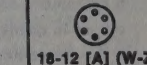
6 Contacts

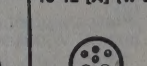

14S-6 [Inst]

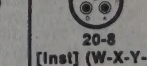

18-12 [A] (W-Z)


20-8 [Inst] (W-X-Y-Z)


20-17 [A] (W-X-Y)


20-22 [A] (W-X-Y-Z)


22-5 [D] (W-X-Y-Z)


22-15 [E-A] (W-X-Y-Z)

ALTERNATE SERVICE POSITIONS ARE LISTED UNDER EACH INSERT IN BRACKETS. ALTERNATE INSERT POSITIONS ARE LISTED UNDER EACH INSERT IN PARENTHESES. SEE PREVIOUS PAGE.

6 Contacts (Con't)

36-6
[A] (W-X-Y-Z)

7 Contacts

16-S-1
[A] (W-Z)

18-9
[Inst] (W-X-Y-Z)

20-15
[A] (W-Z)

22-26

22-28
[A] (W-Z)

24-2
[D] (W-X-Y-Z)

24-10
[A] (W-Z)

7 Contacts (Con't)

24-16
[D-A] (W-X-Y-Z)

24-27
[E] (W-Z)

28-10
[D-A] (W-X-Y-Z)

8 Contacts

18-8
[A] (W-Z)

20-7
[D-A] (W-X-Y-Z)

22-18
[A-D] (W-X-Y-Z)

22-23
[D-A] (W-Y)

24-6
[D-A](W-X-Y-Z)

9 Contacts

20-16
[A-W] (X-Y-Z)

9 Contacts (Con't)

20-18
[A] (W-X-Y-Z)

20-21
[A] (W-X-Y-Z)

22-16
[A-W] (X-Y-Z)

22-20
[A] (W-X-Y-Z)

22-27
[D-A] (W-Y-Z)

24-11
[A] (W-X-Y-Z)

28-1
[D-A] (W-X-Y-Z)

10 Contacts

18-1
[A-Inst]
(W-X-Y-Z

18-19
[A] (X-Y)

10 Contacts (Con't)

24-21
[D] (W-X-Y-Z)

28-19
[A-B-D]
(W-X-Y-Z

11 Contacts

20-23
[A]

24-20
[D] (W-X-Y-Z)

12 Contacts

24-19

28-8
[A-D-E]
(W-X-Y-Z)

28-9
[D] (W-X-Y-Z)

28-18
[Inst-A-C-D]
(W-X-Y-Z)

13 Contacts

20-11
[Inst]

14 Contacts

20-27
[Inst-A]
(W-X-Y-Z

22-19
[A] (W-X-Y-Z)

28-2
[D] (W-X-Y-Z)

28-20
[A] (W-X-Y-Z)

15 Contacts

28-17
[A-B-D]
(D-W-X-Y-Z)

16 Contacts

24-5
[A] (W-X-Y-Z)

24-7
[A] (W-X-Y-Z)

17 Contacts

20-29
[A] (W-Z)

19 Contacts

22-14
[A] (W-X-Y-Z)

20 Contacts

28-16
[A] (W-X-Y-Z)

22 Contacts

28-11
[A] (W-X-Y-Z)

36-1
[D] (W-X-Y-Z)

23 Contacts

32-6
[A] (W-X-Y-Z)

32-13
[D] (W-X-Y-Z)

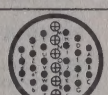
24 Contacts

24-28 [Inst]

26 Contacts

28-12
[A] (W-X-Y)

30 Contacts



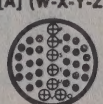
32-8
[A] (W-X-Y-Z)

31 Contacts

36-9
[A] (W-X-Y-Z)

35 Contacts

28-15
[A] (W-X-Y-Z)



32-7 [Inst-A]
(W-X-Y-Z)

35 Contacts (Con't)

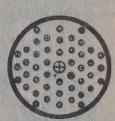
36-15
[A-D] (W-X-Y-Z)

37 Contacts

28-21
[A] (W-X-Y-Z)

47 Contacts

36-7

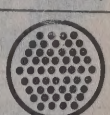


36-8
[A] (W-X-Y-Z)

48 Contacts

36-10
[A] (W-X-Y-Z)

52 Contacts



32-414 [A]

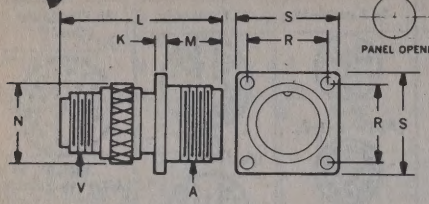
36-403 [A]

NOTE: If you prefer the standard dull-olive cadmium plate finish, which is non-reflective, then no suffix number is needed. If you would rather have the shiny, clear cadmium plate finish, just add the suffix (639) at the end of your part number. Both finishes give you the same high conductivity and resistance to corrosion.

Newark has a completely equipped Amphenol MS assembly center which allows us to ship you completed connectors from an extensive component inventory quickly.

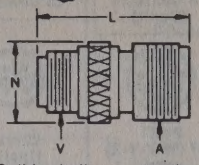
DIMENSIONAL INFORMATION (INCHES)
PIN & SOCKET INSERTS ARE INTERCHANGEABLE WITHIN PLUG & RECEPTACLE SHELLS EXCEPT FOR (SL) SHELL SIZES

MS 3100A WALL MOUNTING RECEPTACLES



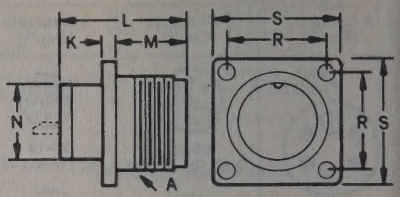
Solid shell construction. Integral polarizing key.

MS 3101A CABLE RECEPTACLES



Solid shell, construction. Integral polarizing key. MS/AN fittings.

MS 3102A BOX MOUNTING RECEPTACLES



One piece aluminum die cast shell. Internal polarizing key. Solid shell.

MS3100A & MS3101A

Connector Size	A Coupling Threads	K	L	M	N	O	R	S	V Fitting Threads
10S	5/8—24	5/64	1 5/16	9/16	5/8	.688	23/32	1	1/2—28
10SL	5/8—24	5/64	1 9/32	9/16	5/8	.812	23/32	1	5/8—24
12S	3/4—20	5/64	1 15/32	9/16	25/32	.812	13/16	1 3/32	5/8—24
12	3/4—20	5/64	1 27/32	3/4	25/32	.812	13/32	1 3/32	5/8—24
14S	7/8—20	5/64	1 7/16	9/16	7/8	.938	29/32	1 3/16	3/4—20
16S	1 —20	5/64	1 31/64	9/16	1	1.062	31/32	1 9/32	7/8—20
16	1 —20	1/8	1 57/64	3/4	1	1.062	31/32	1 9/32	7/8—20
18	1 1/8—18	1/8	2	3/4	1 1/8	1.188	1 1/16	1 3/8	1 —20
20	1 1/4—18	1/8	2 1/8	3/4	1 1/4	1.312	1 5/32	1 1/2	1 3/16—18
22	1 3/8—18	1/8	2 1/8	3/4	1 3/8	1.438	1 1/4	1 5/8	1 3/16—18
24	1 1/2—18	1/8	2 1/4	13/16	1 1/2	1.562	1 3/8	1 3/4	1 7/16—18
28	1 3/4—18	1/8	2 1/4	13/16	1 3/4	1.812	1 9/16	2	1 7/16—18
32	2 —18	1/8	2 3/8	7/8	2 1/32	2.062	1 3/4	2 1/4	1 3/4 —18
36	2 1/4—16	1/8	2 3/8	7/8	2 1/4	2.312	1 15/16	2 1/2	2 —18

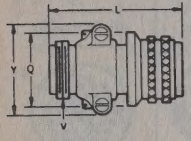
MS3102A

Connector Size	A Coupling Threads	K	L	M	N	O	R	S
10S	5/8—24	5/64	27/32	9/16	1/2	.688	23/32	1
10SL	5/8—24	5/64	27/32	35/64	5/8	.812	23/32	1
12S	3/4—20	5/64	61/64	9/16	11/16	.812	13/16	1 3/32
12	3/4—20	5/64	1 5/16	3/4	11/16	.812	13/16	1 3/32
12SL	3/4—20	5/64	27/32	35/64	11/16	.938	13/16	1 3/32
14S	7/8—20	5/64	15/16	9/16	3/4	.938	29/32	1 3/16
16S	1 —20	5/64	15/16	9/16	7/8	1.062	31/32	1 9/32
16	1 —20	1/8	1 11/16	3/4	7/8	1.062	31/32	1 9/32
18	1 1/8—18	1/8	1 11/32	3/4	1	1.188	1 1/16	1 3/8
20	1 1/4—18	1/8	1 11/32	3/4	1 1/8	1.312	1 5/32	1 1/2
22	1 3/8—18	1/8	1 11/32	3/4	1 1/4	1.438	1 1/4	1 5/8
24	1 1/2—18	1/8	1 11/32	13/16	1 3/8	1.562	1 3/8	1 3/4
28	1 3/4—18	1/8	1 11/32	13/16	1 5/8	1.812	1 9/16	2
32	2 —18	1/8	1 7/16	7/8	1 29/32	2.062	1 3/4	2 1/4
36	2 1/4—16	1/8	1 7/16	7/8	2 1/8	2.312	1 15/16	2 1/2

10

MS3106B—STRAIGHT PLUG—SPLIT SHELL

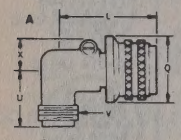
Back shell threaded for all standard fittings. One or both halves of the back shell may be removed.



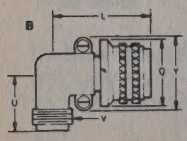
Connector Size	L	Q	V Fitting Threads	Y
14S	1 11/16	1 1/8	3/4—20	1 5/32
16S	1 11/16	1 1/4	7/8—20	1 1/4
18	2 1/16	1 11/32	1 —20	1 41/64
20	2 1/8	1 15/32	1 3/16—18	1 13/16
22	2 1/8	1 19/32	1 3/16—18	1 15/16
24	2 9/32	1 23/32	1 7/16—18	2 1/16
28	2 9/32	1 31/32	1 7/16—18	2 5/16
32	2 5/16	2 7/32	1 3/4—18	2 19/32
36	2 11/32	2 15/32	2 —18	2 27/32

MS 3108B—ANGLE PLUG—SPLIT SHELL

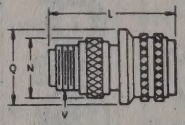
Longitudinally split 90° back shell. One or both halves removable for soldering.



A Connector Size	L	Q	U	V Fitting Threads	X
10S	1 3/8	7/8	7/8	1/2—28	
10SL	1 1/2	7/8	1	5/8—24	
12S	1 9/16	1	1	5/8—24	1/2
12	1 7/8	1	1	5/8—24	1/2
14S	1 23/32	1 1/8	1 1/16	3/4—20	21/32



B Connector Size	L	Q	U	V Fitting Threads	Y
16S	1 3/4	1 1/4	1 1/8	7/8—20	1 1/2
16	1 1/8	1 1/4	1 1/8	7/8—20	1 1/2
18	2 5/32	1 11/32	1 3/16	1 —20	1 41/64
20	2 3/8	1 15/32	1 5/16	1 3/16—18	1 13/16
22	2 13/16	1 19/32	1 5/16	1 3/16—18	1 15/16
24	2 5/8	1 23/32	1 7/16	1 7/16—18	2 1/16
28	2 5/8	1 31/32	1 7/16	1 7/16—18	2 5/16
32	2 13/16	2 7/32	1 3/4	1 3/4—18	2 19/32
36	2 27/32	2 15/32	1 15/16	2 —18	2 27/32



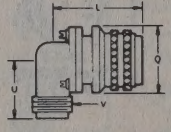
MS3106A—STRAIGHT PLUG—SOLID SHELL

Extremely high tensile strength coupling ring. Polarizing keyway. Mates with all types of MS receptacles. Standard fittings may be used on back shell.

Connector Size	L	N	Q	V Fitting Threads
10S	1 5/16	5/8	7/8	1/2—28
10SL	1 3/8	3/4	7/8	5/8—24
12S	1 7/16	25/32	1	5/8—24
12	1 7/8	25/32	1	5/8—24
12SL	1 31/64	7/8	1	3/4—20
14S	1 7/16	7/8	1 1/8	3/4—20
16S	1 29/64	1	1 1/4	7/8—20
16	1 57/64	1	1 1/4	7/8—20
18	2	1 1/8	1 11/32	1 —20
20	2 1/8	1 1/4	1 15/32	1 3/16—18
22	2 1/8	1 3/8	1 19/32	1 3/16—18
24	2 1/4	1 1/2	1 23/32	1 7/16—18
28	2 1/4	1 3/4	1 31/32	1 7/16—18
32	2 3/8	2 1/32	2 7/32	1 3/4—18
36	2 3/8	2 1/4	2 15/32	2 —18

MS 3108A—ANGLE PLUG—SOLID SHELL

Right-angle configuration. Use where space in front is at a premium.



Connector Size	L	Q	U	V Fitting Threads	Y
10S	1 1/4	7/8	7/8	1/2—28	25/32
10SL	1 5/16	7/8	1	5/8—24	1 1/16
12S	1 3/8	1	1	5/8—24	1 1/16
12SL	1 3/8	1	1	3/4—20	1 1/16
12	1 13/64	1	1	5/8—24	1 1/16
14S	1 3/8	1 1/8	1	3/4—20	1 1/16
16S	1 1/2	1 1/4	1 1/8	7/8—20	1 5/16
16	1 15/16	1 1/4	1 1/8	7/8—20	1 5/16
18	1 15/16	1 11/32	1 1/8	1 —20	1 5/16
20	2 1/16	1 15/32	1 5/16	1 3/16—18	1 5/8
22	2 1/16	1 19/32	1 5/16	1 3/16—18	1 5/8
24	2 15/32	1 23/32	1 1/2	1 7/16—18	2
28	2 15/16	1 31/32	1 1/2	1 7/16—18	2
32	2 11/16	2 7/32	1 25/32	1 3/4—18	2 1/2
36	2 11/16	2 15/32	1 25/32	2 —18	2 1/2

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

ACCESSORIES AND HARDWARE FOR 97 SERIES CONNECTORS

If you want a shiny, clear, cadmium plate finish, just add the suffix (639) at the end of your part number.

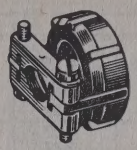
CABLE CLAMP

TYPE AN3057

One half of clamp is fixed. Two fiber washers included. *Stepdown.

Type	Fits Shell	1-9	10-49	50-99	100-999
97-3057-3	8S, 10S	3.09	2.09	1.84	1.67
97-3057-4	12, 12S	3.15	2.13	1.87	1.70
97-3057-6	14, 14S	3.22	2.18	1.91	1.74
97-3057-8	16, 16S	3.46	2.34	2.06	1.87
97-3057-10	18	2.90	1.96	1.73	1.57
97-3057-10-6*	18	3.33	2.25	1.98	1.80
97-3057-12	20, 22	3.24	2.19	1.93	1.75
97-3057-12-6*	20, 22	3.37	2.28	2.00	1.82
97-3057-16	24, 28	3.29	2.23	1.96	1.78
97-3057-20	32	4.64	3.14	2.76	2.51
97-3057-24	36	4.79	3.24	2.85	2.59

MS CABLE CLAMP



TYPE MS3057A

Both clamping halves float. To order clamp with bushing, add -1 to the Amphenol part no. Two telescoping bushings are supplied with size 16 and larger.

Type	Fits Shell	1-9	10-49	50-99	100-999
97-3057-1004	10SL, 12, 12S	2.22	1.56	1.38	1.27
97-3057-1007	12SL, 14, 14S	2.31	1.96	1.44	1.32
97-3057-1008	16, 16S	2.48	1.75	1.54	1.42
97-3057-1010	18	2.10	1.48	1.31	1.20
97-3057-1012	20, 22	2.10	1.48	1.31	1.20
97-3057-1016	24, 28	2.26	1.59	1.40	1.29
97-3057-1020	32	3.28	2.31	2.04	1.87
97-3057-1024	36	3.28	2.31	2.04	1.87

RUBBER BUSHING

TYPE AN3420

Designed for use with adjacent clamps. Provides wire and cable protection and acts as reducing bushing.

Type	Cable O.D.	EACH 1-9	10-49	50-99	100-999
9779-513-3	0.130	.36	.25	.22	.20
9779-513-4	0.220	.41	.29	.26	.24
9779-513-6	0.312	.43	.30	.27	.25
9779-513-8	0.437	.36	.25	.22	.20
9779-513-10	0.562	.33	.25	.22	.20
9779-513-12	0.625	.41	.29	.26	.24
9779-513-16	0.750	.52	.37	.33	.30
9779-513-20	0.937	.82	.58	.51	.47
9779-513-24	1.250	.82	.58	.51	.47

9760 DUST CAPS FOR RECEPTACLES

Type	Fits Shell	EACH 1-9	10-49	50-99	100-999
9760-10	10S, 10SL	1.51	1.06	.94	.86
9760-12	12, 12S, 12SL	1.39	.98	.87	.80
9760-14	14, 14S	1.49	1.05	.93	.85
9760-16	16, 16S	1.71	1.20	1.06	.97
9760-18	18	1.94	1.37	1.21	1.11
9760-20	20	2.37	1.67	1.48	1.36
9760-22	22	2.49	1.75	1.55	1.42
9760-24	24	3.55	2.50	2.21	2.03
9760-28	28	3.45	2.43	2.15	1.97
9760-32	32	5.30	3.73	3.30	3.02
9760-36	36	6.16	4.33	3.83	3.52

Internal threads for use with Amphenol MS-3100A, MS3101A, and MS3102A receptacles. Includes beaded chains for mounting. Av. wt., 2 oz.

9760P DUST CAPS FOR PLUGS

Type	Fits Shell	EACH 1-9	10-49	50-99	100-999
9760-10P	10S, 10SL	1.82	1.28	1.14	1.04
9760-12P	12, 12S	3.61	2.54	2.25	2.06
9760-14P	14, 14S	2.32	1.63	1.44	1.32
9760-16P	16, 16S	2.67	1.88	1.66	1.52
9760-18P	18	3.32	2.33	2.06	1.89
9760-20P	20	5.97	4.19	3.71	3.40
9760-22P	22	6.16	4.33	3.83	3.52
9760-24P	24	7.38	5.19	4.59	4.21
9760-28P	28	4.55	3.20	2.83	2.60
9760-32P	32	11.69	8.22	7.28	6.68
9760-36P	36	8.38	5.89	5.21	4.78

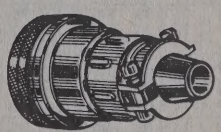
Male caps and chains for plugs MS3106 and MS3108 listed on facing page. Has external threads, provides tight dust-free cover. Av. wt., 2 oz.

10

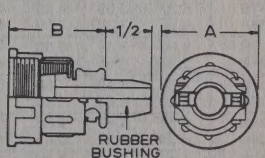
WATERPROOF CABLE CLAMPS

Complete waterproof cable clamp assembly. Number 9767, consists of a 97-3057 Cable Clamp, a rubber bushing, a washer and a 97-3055 Adaptor.

To assure the watertight integrity of this clamp when assembled to an MS plug, the plug must be ordered with the deviation (417) which supplies a "W" washer cemented to the shoulder of the plug shell.



Type	Connector Size	Dimensions Inches A	B	Max. Cable O.D. Inches	EACH 1-9	10-49	50-99	100-999
9767-12-4	10SL, 12S, 12	25/32	1-17/32	7/32	5.90	3.99	3.51	3.19
9767-14-6	12SL, 14S, 14	29/32		11/32	6.55	4.43	3.89	3.54
9767-16-6	16S, 16	1-1/16	1-19/32	11/32	6.59	4.45	3.92	3.56
9767-18-6	18	1-3/16		11/32	6.25	4.23	3.72	3.38
9767-18-8	16S, 16	1-1/16		7/16	6.66	4.50	3.96	3.60
9767-18-8	18	1-3/16	1-19/32	7/16	6.90	4.66	4.10	3.73
9767-22-8	20, 22	1-3/8		7/16	7.18	4.85	4.27	3.88
9767-18-10	18	1-3/16	1-19/32	9/16	7.07	4.78	4.20	3.82
9767-22-10	20, 22	1-3/8	1-19/32	9/16	7.27	4.91	4.32	3.93
9767-28-10	24, 28	1-5/8	1-17/32	9/16	8.07	5.45	4.80	4.36
9767-22-12	20, 22	1-3/8		11/16	8.47	5.73	5.04	4.58
9767-28-12	24, 28	1-5/8	1-21/32	11/16	9.47	6.40	5.63	5.12
9767-28-16	24, 28	1-5/8	1-25/32	27/32	9.21	6.23	5.48	4.98
9767-32-20	32	1-15/16	1-31/32	1-1/32	24.24	16.38	14.41	13.10
9767-36-24	36	2-3/16	2-3/32	1-3/16	29.30	19.80	17.42	15.84



Because the MS connectors do not include an inside tapered surface for seating the rubber bushing, the waterproof cable clamp assembly is supplied with an adapter. The adapter may have a 1 to 1 ratio or be a reducing adapter as illustrated above.

97 Series Popular Connectors. Have been assigned Newark part numbers and are available, pre-assembled from stock. Contact your local Newark representative or sales office for a quote on any 97 Series connectors available. Our assembly center is ready to service your connector needs. SEE PAGE 385 for cable clamps and other hardware.

Stk. No.	Description	Cont.	1-9	10-49
39F3088	3100A-10SL-03P	3	5.48	3.70
39F3089	3100A-10SL-04P	2	5.14	3.48
39F3090	3101A-10SL-03P	3	7.31	4.94
39F3091	3101A-10SL-04P	2	6.97	4.71
39F3092	3102A-10SL-03P	3	4.20	2.84
39F3093	3102A-10SL-04P	2	3.87	2.61
39F3103	3102A-10SL-04P639	2	3.87	2.61
39F3094	3106A-10SL-03S	3	6.23	4.21
39F3095	3106A-10SL-04S	2	5.90	3.99
39F3104	3106A-10SL-03S639	3	6.23	4.21
39F3105	3106A-10SL-04S639	2	5.90	3.99
39F3096	3108A-10SL-03S	3	10.93	7.39
39F3097	3108A-10SL-04S	2	10.60	7.16
39F3098	3108B-10SL-03S	3	8.07	5.45
39F3099	3108B-10SL-04S	2	7.73	5.23
39F3077	3106A-12S-03P	2	4.53	3.06
39F3106	3106A-12SL-844P	4	7.14	4.83
39F3109	3102A-12SL-844P639	4	13.30	8.99
39F3107	3106A-12SL-844S	4	20.00	13.51
39F3108	3108A-12SL-844S	4	6.38	4.31
38F935	3101A-14S-02P	4	3.48	2.35
38F936	3102A-14S-02P	4	3.72	2.51
39F3070	3102A-14S-02S	4		
40F6352	3102A-14S-05P	5	3.92	2.65

Stk. No.	Description	Cont.	1-9	10-49
39F3071	3102A-14S-05S	5	4.24	2.86
39F3072	3102A-14S-06P	6	4.24	2.86
39F3078	3106A-14S-02P	4	5.20	3.51
39F3079	3106A-14S-02S	4	5.61	3.79
39F3080	3106A-14S-05P	5	5.83	3.94
39F3081	3106A-14S-05S	5	6.03	4.08
39F3082	3106A-14S-06P	6	6.03	4.08
39F3083	3106A-14S-06S	6	6.09	4.11
38F943	3106B-14S-06P	6	7.18	4.85
38F944	3106B-14S-06S	6	7.25	4.90
38F937	3102A-16S-01P	7	4.26	2.88
39F3074	3102A-16S-01S	7	4.94	3.34
39F3084	3106A-16S-01P	7	6.03	4.08
39F3075	3102A-18-01S	10	6.38	4.31
38F938	3102A-18-12P	6	4.87	3.29
39F3076	3102A-18-12S	6	5.37	3.63
39F3085	3106A-18-01P	10	7.88	5.33
39F3110	3106A-18-01S	10	8.75	5.91
39F3086	3106A-18-12P	6	7.18	4.85
38F940	3106A-20-27P	14	10.43	7.05
39F3087	3106A-20-27S	14	11.21	7.58
38F941	3106A-24-28P	24	14.43	9.75
38F939	3102A-28-16P	20	11.66	7.88
38F942	3106A-28-16P	20	16.11	10.89

RECEPTACLES AND MATING PLUGS

Meet current MIL-C-5015 specifications; interchangeable with units made to meet previous specs. Finish: Cadmium-plated aluminum with olive drab chromate conversion coating; non-reflective, corrosion resistant. Inserts: Molded dialyl phthalate, offers dimensional stability, high insulation resistance, high arc resistance. Contacts: Non-rotating, silver-plated; pre-tinned solder pockets. Coupling rings. Made from solid aluminum bar stock.

RECEPTACLES

Shell Style / Insert	3100A- EACH 1-9	3100A- EACH 10-49	3101A- EACH 1-9	3101A- EACH 10-49	3102A- EACH 1-9	3102A- EACH 10-49	Total Contacts
10S-02P	....	....	11.47	7.75	5.31	3.59	1
10S-02S	....	....	....	....	5.57	3.76	1
10SL-03P	5.48	3.70	7.31	4.94	4.20	2.84	3
10SL-04P	5.14	3.48	6.97	4.71	3.87	2.61	2
12S-03P	4.94	3.34	5.83	3.94	2.70	1.83	2
12S-03S	5.00	3.38	5.88	3.98	2.87	1.94	2
12S-06P	30.78	20.80	32.60	22.03	26.40	17.84	2
12S-06S	32.80	22.16	34.23	23.13	28.12	19.00	2
12SL-844P	....	....	....	....	7.14	4.83	4
12-05P	6.75	4.56	7.55	5.10	4.20	2.84	1
12-05S	7.18	4.85	8.10	5.48	4.77	3.23	1
14S-01P	5.24	3.54	6.40	4.33	3.50	2.36	3
14S-01S	5.37	3.63	6.55	4.43	3.52	2.38	3
14S-02P	5.83	3.94	6.38	4.31	3.48	2.35	4
14S-02S	6.33	4.28	6.75	4.56	3.72	2.51	4
14S-04P	9.75	6.59	11.90	8.04	6.07	4.10	1
14S-04S	9.92	6.70	12.34	8.34	6.51	4.40	1
14S-05P	5.83	3.94	6.92	4.68	3.92	2.65	5
14S-05S	6.03	4.08	7.22	4.88	4.24	2.86	5
14S-06P	6.03	4.08	7.22	4.88	4.24	2.86	6
14S-06S	6.09	4.11	7.36	4.98	4.31	2.91	6
14S-07P	5.24	3.54	6.40	4.33	3.50	2.36	3
14S-07S	5.37	3.63	6.55	4.43	3.52	2.38	3
14S-09P	4.98	3.36	6.09	4.11	3.07	2.08	2
14S-09S	5.00	3.38	6.33	4.28	3.15	2.13	2
16S-01P	6.73	4.55	7.25	4.90	4.26	2.88	7
16S-01S	7.38	4.99	7.88	5.33	4.94	3.34	7
16S-04P	6.59	4.45	7.18	4.85	3.92	2.65	2
16S-04S	6.85	4.63	7.55	5.10	4.05	2.74	2
16S-05P	6.35	4.29	6.85	4.63	3.83	2.59	3
16S-05S	6.40	4.33	7.07	4.78	4.05	2.74	3
16S-08P	6.55	4.43	7.16	4.84	4.28	2.84	5
16S-08S	6.75	4.56	7.36	4.98	4.31	2.91	5
16-09P	8.27	5.59	8.57	5.79	5.00	3.38	4
16-09S	9.27	6.26	9.62	6.50	6.18	4.18	4
16-10P	7.22	4.88	7.38	4.99	4.31	2.91	3
16-10S	8.07	5.45	8.23	5.56	5.11	3.45	3
16-11P	7.55	5.10	7.77	5.25	4.31	2.91	2
16-11S	8.38	5.66	8.75	5.91	5.31	3.59	2
16-13P	31.76	21.46	32.28	21.81	26.40	17.84	2
16-13S	36.85	24.90	37.30	25.20	31.17	21.06	2
18-01P	8.25	5.58	9.32	6.30	5.79	3.91	10

MATING PLUGS

Shell Style / Insert	3106A- EACH 1-9	3106A- EACH 10-49	3106B- EACH 1-9	3106B- EACH 10-49	3108A- EACH 1-9	3108A- EACH 10-49	3108B- EACH 1-9	3108B- EACH 10-49
10S-02S	12.43	8.40	....	....	....	....	....	....
10S-02P	12.34	8.34	....	....	....	....	....	....
10SL-03S	6.23	4.21	....	....	10.93	7.39	8.07	5.45
10SL-04S	5.90	3.99	....	....	10.60	7.16	7.73	5.23
12S-03S	4.83	3.26	....	....	11.16	7.54	6.09	4.11
12S-03P	4.53	3.06	....	....	11.12	7.51	6.03	4.08
12S-06S	32.25	21.79	....	....	44.77	30.25	34.78	23.50
12S-06P	30.17	20.39	....	....	42.70	28.85	32.87	22.21
12SL-844S	13.30	8.99	....	....	20.00	13.51	....	....
12-05S	7.27	4.91	....	....	12.88	8.70	7.77	5.25
12-05P	6.77	4.58	....	....	12.32	8.33	7.18	4.85
14S-01S	5.37	3.63	6.40	4.33	11.01	7.44	6.03	4.08
14S-01P	5.24	3.54	6.38	4.31	10.93	7.39	5.88	3.98
14S-02S	5.61	3.79	6.73	4.55	11.16	7.54	6.33	4.28
14S-02P	5.20	3.51	6.35	4.29	10.90	7.36	5.85	3.95
14S-04S	9.92	6.70	12.30	8.31	21.18	14.31	11.34	7.66
14S-04P	9.75	6.59	11.77	7.95	20.72	14.00	10.99	7.43
14S-05S	6.03	4.08	7.18	4.85	11.69	7.90	6.57	4.44
14S-05P	5.83	3.94	6.85	4.63	11.40	7.70	6.38	4.31
14S-06S	6.09	4.11	7.25	4.90	11.82	7.99	6.75	4.56
14S-06P	6.03	4.08	7.18	4.85	11.69	7.90	6.57	4.44
14S-07S	5.37	3.63	6.40	4.33	11.01	7.44	6.03	4.08
14S-07P	5.24	3.54	6.38	4.31	10.93	7.39	5.88	3.98
14S-09S	5.00	3.38	6.09	4.11	10.67	7.21	5.79	3.91
14S-09P	4.98	3.36	6.07	4.10	10.66	7.20	5.61	3.79
16S-01S	6.73	4.55	8.27	5.59	14.76	9.98	7.86	5.31
16S-01P	6.03	4.08	7.73	5.23	14.10	9.53	7.22	4.88
16S-04S	6.18	4.18	8.10	5.48	15.17	10.25	7.36	4.98
16S-04P	5.83	3.94	7.77	5.25	14.82	10.01	7.14	4.83
16S-05S	5.83	3.94	7.47	5.05	13.78	9.31	6.92	4.68
16S-05P	5.61	3.79	7.36	4.98	13.65	9.23	6.75	4.56
16S-08S	6.07	4.10	7.77	5.25	14.12	9.54	7.25	4.90
16S-08P	5.85	3.95	7.53	5.09	13.80	9.33	7.07	4.78
16-09S	8.84	5.98	....	....	16.15	10.91	10.79	7.29
16-09P	7.86	5.31	....	....	15.30	10.34	9.81	6.63
16-10S	7.62	5.15	....	....	14.15	9.56	9.32	6.30
16-10P	6.75	4.56	....	....	13.39	9.05	8.55	5.78
16-11S	8.10	5.48	....	....	15.41	10.41	9.92	6.70
16-11P	7.10	4.80	....	....	14.41	9.74	8.97	6.06
16-13S	35.98	24.31	....	....	48.71	32.91	39.41	26.63
16-13P	31.10	21.01	....	....	43.92	29.68	34.23	23.13
18-01S	8.75	5.91	10.14	6.85	16.80	11.35	10.56	7.14

RECEPTACLES

Shell Style Insert	3100A EACH 1-9	3100A EACH 10-49	3101A EACH 1-9	3101A EACH 10-49	3102A EACH 1-9	3102A EACH 10-49	Total Contacts
18-01S	9.03	6.10	10.10	6.83	6.38	4.31	10
18-04P	6.73	4.55	7.73	5.23	4.20	2.84	4
18-04S	7.25	4.90	8.23	5.56	4.53	3.06	4
18-05P	7.14	4.83	8.27	5.59	4.20	2.84	3
18-05S	8.12	5.49	9.25	6.25	5.11	3.45	3
18-08P	8.25	5.58	9.32	6.30	5.79	3.91	8
18-08S	8.81	5.95	9.81	6.63	6.33	4.28	8
18-11P	8.07	5.45	9.03	6.10	5.37	3.63	5
18-11S	8.25	5.58	9.32	6.30	5.79	3.91	5
18-12P	7.47	5.05	8.55	5.78	4.87	3.29	6
18-12S	8.07	5.45	9.03	6.10	5.37	3.63	6
18-13P	15.69	10.60	17.65	11.93	10.73	7.25	4
18-19P	11.16	7.54	12.32	8.33	8.75	5.91	10
18-19S	9.25	6.25	10.14	6.85	6.55	4.43	10
18-20P	8.10	5.48	9.14	6.18	5.00	3.38	5
18-20S	8.57	5.79	9.75	6.59	5.61	3.79	5
18-22P	7.36	4.98	8.57	5.79	4.59	3.10	3
18-22S	8.10	5.48	9.14	6.18	5.00	3.38	3
18-29P	14.13	9.55	16.08	10.86	8.86	5.99	5
18-29S	14.13	9.55	16.08	10.86	8.86	5.99	5
20-04P	8.27	5.59	8.94	6.04	5.24	3.54	4
20-04S	9.53	6.44	10.12	6.84	6.40	4.33	4
20-06P	14.52	9.81	15.63	10.56	8.60	5.81	3
20-06S	14.89	10.06	15.91	10.75	8.71	5.89	3
20-07P	8.27	5.59	8.94	6.04	5.24	3.54	8
20-07S	9.10	6.15	9.62	6.50	6.03	4.08	8
20-08P	18.54	12.53	19.76	13.35	12.47	8.43	6
20-08S	21.61	14.60	22.81	15.41	15.63	10.56	6
20-11P	20.72	14.00	21.70	14.66	14.52	9.81	13
20-11S	31.71	21.43	32.80	22.16	25.70	17.36	13
20-15P	9.27	6.26	9.75	6.59	6.09	4.11	7
20-15S	12.51	8.45	13.12	8.86	9.49	6.41	7
20-16P	9.32	6.30	9.81	6.63	6.33	4.28	9
20-16S	9.90	6.69	10.45	7.06	6.85	4.63	9
20-17P	10.32	6.98	10.82	7.31	6.77	4.58	6
20-17S	12.47	8.43	13.14	8.88	9.03	6.10	6
20-18P	10.82	7.31	11.56	7.81	7.36	4.98	9
20-18S	11.97	8.09	12.51	8.45	8.57	5.79	9
20-21P	17.58	11.88	18.54	12.53	11.47	7.75	9
20-21S	18.50	12.50	19.72	13.33	12.43	8.40	9
20-22P	11.91	8.05	12.47	8.43	8.38	5.66	6
20-22S	14.04	9.49	14.71	9.94	10.64	7.19	6
20-24P	17.98	12.15	18.85	12.74	11.77	7.95	4
20-24S	22.27	15.05	23.24	15.70	16.11	10.89	4
20-27P	9.53	6.44	10.12	6.84	6.40	4.33	14
20-27S	10.45	7.06	11.01	7.44	7.38	4.99	14
20-29P	10.40	7.03	10.90	7.36	7.25	4.90	17
20-29S	11.47	7.75	11.97	8.09	8.27	5.59	17
20-33P	11.56	7.81	12.15	8.21	8.10	5.48	11
20-33S	11.84	8.00	12.43	8.40	8.29	5.60	11
22-01P	10.64	7.19	11.12	7.51	6.42	4.34	2
22-01S	12.32	8.33	12.88	8.70	8.27	5.59	2
22-04P	20.33	13.74	21.35	14.43	13.26	8.96	4
22-04S	23.11	15.61	24.03	16.24	16.08	10.86	4
22-05P	18.93	12.79	20.13	13.60	11.90	8.04	6
22-05S	19.17	12.95	20.17	13.63	12.30	8.31	6
22-08P	16.08	10.86	17.04	11.51	8.86	5.99	2
22-08S	20.29	13.71	21.22	14.34	13.17	8.90	2
22-10P	16.96	11.46	17.65	11.93	9.75	6.59	4
22-10S	17.58	11.88	18.50	12.50	10.55	7.13	4
22-11P	15.63	10.56	16.65	11.25	8.60	5.81	2
22-11S	16.96	11.46	17.65	11.93	9.75	6.59	2
22-12P	20.33	13.74	21.35	14.43	13.26	8.96	5
22-14P	11.66	7.88	11.97	8.09	7.88	5.33	19
22-14S	13.25	8.95	13.75	9.29	9.62	6.50	19
22-19P	11.40	7.70	11.88	8.03	7.77	5.25	14
22-19S	11.66	7.88	11.97	8.09	7.88	5.33	14
22-20P	11.12	7.51	11.67	7.89	7.10	4.80	9
22-20S	11.67	7.89	12.19	8.24	7.57	5.11	9
22-23P	12.47	8.43	13.12	8.86	8.38	5.66	8
22-23S	16.00	10.81	16.63	11.24	11.97	8.09	8
22-27P	12.32	8.33	12.88	8.70	8.27	5.59	9
22-27S	13.30	8.99	13.80	9.33	9.25	6.25	9
22-28P	20.61	13.93	21.44	14.49	13.52	9.14	7
22-28S	28.47	19.24	29.40	19.86	21.35	14.43	7
22-34P	18.85	12.74	19.81	13.39	11.77	7.95	5
22-34S	19.76	13.35	20.61	13.93	12.47	8.43	5
24-02P	11.73	7.93	11.82	7.99	7.47	5.05	7
24-02S	14.15	9.56	14.23	9.61	9.92	6.70	7
24-05P	14.62	9.88	14.71	9.94	9.82	6.64	16
24-05S	16.47	11.13	16.48	11.14	11.67	7.89	16
24-06P	23.85	16.11	23.90	16.15	15.37	10.39	8
24-06S	30.97	20.93	31.10	21.01	22.81	15.41	8
24-07P	13.62	9.20	13.65	9.23	9.32	6.30	16

MATING PLUGS

Shell Style Insert	3106A EACH 1-9	3106A EACH 10-49	3106B EACH 1-9	3106B EACH 10-49	3108A EACH 1-9	3108A EACH 10-49	3108B EACH 1-9	3108B EACH 10-49
18-01P	7.88	5.33	9.49	6.41	16.11	10.89	9.81	6.63
18-04S	6.85	4.63	8.27	5.59	15.08	10.19	8.79	5.94
18-04P	6.35	4.29	7.86	5.31	14.43	9.75	8.23	5.56
18-05S	7.62	5.15	9.29	6.28	16.89	11.41	9.82	6.64
18-05P	6.75	4.56	8.38	5.66	15.87	10.73	8.84	5.98
18-08S	8.55	5.79	10.10	6.83	16.71	11.29	10.43	7.05
18-08P	7.88	5.33	9.49	6.41	16.11	10.89	9.81	6.63
18-11S	7.88	5.33	9.49	6.41	16.11	10.89	9.81	6.63
18-11P	7.62	5.15	9.25	6.25	15.84	10.70	9.53	6.44
18-12S	7.62	5.15	9.25	6.25	15.84	10.70	9.53	6.44
18-12P	7.18	4.85	8.75	5.91	15.26	10.31	9.03	6.10
18-13S	17.04	11.51	20.13	13.60	32.87	22.21	20.72	14.00
18-19S	8.79	5.94	10.40	7.03	16.98	11.48	10.67	7.21
18-19P	10.90	7.36	12.41	8.39	19.04	12.86	12.80	8.65
18-20S	8.12	5.49	9.82	6.64	17.32	11.70	10.32	6.98
18-20P	7.57	5.11	9.27	6.26	16.78	11.34	9.81	6.63
18-22S	7.57	5.11	9.27	6.26	16.78	11.34	9.81	6.63
18-22P	7.09	4.79	8.75	5.91	16.11	10.89	9.14	6.18
18-29S	13.26	8.96	16.15	10.91	29.40	19.86	17.08	11.54
18-29P	13.26	8.96	16.15	10.91	29.40	19.86	17.08	11.54
20-04S	10.43	7.05	11.66	7.88	18.81	12.71	12.19	8.24
20-04P	9.27	6.26	10.43	7.05	17.61	11.90	10.93	7.39
20-06S	16.65	11.25	18.74	12.66	32.87	22.21	19.81	13.39
20-06P	16.11	10.89	18.50	12.50	36.23	22.05	19.72	13.33
20-07S	9.92	6.70	11.12	7.51	18.35	12.40	11.69	7.90
20-07P	9.27	6.26	10.43	7.05	17.61	11.90	10.93	7.39
20-08S	23.24	15.70	25.60	17.30	39.50	26.69	26.68	18.03
20-08P	20.29	13.71	22.66	15.31	36.67	24.78	23.74	16.04
20-11S	33.26	22.48	35.67	24.10	49.80	33.65	36.67	24.78
20-11P	22.40	15.14	24.48	16.54	38.68	26.14	25.70	17.36
20-15S	13.41	9.06	14.62	9.88	21.85	14.76	15.15	10.24
20-15P	10.12	6.84	11.16	7.54	18.44	12.46	11.82	7.99
20-16S	10.86	7.34	11.90	8.04	19.17	12.95	12.43	8.40
20-16P	10.14	6.85	11.21	7.58	18.56	12.54	11.88	8.03
20-17S	13.41	9.06	14.78	9.99	22.92	15.49	15.41	10.41
20-17P	11.34	7.66	12.47	8.43	20.68	13.98	13.14	8.88
20-18S	13.02	8.80	14.28	9.65	22.35	15.10	14.71	9.94
20-18P	11.84	8.00	13.14	8.88	21.22	14.34	13.75	9.29
20-21S	20.17	13.63	22.40	15.14	36.50	24.66	23.31	15.75
20-21P	19.17	12.95	21.44	14.49	35.67	24.10	22.66	15.31
20-22S	14.99	10.13	16.35	11.05	24.46	16.53	16.95	11.45
20-22P	12.80	8.65	14.08	9.51	22.26	15.04	14.78	9.99
20-24S	23.90	16.15	26.05	17.60	40.07	27.08	26.92	18.19
20-24P	19.72	13.33	21.70	14.66	35.93	24.28	22.85	15.44
20-27S	11.21	7.58	12.43	8.40	19.72	13.33	13.02	8.80
20-27P	10.43	7.05	11.66	7.88	18.81	12.71	12.88	8.70
20-29S	12.34	8.34	13.58	9.18	20.72	14.00	14.10	9.53
20-29P	11.14	7.53	12.34	8.34	19.65	13.28	12.88	8.70
20-33S	12.80	8.65	14.04	9.49	22.16	14.98	14.71	9.94
20-33P	12.43	8.40	13.75	9.29	21.94	14.83	14.32	9.68
22-01S	12.32	8.33	13.95	9.43	22.68	15.33	14.78	9.99
22-01P	10.64	7.19	12.15	8.21	20.79	14.05	12.88	9.70
22-04S	23.11	15.61	26.01	17.58	41.07	27.75	27.45	18.55
22-04P	20.33	13.74	23.24	15.70	38.44	25.98	24.48	16.54
22-05S	19.17	12.95	21.89	14.79	37.07	25.05	23.31	15.75
22-05P	18.93	12.79	21.79	14.73	37.30	25.20	23.24	15.70
22-08S	20.29	13.71	23.11	15.61	38.35	25.91	24.42	16.50
22-08P	16.08	10.86	18.85	12.74	34.11	23.05	20.29	13.71
22-10S	17.58	11.88	20.33	13.74	35.67	24.10	21.70	14.66
22-10P	16.96	11.46	19.76	13.35	34.78	23.50	21.18	14.31
22-11S	16.96	11.46	19.76	13.35	34.78	23.50	21.18	14.31
22-11P	15.63	10.56	18.50	12.50	33.69	22.76	19.81	13.39
22-12S	23.74	16.04	26.57	17.95	41.77	28.23	27.64	18.68
22-14S	13.25	8.95	14.76	9.98	22.53	15.23	15.45	10.44
22-14P	11.66	7.88	13.02	8.80	20.89	14.11	13.75	9.29
22-19S	11.66	7.88	13.02	8.80	20.89	14.11	13.75	9.29
22-19P	11.40	7.70	12.88	8.70	20.57	13.90	13.62	9.20
22-20S	11.67	7.89	13.30	8.99	22.03	14.89	14.04	9.49
22-20P	11.12	7.51	12.80	8.65	21.48	14.51	13.65	9.23
22-23S	16.00	10.81	17.70	11.96	26.38	17.83	18.54	12.53
22-23P	12.47	8.43	14.08	9.51	22.92	15.49	14.97	10.11
22-27S	13.30	8.99	14.97	10.11	23.61	15.95	15.78	10.66
22-27P	12.32	8.33	13.95	9.43	22.68	15.33	14.78	9.99
22-28S	28.47	19.24	31.17	21.06	46.16	31.19	32.63	22.05
22-28P	20.61	13.93	23.31	15.75	38.52	26.03	24.83	16.78
22-34S	19.76	13.35	22.66	15.31	37.78	25.53	23.90	16.15
22-34P	18.85	12.74	21.70	14.66	36.91	24.94	23.11	15.61
24-02S	14.34	9.69	14.82	10.01	24.36	16.46	15.67	10.59
24-02P	11.90	8.04	12.69	8.58	21.90	14.80	13.25	8.95
24-05S	16.69	11.28	19.63	13.26	27.82	18.80	18.19	12.29
24-05P	14.82	10.01	17.80	12.03	26.03	17.59	16.35	11.05
24-06S	31.32	21.16	36.50	24.66	50.88	34.37	33.91	22.91
24-06P	24.16	16.33	29.40	19.86	43.60	29.46	26.79	18.10
24-07S	14.91	10.08	17.52	11.84	24.83	16.78	16.19	10.94

RECEPTACLES

MATING PLUGS

Shell Style	3100A- EACH		3101A- EACH		3102A- EACH		Total Con-	Shell Style	3106A- EACH		3106B- EACH		3108A- EACH		3108B- EACH	
Insert	1-9	10-49	1-9	10-49	1-9	10-49	tacts	Insert	1-9	10-49	1-9	10-49	1-9	10-49	1-9	10-49
24-07S	14.71	9.94	14.76	9.98	10.43	7.05	16	24-07P	13.78	9.31	16.47	11.13	23.68	16.00	15.15	10.24
24-09P	22.66	15.31	22.81	15.41	14.36	9.70	2	24-09S	25.60	17.30	30.53	20.63	44.84	30.30	28.03	18.94
24-09S	25.05	16.93	25.12	16.98	16.96	11.46	2	24-09P	22.98	15.53	28.03	18.94	42.40	28.65	25.60	17.30
24-10P	14.63	9.89	19.06	12.88	14.28	9.65	7	24-10S	22.03	14.89	24.86	16.80	33.15	22.40	23.57	15.93
24-10S	21.90	14.80	21.94	14.83	17.89	12.09	7	24-10P	19.20	12.98	22.16	14.98	30.38	20.53	20.68	13.98
24-11P	14.43	9.75	14.62	9.88	10.32	6.98	9	24-11S	18.63	12.59	21.22	14.34	28.56	19.30	19.98	13.50
24-11S	18.41	12.44	18.44	12.46	14.15	9.56	9	24-11P	14.76	9.98	17.35	11.73	24.75	16.73	16.00	10.81
24-12P	29.43	19.89	29.66	20.04	21.22	14.34	5	24-12S	35.74	24.15	40.98	27.69	55.26	37.34	38.35	25.91
24-12S	35.32	23.86	35.35	23.89	26.88	18.16	5	24-12P	29.97	20.25	35.09	23.71	49.25	33.28	32.60	22.03
24-19P	25.40	17.16	25.60	17.30	17.08	11.54	12	24-19S	27.53	18.60	32.63	22.05	46.97	31.74	30.08	20.33
24-19S	26.88	18.16	26.92	18.19	18.74	12.66	12	24-19P	25.79	17.43	30.97	20.93	45.23	30.56	28.47	12.94
24-20P	13.65	9.23	13.71	9.26	8.81	5.95	11	24-20S	13.95	9.43	16.95	11.45	25.10	16.96	15.43	10.43
24-20S	13.75	9.29	13.80	9.33	8.97	6.06	11	24-20P	13.80	9.33	16.78	11.34	24.88	16.81	15.34	10.36
24-22 P	15.43	10.43	15.45	10.44	10.66	7.20	4	24-22S	19.41	13.11	22.35	15.10	30.60	20.68	20.83	14.08
24-22S	19.15	19.24	19.20	12.98	14.41	9.74	4	24-22P	15.78	10.66	18.72	12.65	26.94	18.20	17.22	11.64
24-21P	23.74	16.04	23.85	16.11	15.34	10.36	10	24-21S	25.79	17.43	30.97	20.93	45.23	30.56	28.47	19.24
24-21S	25.40	17.16	25.60	17.30	17.08	11.54	10	24-21P	25.60	17.30	27.20	18.38	43.25	29.23	26.68	18.03
24-27P	20.29	13.71	20.33	13.74	11.90	8.04	7	24-27S	21.35	14.43	26.57	17.95	40.94	27.66	23.90	16.15
24-27S	20.83	14.08	21.18	14.31	12.47	8.43	7	24-27P	20.72	14.00	25.79	17.43	40.02	27.04	23.24	15.70
24-28P	14.23	9.61	14.32	9.68	10.10	6.83	24	24-28S	16.34	11.04	18.98	12.83	26.38	17.83	17.61	11.90
24-28S	16.11	10.89	16.19	10.94	11.88	8.03	24	14-28P	14.43	9.75	16.98	11.48	24.46	16.53	15.84	10.70
28-01P	29.16	19.70	32.02	21.64	21.35	14.43	1	28-01S	38.35	25.91	41.03	27.73	57.54	38.88	41.24	27.86
28-01S	37.30	25.20	40.02	27.04	29.43	19.89	9	28-01P	30.17	20.39	32.87	22.21	49.38	33.36	33.15	22.40
28-02P	14.97	10.11	16.63	11.24	10.45	7.06	14	28-02S	16.63	11.24	18.19	12.29	27.71	18.73	18.26	12.34
28-02S	15.89	10.74	17.56	11.86	11.56	7.81	14	28-02P	15.48	10.46	17.09	11.55	26.53	17.93	17.32	11.70
28-03P	26.84	18.14	29.73	20.09	18.93	12.79	3	28-03S	29.66	20.04	32.28	21.81	48.71	32.91	32.63	22.05
28-03S	28.64	19.35	31.32	21.16	20.72	14.00	3	28-03P	27.84	18.81	30.53	20.63	47.21	31.90	30.97	20.93
28-06P	18.19	12.29	19.68	13.30	13.71	9.26	3	28-06S	20.83	14.08	22.50	15.20	31.97	21.60	22.66	15.31
28-06S	20.31	13.73	22.00	14.86	15.84	10.70	12	28-06P	18.74	12.66	20.31	13.73	29.77	20.11	20.52	13.86
28-08P	26.01	17.58	28.90	19.53	18.19	12.29	12	28-08S	27.84	18.81	30.53	20.63	47.21	31.90	30.97	20.93
28-08S	26.84	18.14	29.73	20.09	18.93	12.79	12	28-08P	26.88	18.16	29.73	20.09	46.12	31.16	30.08	20.33
28-09P	27.53	18.60	30.27	20.45	19.76	13.35	12	28-09S	31.10	21.01	33.78	22.83	50.30	33.99	34.11	23.05
28-09S	30.08	20.33	32.87	22.21	22.27	15.05	12	28-09P	28.64	19.35	31.17	21.06	47.79	32.29	31.64	21.38
28-10P	31.80	21.49	34.30	23.18	24.73	16.71	7	28-10S	40.94	27.66	48.67	32.89	58.35	39.43	43.60	29.46
28-10S	40.02	27.04	42.66	28.83	33.12	22.38	7	28-10P	32.69	22.09	35.19	23.78	50.02	33.80	35.28	23.84
28-11P	15.15	10.24	16.63	11.24	11.12	7.51	22	28-11S	18.91	12.78	20.26	13.69	28.84	19.49	20.50	13.85
28-11S	18.35	12.40	19.74	13.34	14.32	9.68	22	28-11P	15.63	10.56	17.04	11.51	25.57	17.28	17.17	11.60
28-12P	15.67	10.59	17.17	11.60	11.73	7.93	26	28-12S	18.91	12.78	20.26	13.69	28.84	19.49	20.50	13.85
28-12S	18.35	12.40	19.74	13.34	14.32	9.68	26	28-12P	16.28	11.00	15.73	10.63	26.12	17.65	17.80	12.03
28-15P	17.61	11.90	19.15	12.94	13.65	9.23	35	28-15S	21.00	14.19	22.22	15.01	30.78	20.80	22.50	15.20
28-15S	20.28	13.70	21.85	14.76	16.34	11.04	35	28-15P	18.20	12.30	19.65	13.28	28.01	18.93	19.72	13.33
28-16P	15.50	10.48	17.04	11.51	11.66	7.88	20	28-16S	16.28	11.00	17.61	11.90	26.12	17.65	17.80	12.03
28-16S	15.67	10.59	17.17	11.60	11.73	7.93	20	28-16P	16.11	10.89	17.52	11.84	25.96	17.54	17.61	11.90
28-17P	25.70	17.36	28.64	19.35	17.96	12.14	15	28-17S	28.64	19.35	31.17	21.06	47.79	32.29	31.64	21.38
28-17S	27.53	18.60	30.27	20.45	19.76	13.35	15	28-17P	26.79	18.10	29.43	19.89	45.86	30.99	29.43	19.89
28-18P	14.32	9.68	15.89	10.74	10.23	6.91	12	28-18S	16.15	10.91	17.80	12.03	27.27	18.43	17.95	12.13
28-18S	15.48	10.46	17.32	11.70	11.12	7.51	12	28-18P	14.97	10.11	16.48	11.14	26.03	17.59	16.69	11.28
28-19P	25.12	16.98	28.03	18.94	17.43	11.78	10	28-19S	31.71	21.43	34.23	23.13	50.91	34.40	34.74	23.48
28-19S	30.53	20.63	33.37	22.55	22.85	15.44	10	28-19P	26.40	17.84	29.05	19.63	45.60	30.81	29.40	19.86
28-20P	15.26	10.31	16.78	11.34	11.16	7.54	14	28-20S	17.52	11.84	18.91	12.78	27.40	18.51	19.04	12.86
28-20S	16.98	11.48	18.41	12.44	12.95	8.75	14	28-20P	15.84	10.70	17.17	11.60	25.70	17.36	17.35	11.73
28-21P	18.20	12.30	19.68	13.30	14.15	9.56	37	28-21S	21.20	14.33	22.57	15.25	31.01	20.95	22.74	15.36
28-21S	20.57	13.90	22.11	14.94	16.71	11.29	37	28-21P	18.72	12.65	20.07	13.56	28.56	19.30	20.26	13.69
32-05P	21.20	14.33	22.66	15.31	16.15	10.91	2	32-05S	27.10	18.31	27.42	18.53			28.58	19.31
32-05S	23.55	15.91	24.79	16.75	18.54	12.53	2	32-05P	24.77	16.74	24.86	16.80		—	26.27	17.75
32-06P	20.28	13.70	21.66	14.64	15.97	10.79	23	32-06S	32.17	21.74	32.34	21.85			33.54	22.66
32-06S	28.90	19.53	30.27	20.45	24.53	16.58	23	32-06P	23.55	15.91	23.68	16.00		—	24.88	16.81
32-07P	37.41	25.28	40.02	27.04	29.05	19.63	35	32-07S	54.17	36.60	54.37	36.74			56.72	38.33
32-07S	47.79	32.29	50.30	33.99	39.15	26.45	35	32-07P	43.92	29.68	44.27	29.91		—	46.16	31.19
32-08P	21.09	14.25	22.44	15.16	16.71	11.29	30	32-08S	24.59	16.61	24.79	16.75			25.94	17.53
32-08S	21.44	14.49	22.70	15.34	16.98	11.48	30	32-08P	24.29	16.41	24.46	16.53		—	25.59	17.29
32-13P	19.52	13.19	21.00	14.19	14.62	9.88	23	32-13S	25.94	17.53	26.10	17.64			27.34	18.48
32-13S	22.26	15.04	23.74	16.04	17.35	11.73	23	32-13P	23.05	15.58	23.35	15.78		—	24.55	16.59
32-17P	46.08	31.14	48.67	32.89	37.41	25.28	4	32-17S	56.80	38.38	57.07	38.56			59.39	40.13
32-17S	50.47	34.10	53.02	35.83	41.90	28.31	4	32-17P	52.50	35.48	52.74	35.64		—	54.98	37.15
32-414P	32.65	22.06	34.17	23.09	27.81	18.79	52	32-414S	47.25	31.93	47.38	32.01			48.71	32.91
32-414S	43.64	29.49	45.08	30.46	38.59	26.08	52	32-414P	36.24	24.49	36.43	24.61		—	37.76	25.51
36-01P	38.68	26.14	39.96	27.00	26.01	17.58	22	36-01S	53.63	36.24	54.59	36.89			57.54	38.88
36-07P	30.75	20.78	31.30	21.15	23.38	15.80	47	36-07S	36.83	24.89	37.46	25.31		—	39.07	26.40
36-07S	33.89	22.90	34.56	23.35	26.49	17.90	47	36-07P	33.52	22.65	34.23	23.13			35.91	24.26
36-08P	51.62	34.88	52.85	35.71	38.87	26.26	47	36-08S	60.37	40.79	61.49	41.55		—	64.23	43.40
36-08S	55.30	37.36	56.57	38.23	42.51	28.73	47	36-08P	56.80	38.38	57.78	39.04			60.61	40.95
36-09P	61.49	41.55	62.77	42.41	48.67	32.89	31	36-09S	79.61	53.79	80.55	54.43		—	83.55	56.45
36-09S	74.50	50.34	75.81	51.23	61.81	41.76	31	36-09P	66.67	45.05	67.69	45.74			70.32	47.51
36-10P	26.12	17.65	26.71	18.05	19.65	13.28	48	36-10S	30.82	20.83	31.45	21.25		—	32.82	22.18
36-10S	28.25	19.09	28.86	19.50	21.66	14.64	48	36-10P	28.77	19.44	29.29	19.79			30.78	20.80
36-15P	43.14	29.15	44.53	30.09	30.43	20.56	35	36-15S	52.63	35.56	53.63	36.24		—	56.57	38.23
36-15S	47.43	32.05	48.67	32.89	34.74	23.48	35	36-15P	48.40	32.70	49.38	33.36			52.36	35.38
36-403P	61.49	41.55	62.77	42.41	48.67	32.89	52	36-403S	87.60	59.19	88.82	60.01		—	91.54	61.85
36-403S	82.40	55.68	83.81	56.63	69.75	47.13	52	36-403P	66.67	45.05	67.69	45.74			70.32	47.51

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

17D SUBMINIATURE RACK AND PANEL CONNECTORS

Amphenol
An ALLIED Company

Amphenol 117D Subminiture connectors are a complete family of rectangular connectors with D-shaped polarization. Two piece and monoblock insulators, five shell sizes, five contact positions. 117D are used for low cost commercial applications. Insulator: Two piece while polyamide 6.6 UL 94 VO rated Shell: Steel yellow chromated over zinc. Contacts: Screw machined. Male: brass Female: bronze Plating: Gold over nickel. Nominal voltage 300 V eff at 50 Hz Current rating: 7.5A.

Fig. A

Fig. B

Fig. C

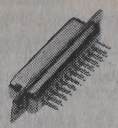
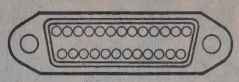
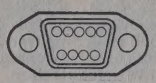


Fig. D

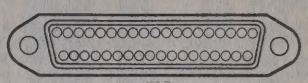
CONTACT ARRANGEMENTS



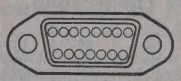
25 Contacts



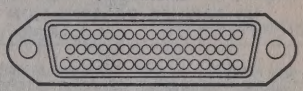
9 Contacts



37 Contacts



15 Contacts



50 Contacts

FIXED CONTACT SOLDER POT—FIG. A

PLUG

Stk. No.	P/N	Contact	1-24	25-49	50-99	100-249
81F5171	DE9P	9	2.12	1.95	1.61	1.28
81F5172	DA15P	15	2.99	2.76	2.28	1.80
81F5173	DB25P	25	4.38	4.04	3.34	2.64
81F5174	DC37P	37	6.01	5.54	4.58	3.62
81F5175	DD50P	50	7.91	7.30	6.03	4.76
		RECEPTACLE				
81F5176	DE9S		3.00	2.77	2.29	1.81
81F5177	DA15S		4.45	4.11	3.39	2.68
81F5178	DB25S		6.93	6.40	5.29	4.17
81F5179	DC37S		9.85	9.08	7.51	5.93
81F5180	DD50S		12.98	11.97	9.89	7.82

FIXED CONTACT WIRE WRAP—FIG. B

PLUG

Stk. No.	P/N	Contacts	1-24	25-49	50-99	100-249
81F5181	DA15P-F179	15	4.56	4.21	3.48	2.75
81F5182	DB25P-F179	25	6.70	6.18	5.11	4.03
81F5183	DC37P-F179	37	9.59	8.85	7.31	5.78
		RECEPTACLE				
81F5184	DA15S-F179	15	6.86	6.33	5.23	4.13
81F5185	DB25S-F179	25	10.00	9.24	7.63	6.03
81F5186	DC37S-F179	37	15.22	14.04	11.61	9.17

FIXED CONTACT RIGHT ANGLE DIP—FIG. C

PLUG

Stk. No.	P/N	CONTACTS	1-24	25-49	50-99	100-249
81F5187	DA15PC	15	6.37	5.88	4.86	3.48
81F5188	DB25PC	25	11.58	10.69	8.83	6.98
81F5189	DC37PC	37	14.12	13.03	10.76	8.50
		RECEPTACLE				
81F5190	DA15SC	15	9.10	8.40	6.94	5.48
81F5191	DB25SC	25	16.56	15.28	12.63	9.97
81F5192	DC37SC	37	20.82	19.21	15.87	12.54

ORIGINAL POKE-HOME CRIMP VERSION

Gold over copper plated silnic bronze contacts supplied.

Stk. No.	Type	Cont.	Des.	1-24	25-49	50-99	100-249
10F7879	17-20090-1	9	Plug	2.21	1.83	1.55	1.30
10F7880	17-20150-1	15	Plug	3.03	2.52	2.13	1.78
10F7881	17-20250-1	25	Plug	4.44	3.69	3.12	2.61
10F7882	17-20370-1	37	Plug	6.30	5.23	4.42	3.70
10F7883	17-20500-1	50	Plug	8.01	6.65	5.63	4.71
10F7884	17-10090-1	9	Rec.	2.89	2.40	2.03	1.70
10F7885	17-10150-1	15	Rec.	4.23	3.51	2.97	2.48
10F7886	17-10250-1	25	Rec.	6.27	5.21	4.41	3.68
10F7887	17-10370-1	37	Rec.	9.02	7.49	6.34	5.30
10F7888	17-10500-1	50	Rec.	11.49	9.54	8.07	6.75

ORIGINAL POKE-HOME SOLDER VERSION

Solder type contacts are gold-over-copper plated brass, rated 7.5 amps, −55°C to 125°C. Solder contacts are supplied loose with connectors.

Stk. No.	Type	Cont.	Des.	1-24	25-49	50-99	100-249
39F1370	17-20090	9	Plug	2.21	1.83	1.55	1.30
39F1371	17-20150	15	Plug	3.03	2.52	2.13	1.78
39F1372	17-20250	25	Plug	4.44	3.69	3.12	2.61
39F1373	17-20370	37	Plug	6.30	5.23	4.42	3.70
39F1374	17-20500	50	Plug	8.01	6.65	5.63	4.71
39F1360	17-10090	9	Rec.	2.89	2.40	2.03	1.70
39F1361	17-10150	15	Rec.	4.23	3.51	2.97	2.48
39F1362	17-10250	25	Rec.	6.27	5.21	4.41	3.68
39F1363	17-10370	37	Rec.	9.02	7.49	6.34	5.30
39F1364	17-10500	50	Rec.	11.49	9.54	8.07	6.75

See Page 400 for Tools and Accessories for 17D Series.

FIXED CONTACT PCB—FIG. D

PLUG

Stk. No.	P/N	Contacts	1-24	25-49	50-99	100-249
81F5195	DE9PV	9	3.40	3.14	2.59	2.05
81F5193	DA15PV	15	5.10	4.71	3.89	3.07
81F5194	DB25PV	25	9.27	8.55	7.07	5.58
81F5196	DC37PV	37	11.29	10.42	8.61	6.80
81F5197	DD50PV	50	14.95	13.79	11.40	9.00
		RECEPTACLE				
81F5198	DE9SV	9	4.69	4.33	3.57	2.82
81F5200	DA15SV	15	7.28	6.71	5.55	4.38
81F5202	DB25SV	25	13.25	12.22	10.10	7.98
81F5201	DC37SV	37	16.65	15.36	12.70	10.03
81F5199	DD50SV	50	22.24	20.52	16.96	13.40

SERIES 17 MIN RAC® CONNECTORS

Original Poke-Home. Removable crimp or solder Poke-Home contacts.
Rear Release. Crimp Poke-Home contacts, inserted & removed from rear of connector.
Encapsulated Contact. Removable crimp or solder Poke-Home contacts.
All have nylon insulators.
All MIN RAC 17 series connectors are interchangeable and intermateable with other similar "D" shaped or trapezoidal connectors. Crimps are uniform, easily inspected and can be made on machines producing 1,000 terminations per hour. Soldering is done away from connector, avoiding damage to dielectric. Then the contacts are easily inserted using only the amount needed. Connectors are field serviceable. Meets EIA Standard RS-232C for data communication connectors.

Contacts: Original poke-home: Gold over nickel plated copper alloy; Rear Release: nickel contact underplate, .00003" gold in critical area and .00005" on balance of contact; Encapsulated: gold over nickel plated copper alloy.

REAR RELEASE CONTACT

Crimp, snap-in contacts require no insertion tools. Rated @ 3-5 amps,* −55°C to 125°C. Dielectric-glass filled nylon. Wire Size: 22-26 AWG. Crimp type, insulation support, contacts are sold separately.

Stk. No.	Type	Cont.	Des.	1-24	25-49	50-99	100-249
38F907	8	17-91090-18	Plug	1.03	.86	.73	.61
38F908	15	17-91150-18	Plug	1.10	.92	.78	.65
38F909	25	17-91250-18	Plug	1.22	1.01	.83	.72
38F910	37	17-91370-18	Plug	1.53	1.22	.99	.90
38F911	50	17-91500-18	Plug	1.62	1.35	1.02	.95
38F902	9	17-81090-18	Rec.	1.03	.86	.73	.61
38F903	15	17-81150-18	Rec.	1.10	.92	.78	.65
38F904	25	17-81250-18	Rec.	1.18	.98	.86	.69
38F905	37	17-81370-18	Rec.	1.41	1.17	1.07	.83
38F906	50	17-81500-18	Rec.	1.46	1.21	1.14	.86

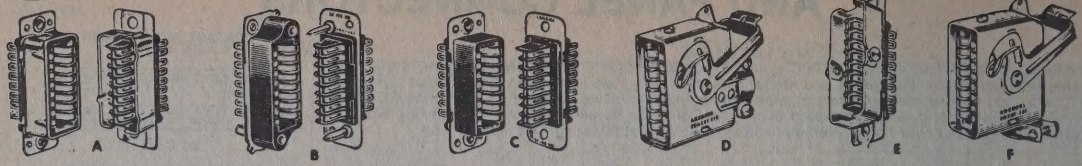
ENCAPSULATED CONTACT

No sleeving or potting of wires. Nylon dielectric between cont. Rated: −55 to 125°C; 7.5A. Poke-Home contacts supplied.

PLUG

Stk. No.	Contacts	Type	1-24	25-49	50-99	100-249
39F2111	9	17-20090-1(390)	2.33	1.93	1.63	1.37
39F2113	15	17-20150-1(390)	3.64	3.02	2.56	2.14
39F2115	25	17-20250-1(390)	4.70	3.90	3.30	2.76
39F2117	37	17-20370-1(390)	6.65	5.52	5.67	3.91
39F2119	50	17-20500-1(390)	8.46	7.02	5.94	4.97
39F2110	9	17-10090-1(390)	3.06	2.54	2.15	1.79
39F2112	15	17-10150-1(390)	4.47	3.71	3.14	2.62
39F2114	25	17-10250-1(390)	6.63	5.50	4.65	3.89
39F2116	37	17-10370-1(390)	9.64	8.00	6.77	5.66
39F2118	50	17-10500-1(390)	14.50	12.03	10.18	8.51

AMPHENOL BLUE RIBBON CONNECTORS



Barrier polarization type connectors are designed for interconnecting electronic sub-assemblies, circuit switching, rerouting and other multi-contact applications. Interlocking design of mating dielectric bodies provide positive polarization. The dimensional stability and high tensile strength of Amphenol Blue dielectric make this type of polarization possible. Float mounted receptacle corrects misalignment of plug and receptacle. Corrosion resistant, stainless steel molded-in mounting plates and housing. Rated: 5 amps, 800 volts DC at sea level, 300 volts at 70,000 ft. altitude. Av. Shpg. Wt. 3 oz.

(A) BARRIER POLARIZATION TYPE CONNECTORS

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
39FX130	26-182	8	4.41	3.73	3.04	2.74
42FX150	26-4100-8P	8	3.43	2.90	2.36	2.13
42FX151	26-4100-16P	16	4.54	3.83	3.13	2.82
42FX152	26-4100-24P	24	5.74	4.84	3.95	3.57
42FX153	26-4100-32P	32	6.97	5.89	4.81	4.33
			Female			
39FX131	26-183	8	4.95	4.18	3.41	3.07
42FX154	26-4200-8S	8	3.48	2.94	2.40	2.16
42FX155	26-4200-16S	16	5.41	4.57	3.72	3.36
42FX156	26-4200-24S	24	6.68	5.65	4.61	4.15
42FX157	26-4200-32S	32	8.20	6.92	5.66	5.10

(B) PIN POLARIZATION TYPE CONNECTORS

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
39FX132	26-159-16	16	5.75	4.86	3.97	3.58
39FX134	26-159-24	24	7.03	5.94	4.84	4.37
39FX136	26-159-32	32	8.99	7.59	6.20	5.58
			Female			
39FX133	26-190-16	16	7.21	6.09	4.98	4.48
39FX135	26-190-24	24	9.29	7.85	6.41	5.77
39FX137	26-190-32	32	11.03	9.32	7.61	6.86

(C) BARRIER POLARIZATION CONNECTORS WITH KEYED SHELLS

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
42FX182	26-4101-8P	8	5.59	4.72	3.85	3.48
42FX183	26-4101-16P	16	8.56	7.23	5.90	5.32
42FX184	26-4101-24P	24	10.17	8.58	7.01	6.32
42FX185	26-4101-32P	32	11.75	9.93	8.10	7.30
			Female			
42FX186	26-4201-8S	8	6.38	5.39	4.40	3.96
42FX187	26-4201-16S	16	8.91	7.53	6.14	5.54
42FX188	26-4201-24S	24	10.92	9.22	7.53	6.78
42FX189	26-4201-32S	32	12.90	10.89	8.89	8.01

(D) CABLE TYPE—END OUTLET—KEYED LOCK SHELLS

Mate with 4401 series plugs and sockets.

Male

Stk. No.	Type	Con.	1-9	10-49	50-99	100-249
42FX158	26-4301-8P	8	14.39	12.16	9.93	8.95
42FX159	26-4301-16P	16	18.32	15.47	12.63	11.38
42FX160	26-4301-24P	24	20.85	17.60	14.37	12.95
42FX161	26-4301-32P	32	23.31	19.69	16.08	14.48
			Female			
42FX162	26-4301-8S	8	17.49	14.78	12.06	10.86
42FX163	26-4301-16S	16	19.82	16.75	13.67	12.31
42FX164	26-4301-24S	24	23.43	19.80	16.16	14.56
42FX165	26-4301-32S	32	25.70	21.71	17.71	15.97

(E) CHASSIS TYPE—KEYED LATCH—LOCK SHELLS

Mate with 4301 and 4501 Series plugs and sockets.

Male

42FX166	26-4401-8P	8	8.44	7.13	5.82	5.25
42FX167	26-4401-16P	16	11.27	9.52	7.77	7.00
42FX168	26-4401-24P	24	12.94	10.94	8.93	8.05
42FX169	26-4401-32P	32	13.13	11.09	9.06	8.16
			Female			
42FX170	26-4401-8S	8	10.12	8.55	6.98	6.29
42FX171	26-4401-16S	16	12.73	10.76	8.78	7.91
42FX172	26-4401-24S	24	14.72	12.45	10.16	9.15
42FX173	26-4401-32S	32	16.91	14.28	11.66	10.51

(F) CABLE TYPE—SIDE OUTLET—KEYED LATCH LOCK SHELLS

Mate with 4401 Series plugs and sockets.

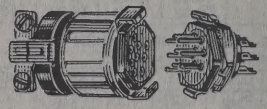
Male

42FX174	26-4501-8P	8	15.12	12.78	10.42	9.40
42FX175	26-4501-16P	16	18.26	15.43	12.60	11.35
42FX176	26-4501-24P	24	20.85	17.60	14.37	12.95
42FX177	26-4501-32P	32	23.31	19.69	16.08	14.48
			Female			
42FX178	26-4501-8S	8	16.16	13.66	11.15	10.04
42FX179	26-4501-16S	16	19.82	16.75	13.67	12.31
42FX180	26-4501-24S	24	22.68	19.16	15.64	14.08
42FX181	26-4501-32S	32	24.34	20.55	16.78	15.12

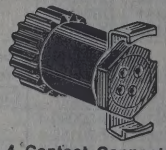
126 SERIES MINIATURE HEXAGONAL CONNECTORS

For inter-connecting miniature equipment. All contacts are size 20 (.040 Dia) except for one size 16 (.062 Dia) on 4 contact insert. Solder pockets accommodate #20 or smaller gauge wire. Overall diameter of connector is ¾". Total length is 1 5/64". A brass nut fastens connector to panel. Keying of connector body prevents rotation. Gold plate contacts can be soldered without pretinning. Rated for 500V (RMS) at 7.5 Amps.

126 SERIES MINIATURE HEXAGONAL CONNECTORS



Panel Mount Plug and Mating Cable Receptacle with Hood and Locking Sleeve (5-7-9 Contacts Only)



4 Contact Connector with Hood and Locking Clip #2

- **Keyed body connector prevents rotation**
- **Overall diameter is only ¾"**
- **For 20 gauge wire or smaller**

Stk. No.	Type	Contact	Description	1-49	50-99	100-249
42FX100	126-010	5	Chassis Plug	1.90	1.37	1.14
42FX101	126-011	5	Chassis Socket	2.76	1.99	1.66
42FX104	126-191	7	Chassis Plug	2.28	1.65	1.37
42FX105	126-192	7	Chassis Socket	3.48	2.52	2.10
42FX102	126-012	9	Chassis Plug	2.75	1.98	1.65
42FX103	126-013	9	Chassis Socket	4.37	3.16	2.63
42FX108	126-1063	Hood and clamp assembly		1.29	.94	.78
42FX109	126-1064-02	Locking sleeve for card conn.		.71	.52	.43
42FX110	126-1069-02	Clip retainer for chassis unit		.17	.12	.10

WITH HOOD AND CLAMP

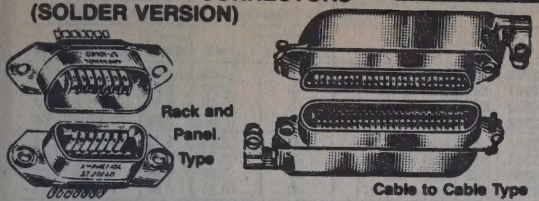
Stk. No.	Type	Cont.	Desc.	1-49	50-99	100-249
42FX119	126-215	4	Socket	3.29	2.38	1.98
42FX120	126-217	5	Plug	3.79	2.74	2.28
42FX121	126-223	5	Socket	4.67	3.37	2.81
42FX122	126-195	7	Plug	4.24	3.06	2.55
42FX123	126-196	7	Socket	5.51	3.98	3.32
42FX124	126-220	9	Plug	4.67	3.38	2.81
42FX125	126-222	9	Socket	6.35	4.59	3.82

WITH LOCKING CLIP

42FX112	126-214	4	Plug	2.11	1.52	1.27
42FX113	126-216	5	Plug	1.98	1.43	1.19
42FX114	126-218	5	Socket	2.91	2.10	1.75
42FX115	126-197	7	Plug	2.46	1.78	1.48
42FX116	126-198	7	Socket	3.73	2.70	2.25
42FX117	126-219	9	Plug	2.85	2.06	1.71
42FX118	126-221	9	Socket	4.57	3.31	2.75

Amphenol
An ALLIED Company

MICRO-RIBBON CONNECTORS (SOLDER VERSION)



RACK AND PANEL TYPE (Solder Tail)

Stk. No.	Type	Cont.	Descrip.	1-9	10-49	50-99	100-249
42F190	57-10140	14	Male	3.07	2.60	2.11	1.91
42F193	57-20140	14	Female	3.11	2.65	2.15	1.93
42F191	57-10240	24	Male	4.07	3.47	2.81	2.53
42F194	57-20240	24	Female	4.14	3.52	2.86	2.57
42F192	57-10360	36	Male	4.74	4.04	3.27	2.95
42F195	57-20360	36	Female	4.85	4.13	3.35	3.01
42F132	57-10500	50	Male	6.15	5.24	4.24	3.82
42F133	57-20500	50	Female	6.30	5.36	4.34	3.92

CABLE TO PANEL TYPE (Latch type; Top cable entry)

42F126	57-30140	14	Male	5.61	4.77	3.87	3.49
42F127	57-40140	14	Female	3.76	3.20	2.59	2.33
42F128	57-30240	24	Male	6.30	5.36	4.34	3.91
42F129	57-40240	24	Female	4.51	3.84	3.11	2.80
42F130	57-30360	36	Male	7.65	6.51	5.27	4.75
42F131	57-40360	36	Female	4.98	4.24	3.44	3.10
42F134	57-30500	50	Male	8.56	7.28	5.91	5.32
42F135	57-40500	50	Female	6.46	5.50	4.45	4.02

CABLE TO CABLE TYPE (Low Profile)

42F198	57-10500-7	50	Male	7.07	6.02	4.87	4.39
42F199	57-20500-7	50	Female	7.07	6.02	4.87	4.39

RACK AND PANEL TYPE (PC Tails)

40F6336	57-10140-4	14	Male	3.36	2.86	2.32	2.08
40F6337	57-20140-8	14	Female	3.83	3.26	2.64	2.38
40F6338	57-10240-3	24	Male	4.59	3.92	3.17	2.86
40F6339	57-20240-8	24	Female	4.71	4.00	3.25	2.92
40F6340	57-10360-13	36	Male	5.59	4.75	3.85	3.47
40F6341	57-20360-9	36	Female	5.74	4.88	3.95	3.56
40F6342	57-10500-27	50	Male	7.41	6.31	5.12	4.60
40F6343	57-20500-31	50	Female	7.51	6.39	5.17	4.66

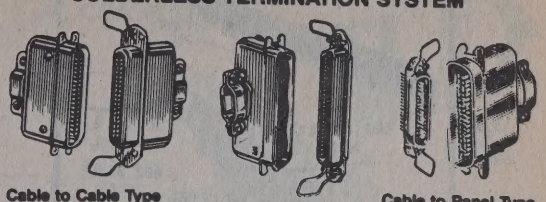
CABLE TO PANEL TYPE (Plug; Side cable entry)

40F6344	57-50140	14		7.52	6.41	5.19	4.68
40F6345	57-50240	24		8.44	7.19	5.82	5.25
40F6346	57-50360	36		9.09	7.73	6.27	5.65
40F6347	57-50500	50		10.30	8.76	7.10	6.40

CABLE TO CABLE TYPE (Receptacle)

40F6348	57-60140	14		6.14	5.22	4.23	3.81
40F6349	57-60240	24		7.99	6.80	5.51	4.96
40F6350	57-60360	36		8.50	7.24	5.86	5.28
40F6351	57-60500	50		10.31	8.77	7.11	6.41

SERIES 157 MICRO-PIERCE SOLDERLESS TERMINATION SYSTEM



Portable, solderless field termination system, unique insulation piercing contact permits fast, easy, reliable solderless termination. All mounting arrangements, panel cut-outs and dimensions are identical to the standard Series 57.

CABLE TO PANEL

Stk. No.	Type	Cont.	Description	1-9	10-49	50-99	100-249
40F6356	157-32140	14	Top cable entry plug	5.44	4.59	3.75	3.38
40F6357	157-32240	24	Top cable entry plug	6.09	5.15	4.20	3.79
40F6358	157-32360	36	Top cable entry plug	7.46	6.30	5.14	4.63
40F6359	157-32500	50	Top cable entry plug	8.36	7.06	5.77	5.19
40F6360	157-42140	14	Receptacle	3.65	3.09	2.52	2.27
40F6361	157-42240	24	Receptacle	4.42	3.73	3.04	2.74
40F6362	157-42360	36	Receptacle	4.88	4.12	3.37	3.03
40F6363	157-42500	50	Receptacle	6.31	5.33	4.35	3.92

CABLE TO CABLE RECEPTACLES

40F6364	157-62140	14	Top cable entry	5.99	5.06	4.13	3.72
40F6365	157-62240	24	Top cable entry	7.76	6.56	5.35	4.82
40F6366	157-62360	36	Top cable entry	8.28	6.99	5.71	5.14
40F6367	157-62500	50	Top cable entry	10.03	8.47	6.92	6.23

CABLE TO CABLE

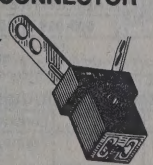
39F3600	157-72500-3	Plug-steel, low-profile hood	5.20	4.39	3.58	3.23
39F3601	157-82500-3	Receptacle, low-profile hood	5.20	4.39	3.58	3.23

TELE-PIERCE FIELD TERMINATOR

Type 356-246. Portable, hand operated. Capable of terminating up to 64 contacts in one operation. Termination is mechanically and electrically reliable, gas-tight, and has low resistance with no soldering required, including carrying case.

39F3608. Type 356-246. NET $500.00

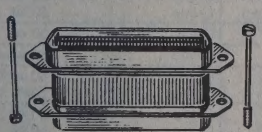
TEST TELEPHONE CONNECTOR



Provides access to any pair of quick-clip contacts in a "66 type" connecting block. TAC pushed into contact pair and test equipment or head phone is attached to the TAC's exposed contacts. 1.375"L x 1.437"W x .365"H. Black molded plastic body.

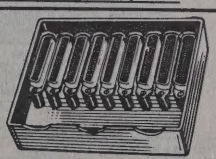
Stock No.	Type No.	1-24	25-99	100-499
61F1714	284-1	.63	.56	.50

DOUBLE-ENDED FEED-THROUGH ADAPTERS



Used to interconnect two plug-ended or two connector-ended cables; or to reverse direction of cable from connection. Since they help alleviate problems in cabling, they are called 'goof plugs'.

Stock No.	Type No.	Kind	1-24	25-99	100-499
61F1734	283-114-02	C-P	16.31	14.46	12.94
61F1742	283-114-03	P-P			
61F1750	283-114-04	P-P			
61F1725	283-114-05	C-C			



CROSS-OVER ADAPTERS

62-01. Interconnects 18-button phone with old wiring pattern to 3-fingered cable with new wiring pattern. 62-02. Interconnects 18-button phone with new wiring pattern to 3-fingered cable with old wiring pattern. 53-1. Mates with 3-finger connector-ended cable incoming from main terminal box or bridging adapter, extends circuit to two 18-button Call Directors by accepting 3-finger plug-ended cable from each.

Stk. No.	Type No.	1-24	25-99	100-499
61F1721	283-62-02-1	54.50	48.32	43.23
38F324	283-53-1	58.47	51.84	46.39

MODULAR TELEPHONE ADAPTER

50-pin plug wired to a 6 position modular jack. Allows single line, modular telephone sets to be connected without rewiring, to existing 50-pin connectors on running cable. Conversions in minutes.

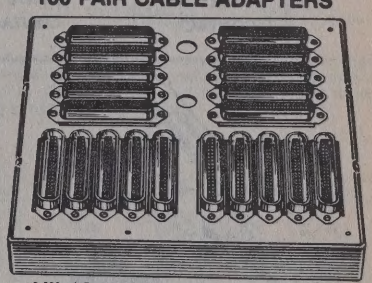
Stk. No.	Part No.	Application	1-24	25-99	100-499
38F325	285-168	Full Mod.	3.40	3.20	2.83

25 PAIR CABLE ADAPTERS

Three-way bridging adapters for 6-button telephones. Used to connect one or more 6-button type key telephones to 25 pair cables. **C-P-C:** mates with 25 pair connector-ended cable and extends circuit to two 6-button telephones by mating with plug-ended cable from each. **P-C-P:** interconnects one 25 pair connector-ended cable from main terminal box. 4¼"Lx2½"W x 2¼"H. .1=grey color. .2=beige color.

Stock No.	Type No.	Kind	1-24	25-99	100-499
61F1753	283-105-1	C-P-C	17.06	15.12	13.53
61F1740	283-106-1	P-C-P			

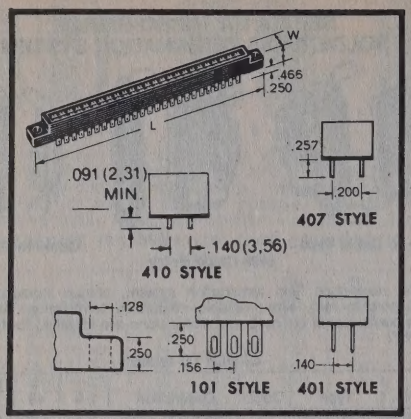
100 PAIR CABLE ADAPTERS



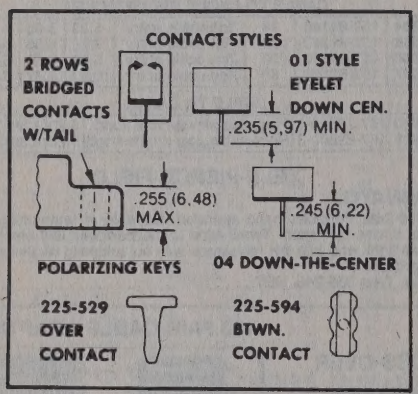
- **4-Way Bridging Adapters for 30-Button Key Telephones**

Contains twenty Series 57 Micro-Ribbon connecting devices. Every fifth one interwired to form 4 completely interconnected sets. Access holes for 5-fingered cables provided on sides of case. Outer Case: 9¼"L x 8¾"W x 2½"H.

Stock No.	Type No.	Kind	1-24	25-99	100-499
61F1744	283-95-1	CCCCC-CCCCC-PPPPP PPPPP	216.29	191.77	171.59



Connectors with short dip solder tails on .140" row spacing and dip solder tails with .200" row spacing terminations consist of the same economical materials and array of sizes (6 thru 43 positions) as the 225 Series solder eyelet connectors. **Specifications.** Operating voltage 600 VAC (RMS) at sea level; (50 VAC (RMS) at 70,000 ft. 5 amp current rating. Dielectric material is electrical grade black phenolic. Insulation resistance 5,000 megohms minimum. Copper alloy contacts with .000020" gold over copper. 30 mV maximum contact resistance at rated current. Board thickness .054" to .071".



10

SOLDER EYELET TERMINATION ON .140 ROW SPACING

Stk. No.	Type	Contact Positions	1-49	50-99	100-249	250-499
39F2350	225-20621-401(117)	6	1.90	1.54	1.21	1.08
39F2351	225-21021-401(117)	10	2.52	2.04	1.61	1.43
39F2352	225-21521-401(117)	15	3.15	2.55	2.01	1.78
39F2353	225-21821-401(117)	18	3.64	2.95	2.32	2.06
39F2354	225-22221-401(117)	22	3.86	3.12	2.49	2.19
39F2355	225-22821-401(117)	28	6.71	5.43	4.28	3.81
39F2356	225-23621-401(117)	36	7.21	5.83	4.59	4.09
39F2357	225-24321-401(117)	43	8.25	6.67	5.25	4.67

DIP SOLDER ON .200 ROW SPACING

39F2390	225-20621-407(117)	6	1.90	1.53	1.21	1.08
39F2391	225-21021-407(117)	10	2.52	2.04	1.60	1.43
39F2392	225-21521-407(117)	15	3.13	2.53	1.99	1.77
39F2393	225-21821-407(117)	18	3.60	2.92	2.30	2.04
39F2394	225-22221-407(117)	22	3.83	3.10	2.44	2.17
39F2395	225-22821-407(117)	28	6.69	5.41	4.26	3.79
39F2396	225-23621-407(117)	36	7.16	5.79	4.56	4.06

SOLDER EYELET TERMINATION

39F1482	225-20621-101	6	3.22	2.61	2.05	1.83
39F1485	225-21021-101	10	4.49	3.64	2.86	2.55
39F1488	225-21521-101	15	6.74	5.45	4.29	3.82
39F1491	225-21821-101	18	7.68	6.21	4.89	4.35
39F1494	225-22221-101	22	7.83	6.34	4.99	4.44
39F1497	225-22821-101	28	10.68	8.64	6.80	6.05
42F325	225-23621-101	36	14.37	11.62	9.15	8.14
42F326	225-24321-101	43	16.31	13.19	10.39	9.24

DIP SOLDER ON .140 ROW SPACING

40F000	225-20621-410(117)	6	1.90	1.53	1.21	1.08
40F001	225-21021-410(117)	10	2.52	2.04	1.60	1.43
40F002	225-21521-410(117)	15	3.11	2.51	1.98	1.76
40F003	225-21821-410(117)	18	3.60	2.91	2.29	2.04
40F004	225-22221-410(117)	22	3.83	3.10	2.44	2.17
40F005	225-22821-410(117)	28	6.68	5.41	4.26	3.79
40F006	225-23621-410(117)	36	7.16	5.79	4.56	4.06
40F007	225-24321-410(117)	43	8.19	6.63	5.22	4.64

SOLDER EYELET (Down the Center)

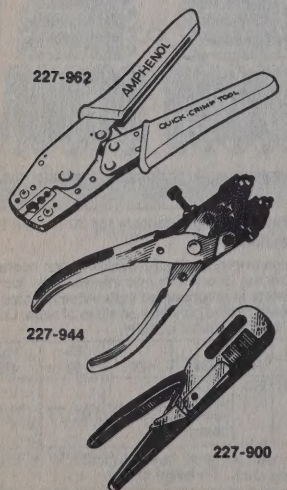
Stk. No.	Type	Contact Positions	1-49	50-99	100-249	250-499
40F6432	225-21051-401(117)	10	3.86	3.12	2.46	2.19
40F6433	225-21551-401(117)	15	5.60	4.53	3.57	3.17
40F6434	225-21851-401(117)	18	6.11	4.94	3.89	3.46
40F6435	225-22251-401(117)	22	7.07	5.72	4.50	4.01
40F6436	225-22851-401(117)	28	11.01	8.90	7.01	6.24
40F6437	225-23651-401(117)	36	13.31	10.77	8.48	7.55
40F6438	225-24351-401(117)	43	14.88	12.03	9.48	8.43

DIP SOLDER (Down the Center)

40F6439	225-21051-404(117)	10	3.75	3.03	2.39	2.12
40F6440	225021551-404(117)	15	5.30	4.29	3.38	3.01
40F6441	225-21851-404(117)	18	5.90	4.77	3.76	3.34
40F6442	225-22251-404(117)	22	6.00	5.51	4.34	3.86
40F6443	225-22851-404(117)	28	10.68	9.84	6.80	6.05
40F6444	225-23651-404(117)	36	12.91	10.44	8.22	7.32
40F6445	225-24351-404(117)	43	14.38	11.63	9.16	8.15

POLARIZING KEYS

Stk. No.	Type	500-999	1000-2499	2500-9999	10,000
40F6430	225-529	.06	.05	.05	.04
40F6431	225-594	.04	.04	.03	.03

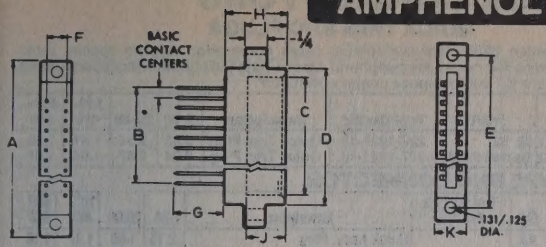


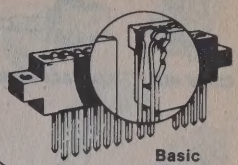
CRIMPING/INSERTION/REMOVAL TOOL GUIDE

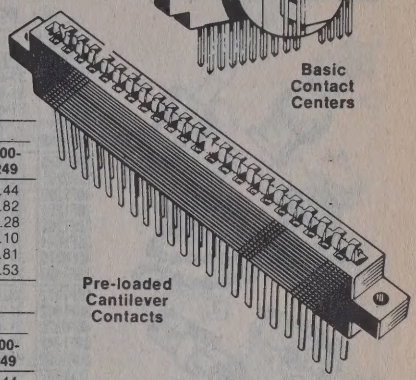
Stock No.	Type	For use with RG( )/U Cables	Series	Function	Each
57F3110	227-944	Frame only for all 227-1221-xx Die Sets		Frame only	117.52
61F1704	227-1221-57	55, 58, 141, 223, 303, 400	N	Crimp	50.44
61F1708	227-1221-59	59, 62, 140, 210	Braid	Crimp	50.44
61F1720	227-1221-29	5, 6, 21, 143, 212, 222, 304	&	Crimp	50.44
61F1728	227-1221-25	8, 9, 11, 87A, 149, 165, 213, 214, 216, 225, 393	Contact	Crimp	50.44
61F1713	227-1221-09	122, 174, 179, 180, 188, 195	BNC/TNC	Crimp	50.44
57F3111	227-1221-11	55, 58, 141, 142, 223, 303, 400	Braid	Crimp	50.44
57F3112	227-1221-13	59, 62, 140, 120	&	Crimp	50.44
61F1732	227-1221-15	71	Contact	Crimp	50.44
57F3111	227-1221-11	55, 58, 141, 142, 223, 303, 400	MHV	Crimp	50.44
57F3111	227-1221-11	58, 58, 141, 142, 223, 300, 400	UHF	Crimp	50.44
57F3112	227-1221-13	59, 62, 140, 210	Braid	Crimp	50.44
61F1717	227-1221-23	8, 11, 149, 213	Only	Crimp	50.44
61F1713	227-1221-09	122, 174, 179, 180, 187, 188, 195	SMA	Crimp	50.44
57F3111	227-1221-11	55, 58, 141, 142, 223, 303, 400		Crimp	50.44
38F1440	227-900	174, 179, 187, 188	Braid	Crimp	93.90
38F1441	227-901	180, 195	Only	Crimp	93.90
81F200	227-962	58, 59, 62, 62A, 40, 141, 210, 223, 303, 400	BNC/TNC	Crimp	119.00
61F1739	227-902	Adapter for 27-14			20.45
61F1735	227-913	Adapter for 27-4, 27-8, 27-10			10.30
61F1747	227-914	Adapter for 27-16, 27-20, 27-22			6.24
61F1705	357-564		32	Crimp	65.00
61F1743	356-228		32	Insert/Remove	21.75
39F3037	356-400-1	17-763		Insertion	15.00
39F3038	356-400-5	17-763		Removal	7.00

Amphenol
An ALLIED Company

SERIES 261 WIRE-WRAP PC CONNECTORS







.100" CENTER .025 SQUARE WIRE WRAP POST

Stock No.	Type	No. Contacts	Dimensions A	B	C	D	E	F	G	H	I	J	K	EACH 1-49	50-99	100-249
39F3350	261-10015-2	15	2.474	1.400	1.720	1.874	2.156							3.66	2.93	2.44
39F3351	261-10018-2	18	2.774	1.700	2.020	2.174	2.458							4.23	3.38	2.82
39F3352	261-10022-2	22	3.174	2.100	2.420	2.574	2.856	.200	.615	.735	.494	.460	.348	4.92	3.94	3.28
39F3353	261-10030-2	30	3.974	2.900	3.220	3.374	3.656							6.15	4.92	4.10
39F3354	261-10036-2	36	4.574	3.500	3.820	3.974	4.256							7.22	5.77	4.81
39F3355	261-10043-2	43	5.274	4.200	4.520	4.674	4.956							8.30	6.64	5.53

.125" CENTER .125 SQUARE WIRE WRAP POST

Stock No.	Type	No. Contacts	Dimensions A	B	C	D	E	F	G	H	I	J	K	EACH 1-49	50-99	100-249
39F3356	261-12515-2	15	2.824	1.750	2.070	2.224	2.506							3.66	2.93	2.44
39F3357	261-12518-2	18	3.199	2.125	2.445	2.599	2.881							4.23	3.38	2.82
39F3358	261-12522-2	22	3.699	2.625	2.945	3.099	3.381	.250	.615	.496	.738	.465	.365	4.92	3.94	3.28
39F3359	261-12528-2	28	4.449	3.375	3.695	3.849	4.131							6.15	4.92	4.10
39F3360	261-12536-2	36	5.449	4.375	4.695	4.849	5.131							7.22	5.77	4.81
39F3361	261-12543-2	43	6.324	5.250	5.570	5.724	6.006							8.30	6.64	5.53
39F3362	261-70005	Polarizing key for above												.06	.06	.06

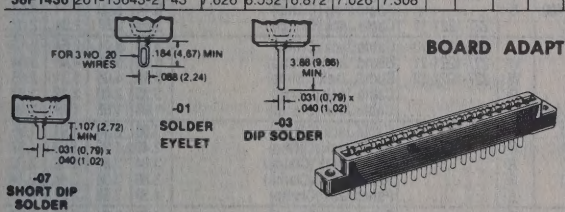
.156" CENTER .035 X .050 RECTANGULAR POST

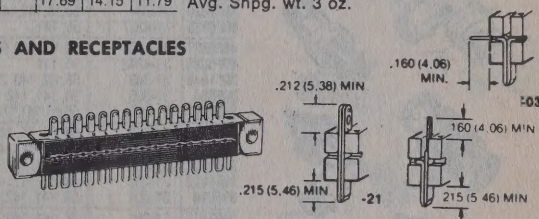
Stock No.	Type	No. Contacts	Dimensions A	B	C	D	E	F	G	H	I	J	K	EACH 1-49	50-99	100-249
38F1431	261-15615-2	15	3.258	2.184	2.504	2.658	2.940							6.92	5.54	4.62
38F1432	261-15618-2	18	3.726	2.652	2.972	3.126	3.408							8.14	6.51	5.42
38F1433	261-15622-2	22	4.350	3.276	3.596	3.750	4.032	.20	.750	.770	.512	.495	.348	9.58	7.66	6.38
38F1434	261-15628-2	28	5.286	4.212	4.532	4.686	4.968							11.95	9.56	7.97
38F1435	261-15636-2	36	6.534	5.460	5.780	5.934	6.216							11.97	9.57	7.98
38F1436	261-15643-2	43	7.626	6.552	6.872	7.026	7.308							17.69	14.15	11.79

Dual readout of double-sided printed circuit boards. Pre-loaded cantilever-type contacts are assembled into dielectric with precise spacing for automatic solderless wrap terminations. Tail length is sufficient for three wire wraps plus space for bussing or PC board next to block. Contacts are confined in dielectric to determined pre-load force for fixed, definite separation eliminating possibility of shorts. Gold-plated phosphor bronze contacts rated at 5.0 amps. Voltage rating: 300 V rms at sea level. Minimum voltage breakdown: 1800 V rms. Contact resistance: 6.0 milliohms max. .025" square tail with 500001-type contacts. Insulator material: Black electrical grade phenolic. Avg. Shpg. wt. 3 oz.

10

BOARD ADAPTORS AND RECEPTACLES





Series 143 Connectors. Prevent board rocking and keep voltage losses at a minimum at extremes of temperature and vibration. If heavy cycling is anticipated, series 133 plug may be attached to board and mated with 143 connector. Pin identification is molded on top face and term. surface. Designed for flush mounting.

Series 133 Plugs. Combine excellent electrical performance with mechanical sturdiness. Repeated matings will not cause deformation of contacts. End caps prevent damage to mounting holes when mouning screws are tightened.

SERIES 143

Stock No.	Type No.	1-49	50-99	100-249	250-999
38F891	143-006-07	1.48	1.33	1.14	.98
38F892	143-010-07	1.78	1.51	1.27	1.09
38F893	143-012-07	1.97	1.66	1.39	1.20
38F894	143-015-07	2.25	1.90	1.60	1.37
38F895	143-018-07	2.71	2.29	1.92	1.65
38F896	143-022-07	3.24	2.74	2.30	1.98

SERIES 133

Stock No.	Type No.	1-49	50-99	100-249	250-999
39F729	133-006-13	3.46	2.92	2.45	2.11
39F730	133-010-13	3.33	2.81	2.36	2.03
39F731	133-012-13	4.04	3.41	2.86	2.46
39F732	133-015-13	4.75	4.01	3.37	2.90
39F733	133-018-13	4.99	4.21	3.54	3.04
39F734	133-022-13	5.69	4.81	4.04	3.47

SERIES 143 CARD EDGE CONNECTORS

Stock No.	Type No.	Cont.	1-49	50-99	100-249	250-999
42F304	143-006-01	6	1.62	1.37	1.15	.99
42F300	143-010-01	10	1.80	1.52	1.28	1.10
42F308	143-012-01	12	1.99	1.68	1.41	1.21
43F301	143-015-01	15	2.27	1.92	1.61	1.39
42F302	143-018-01	18	2.75	2.32	1.95	1.68
43F303	143-002-01	22	3.27	2.76	2.32	1.99
42F309	143-006-03	6	1.64	1.39	1.16	1.00
42F310	143-010-03	10	1.83	1.54	1.30	1.12
42F311	143-012-03	12	2.03	1.71	1.44	1.24
42F312	143-015-03	15	2.32	1.96	1.65	1.41
42F313	143-018-03	18	2.79	2.36	1.98	1.70
42F314	143-022-03	22	3.35	2.83	2.37	2.04
42F305	143-953	Polarizing key for above				.06

SERIES 133—MALE PLUG ADAPTERS

Stock No.	Type No.	Cont.	1-49	50-99	100-249	250-999
42F316	133-010-03	10	2.95	2.49	2.09	1.80
42F317	133-012-03	12	3.60	3.04	2.55	2.20
42F318	133-015-03	15	4.10	3.46	2.91	2.50
42F319	133-018-03	18	4.34	3.66	3.08	2.65
42F320	133-022-03	22	4.91	4.15	3.49	3.00
42F307	133-006-03	6	3.26	2.75	2.31	1.99
42F196	133-006-21	6	3.81	3.22	2.70	2.32
42F136	133-010-21	10	3.75	3.17	2.66	2.29
42F137	133-015-21	15	5.37	4.53	3.81	3.28
42F138	133-018-21	18	5.78	4.87	4.10	3.52
42F139	133-022-21	22	6.69	5.65	4.74	4.08

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

AMPHENOL CONNECTORS

QUICK TRIM BNC PLUGS

CLAMP NUT

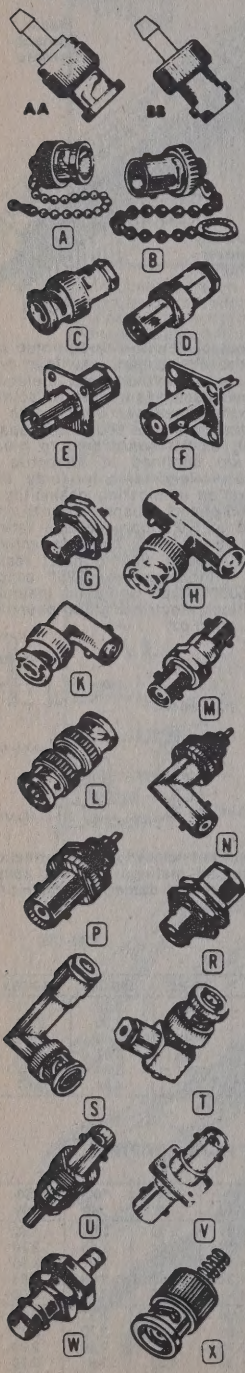
CONTACT ASSEMBLY

CONNECTOR BODY

For RG59/U Belden #9268. Have minimum cable preparation and no special tools required for terminating computer peripheral. Lower installation cost occurs because all that is required is a ¼" cut to expose center conductor.

Stk. No.	Type	RG/U	Tool Die Set	Description	1-24	25-99	100-499	500-999
39F1574	31-4541	59, 62	227-1221-13	Quick Trim Plug	3.00	2.34	1.91	1.65
39F1575	31-4542	Belden #9268	227-1221-13	Quick Trim Plug	3.04	2.37	1.94	1.67

TYPE BNC CONNECTOR



Stock No.	Type P/N	RG/U Cables	Fig.	Tool Data Die Set P/N	Description	1-24	25-99	100-499	500-999
39F920	31-4700	58	AA		Quick Assy. Plug	2.15	1.68	1.37	1.18
39F921	31-4701	58	BB		Quick Assy. Jack	3.13	2.44	2.00	1.72
39F922	31-4702	59	AA		Quick Assy. Plug	2.38	1.86	1.52	1.31
39F923	31-4703	59	BB		Quick Cnnct. Jack	3.40	2.66	2.17	1.87
40F6318	31-4321	59, 62, 140, 210	X	227-1221-13	Plug (Crimp)	3.19	2.49	2.03	1.75
39F1446	31-321	59, 62, 140, 210	X	227-1221-13	Plug (Crimp)	2.62	2.04	1.67	1.44
39F029	68175	59, 140, 210	X	227-1221-13	Plug (Crimp)	2.46	1.92	1.57	1.35
39F1200	68175-1004	62		227-1221-13	Quick Crimp Plug	2.49	1.95	1.59	1.37
39F1201	68175-1005	59, 59		227-1221-13	Plug (Crimp)	2.62	2.04	1.67	1.44
39F1202	31-212-1005	59, 59, 59			Plug (Crimp)	2.17	1.69	1.38	1.19
39F1044	31-359	59, 62, 140, 210	X	227-1221-13	Plug (Crimp)	6.04	4.71	3.85	3.32
40F8319	31-4320	58, 141	X	227-1221-11	Plug (Crimp)	3.08	2.40	1.96	1.69
39F1438	31-320	58, 141	X	227-1221-11	Plug (Crimp)	2.55	1.99	1.62	1.40
39F1072	36775	58, 141	X	227-1221-11	Plug (Crimp)	2.44	1.90	1.55	1.34
39F1042	31-351	58, 141	X	227-1221-11	Plug (Crimp)	6.48	5.06	4.13	3.56
40F8320	31-4326	55, 142, 223	X	227-1221-11	Plug (Crimp)	3.73	2.91	2.38	2.05
39F1442	31-326	55, 142, 223	X	227-1221-11	Plug (Crimp)	2.68	2.09	1.71	1.47
39F1082	36875	55, 142, 223, 400	X	227-1221-11	Plug (Crimp)	2.62	2.04	1.67	1.44
40F6321	31-315	174, 188	X	227-1221-09	Plug (Crimp)	3.62	2.83	2.31	1.99
39F1454	31-323	180	X	.....	Plug (Crimp)	8.44	2.68	2.19	1.89
40F8322	31-321-1000	Belden 8281	X	.....	Plug (Crimp)	2.95	2.30	1.88	1.62
40F6323	31-3302	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	3.24	2.53	2.06	1.78
39F065	31-012	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	2.02	1.58	1.29	1.11
39F1006	31-021	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	2.31	1.80	1.47	1.27
39F1027	31-212	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	1.80	1.41	1.15	.99
39F1223	31-304	59, 62, 71, 140, 210	C	.....	Plug (Clamp)	3.40	2.66	2.17	1.87
40F8324	31-3301	55,58,141,142,223,400	C	.....	Plug (Clamp)	2.64	2.06	1.68	1.45
39F063	31-002	58, 141, 142, 400	C	.....	Plug (Clamp)	1.80	1.41	1.15	99
39F1003	31-018	58, 141, 142, 400	C	.....	Plug (Clamp)	1.97	1.53	1.25	1.08
39F1018	31-202	55,58,141,142,223,400	C	.....	Plug (Clamp)	1.57	1.22	1.00	.86
39F1220	31-301	55, 58, 141, 142, 400	C	.....	Plug (Clamp)	3.17	2.47	2.02	1.74
39F1335	84975	122, 195	C	.....	Plug (Clamp)	3.62	2.83	2.31	1.99
40F6325	69475	174, 179, 187, 188	C	.....	Plug (Clamp)	3.89	3.04	2.48	2.14
39F1447	31-336	59, 62, 140, 210		.....	Angle Plug (Crimp)	10.63	8.29	6.77	5.84
39F1439	31-335	58, 141		227-1221-11	Angle Plug (Crimp)	10.23	7.98	6.52	5.62
39F1040	31-850	59, 62, 71, 140, 210	I	.....	Angle Plug (Crimp)	7.33	5.72	4.67	4.03
39F1020	31-204	55,58,141,142,223,400	S	.....	Angle Plug (Clamp)	6.44	5.03	4.11	3.54
40F8326	31-4327	58, 141		227-1221-11	Cable Jack (Crimp)	3.68	2.87	2.34	2.02
40F6327	31-4328	59, 62, 140, 210		227-1221-13	Cable Jack (Crimp)	3.99	3.11	2.54	2.19
40F6328	31-4342	58, 141	W	227-1221-11	Blkhd. Jack (Crimp)	6.99	5.45	4.45	3.84
39F1449	31-343	59, 62, 140, 210	W	227-1221-13	Blkhd. Jack (Crimp)	5.19	4.05	3.31	2.85
39F064	31-005	58, 141, 142, 400	D	.....	Cable Jack (Crimp)	3.33	2.60	2.12	1.83
39F1021	31-205	55,58,141,142,223,400	D	.....	Cable Jack (Clamp)	1.98	1.55	1.26	1.09
39F066	31-015	59, 62, 71, 140, 210	D	.....	Cable Jack (Clamp)	3.00	2.34	1.91	1.65
39F1028	31-215	59, 62, 71, 140, 210	D	.....	Cable Jack (Clamp)	2.49	1.95	1.59	1.37
39F1022	31-206	58, 141, 142, 400	R	.....	Blkhd. Jack (Clamp)	3.64	2.84	2.32	2.00
39F1023	31-207	59, 62, 71, 140, 210	R	.....	Blkhd. Jack (Clamp)	3.89	3.04	2.48	2.14
39F070	31-001	58, 141, 142, 400	E	.....	Panel Jack (Clamp)	4.59	3.58	2.92	2.51
39F1017	31-201	58, 141, 142, 400	E	.....	Panel Jack (Clamp)	4.62	3.61	2.95	2.54
39F1026	31-211	59, 62, 71, 140, 210	E	.....	Panel Jack (Clamp)	4.50	3.51	2.87	2.47
40F6329	18225	.....	F	.....	Panel Recpt. PC Pins	7.94	6.19	5.06	4.36
39F1039	31-842	.....	F	.....	Panel Recpt. 3-56	4.30	3.35	2.74	2.36
81F735	31-4758	.....		.....	PCB Mount. Recpt.	6.53	5.10	4.16	3.59
39F069	31-003	.....	F	.....	Panel Recpt.3-56 Tapped Flange	2.44	1.90	1.55	1.34
39F1019	31-203	.....	F	.....	Panel Recpt.3-56 Tapped Flange	1.75	1.36	1.11	.96
39F1311	4500	.....	F	.....	Panel Recpt. 136" Dia. Flange	3.60	2.81	2.30	1.98
38F1322	31-010	.....	P	.....	Blkhd. Recpt. Isolated	2.55	1.99	1.62	1.40
40F6330	31-3376	.....	P	.....	Blkhd. Recpt. Gold pltd. Cont.	2.57	2.00	1.64	1.41
39F075	31-221	.....	P	.....	Blkhd. Recpt.	1.22	.95	.78	.67
39F3130	31-2221	.....	P	.....	Blkhd. Recpt.	1.44	1.12	.92	.79
39F1337	31-236	.....	P	.....	Blkhd. Recpt.	1.27	.99	.81	.70
39F1312	5575	.....	P	.....	Blkhd. Recpt.	1.86	1.45	1.18	1.02
39F073	31-102	.....	P	.....	Blkhd. Recpt. Pressurized	2.51	1.96	1.60	1.38
39F1001	31-016	.....	G	.....	Blkhd. Recpt. Rear Mnt. Press	12.08	9.43	7.70	6.64
39F1339	31-238	.....	P	.....	Blkhd. Recpt. Hermetic	3.77	2.94	2.40	2.07
39F1034	31-222	.....	N	.....	Blkhd. Recpt. Angle	6.73	5.25	4.29	3.70
39F1002	31-017	.....	A	.....	Male Cap. Shorting Cont.*	2.77	2.16	1.76	1.52
39F1000	31-006	.....	A	.....	Male Cap*	1.78	1.39	1.14	.98
39F1009	31-026	.....	A	.....	Male Cap*	1.86	1.45	1.18	1.02
39F072	31-7	.....	A	.....	Male Cap*	.98	.77	.63	.54
39F1010	31-027	.....	A	.....	Male Cap*	1.29	1.01	.82	.71
39F1025	31-3210	.....	B	.....	Female Cap*	3.44	2.68	2.19	1.89
39F1035	31-759	.....	..	.....	Shield Grounding Lug	.44	.34	.28	.24
39F1031	31-218	.....	L	.....	Adapter (Plug-Plug)	4.10	3.20	2.61	2.25
39F1032	31-219	.....	..	.....	Adapter (Jack-Jack)	2.60	2.03	1.66	1.43
39F071	31-009	.....	K	.....	Adapter (Angle) (Jack-Plug)	5.61	4.37	3.57	3.08
39F1071	31-209	.....	K	.....	Adapter (Angle) (Jack-Plug)	5.04	3.93	3.21	2.77
39F1331	47000	.....	V	.....	Adapter (Blkhd. Mnt. Jack-Jack)	5.68	4.43	3.62	3.12
39F1033	31-220	.....	M	.....	Adapter (Blkhd. Mnt. Jack-Jack)	4.73	3.69	3.02	2.60
38F757	31-4803	.....	M	.....	Isol. Feed thru Adaptor	6.44	5.03	4.11	3.54
39F068	31-008	.....	H	.....	Adapter-Tee (Jack-Plug-Jack)	5.75	4.49	3.67	3.16
39F1024	31-208	.....	H	.....	Adapter-Tee (Jack-Plug-Jack)	5.17	4.03	3.29	2.84

(*) Note—Marked with chain

Amphenol Connectors

Amphenol
An ALLIED Company

TNC CONNECTORS

Stk. No.	Type	RG/U Cable	Description	Fig.	1-24	25-99	100-499	500-999
40F6331	31-2373	55, 142, 223	Plug (Crimp)	—	2.38	1.86	1.52	1.31
40F6322	31-2367	58, 141	Plug (Crimp)	—	3.04	2.37	1.94	1.67
38F1203	79525	59, 62, 71, 140, 210	Plug (Clamp)	AA	5.37	4.19	3.42	2.95
38F1204	77175	55, 58, 141, 142, 223, 400	Plug (Clamp)	AA	6.44	5.03	4.11	3.54
40F6334	31-2300		Panel Receptable	DD	3.93	3.07	2.51	2.16
40F6335	31-2301		Bulkhead Receptacle	—	3.49	2.73	2.23	1.92
38F733	31-4804		Insul. feed thru adapt.	EE	10.08	7.87	6.43	5.54
38F734	31-4805		Insul. bulk head Recept.	FF	4.20	3.28	2.68	2.31

UHF CONNECTORS

Threaded coupling UHF series are low-cost, general purpose connectors used in applications at lower frequencies where no serious mismatch is introduced. They will operate satisfactorily at frequencies up to 300 MHz and have a peak voltage rating of 500 volts. NOTES: 1) Silver plated body. (†) Teflon.

Stk. No.	Type	Mill No.	Fig.	Description	RG/U Cable	1-24	25-99	100-499	500-999
39F194	83-8SP	.....	B	Plug	8, 11, 149, 213	1.73	1.35	1.10	.95
39F188	83-1SP1050	PL-259	A	Plug	8, 9, 11	1.24	.97	.79	.68
39F189	83-58SP	.....	B	Plug	58, 141	1.71	1.33	1.09	.94
39F190	83-59SP	.....	B	Plug	59, 62	1.69	1.32	1.08	.93
39F1075	83-58FCP	.....	—	Plug	58	1.38	1.08	.88	.76
39F191	83-875-1002	.....	D	Blkd, recpt.	.....	2.55	1.99	1.62	1.40
39F192	83-876	.....	G	Blkd. recpt.	.....	1.51	1.18	.96	.83
39F193	83-877	.....	L	Adapter	Plug-plug	2.89	2.26	1.84	1.59

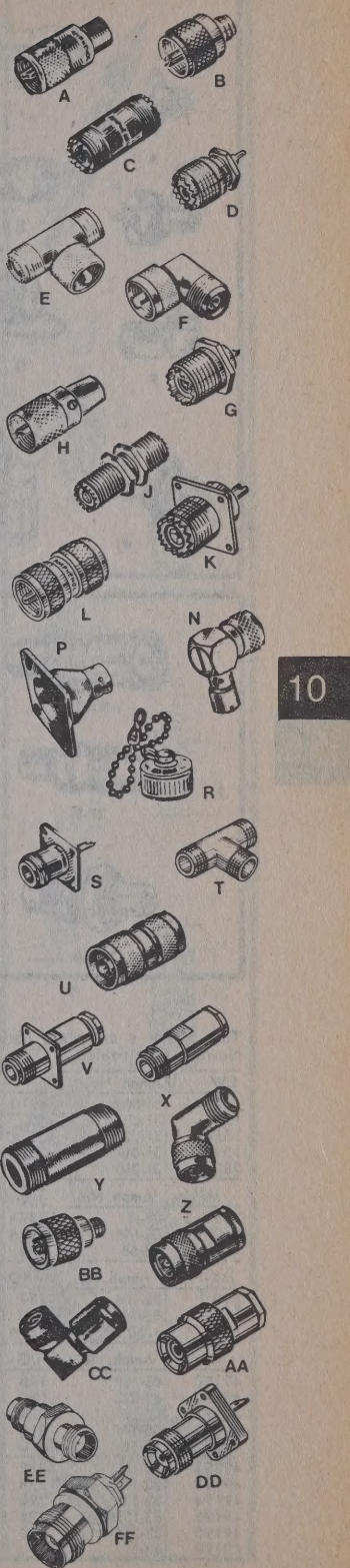
Stk. No.	Type	Mill No.	Fig.	Description	For RG/U Cable	1-24	25-99	100-499	500-999
39F034	83-1T	M-358	E	Tea adapter	.....	4.91	3.83	3.13	2.70
39F1060	83-58	M-359A	F	90° adapter	.....	5.48	4.27	3.49	3.01
39F035	83-1J	PL-258	C	St. adapter	.....	2.00	1.56	1.28	1.10
39F030	83-1SP	PL-259	A	Plug (1)	.....	1.82	1.42	1.16	1.00
39F031	83-1SPN	PL-295A	H	Plug	8-13, 63	3.59	2.80	2.29	1.97
39F047	83-22F	PL275	J	Bulk Adapter	.....	29.72	23.19	18.94	16.33
39F039	83-1R	SO-239	K	Receptacle	57, 130	1.11	.87	.71	.61
39F037	83-1H	UG-106/U	P	Hood	.....	1.64	1.28	1.04	.90
39F1064	83-750	UG-111/U	A	Plug	140, 210	2.40	1.87	1.53	1.32
39F040	83-185	UG-175/U	—	Reducing adapt.	58, 141, 142	.38	.30	.24	.21
39F041	83-168	UG-176/U	—	Reducing adapt.	59, 62, 71, 140, 210	.40	.31	.26	.22
39F038	83-765	UG-177/U	P	Hood	58, 141	1.13	.88	.72	.62
39F032	83-776	UG-203/U	H	Plug	58, 141	5.04	3.93	3.21	2.77
39F036	83-1F	UG-363/U	J	Bulk adapter	.....	5.64	4.40	3.60	3.10
39F033	83-1AP	UG-646/U	F	90° adapter	.....	3.28	2.56	2.09	1.80
39F042	83-1AC	.....	R	Cap & Chain	.....	2.04	1.59	1.30	1.12
39F1061	83-59	.....	N	90° Plug	17, 18	7.99	6.23	5.09	4.39
38F925	83-58FCJ	.....	—	In-line Jack	58	2.78	2.17	1.77	1.53
39F049	83-798	SO-239A	K	Panel Receptacle†	.....	2.33	1.82	1.48	1.28
39F1225	83-822	PL259	A	Plug Teflon	.....	1.86	1.45	1.18	1.02
39F088	83-850	.....	—	Solderless plug	11	14.03	10.95	8.94	7.71

TYPE N CONNECTORS

Series N connectors are medium size, weather-proof, threaded coupling units with a frequency limit of 11 GHZ. They have a peak voltage rating of 1500 volts and are impedance matched to either 50 or 70 ohm cables.

Stk. No.	Type	Mill No.	Fig.	Description	For RG/U Cable	1-24	25-99	100-499	500-999
39F1108	82-96	UG-21C/U	Z	Plug	8, 9, 10	4.02	3.14	2.56	2.21
39F019	82-61	UG-218/U	Z	Plug	8, 9, 10	3.57	2.78	2.27	1.96
39F1118	82-202	UG-21D/U	Z	Plug	8, 9, 10	3.24	2.53	2.06	1.78
39F020	82-62	UG-22B/U*	V	Panel Jack	8, 9, 10	4.95	3.86	3.16	2.72
39F1122	82-208	UG-22D/U	V	Panel Jack	8, 9, 10	7.03	5.48	4.48	3.86
39F021	82-63	UG-238/U	W	Jack	8, 9, 10	4.33	3.38	2.76	2.38
39F1123	82-209	UG-23D/U	—	Jack	8, 9, 10	3.68	2.87	2.34	2.02
39F076	82-64	UG-27A/U	X	90° Adapter	.....	10.28	8.02	6.55	5.65
39F1109	82-98	UG-27B/U	—	90° Adapter	.....	9.65	7.53	6.15	5.30
39F1127	82-213	UG-27C/U	CC	90° Adapter	.....	8.12	6.33	5.17	4.46
39F1110	82-99	UG-28A/U	T	Tee Adapter	.....	13.29	10.37	8.47	7.30
39F077	82-65	UG-29A/U	Y	St. Adapter	.....	5.46	4.26	3.48	3.00
39F1112	82-101	UG-29B/U	Y	St. Adapter	.....	4.99	3.89	3.18	2.74
39F022	82-66	UG-30/U	X	Bulk Adapter	.....	9.21	7.19	5.87	5.06
39F1117	82-201	UG-30C/U	—	Bulk Adapter	.....	12.67	9.88	8.07	6.96
39F1111	82-100	UG-57B/U	U	St. Adapter	.....	6.57	5.13	4.19	3.61
39F023	82-24	UG-58/U	S	Receptacle	.....	2.89	2.26	1.84	1.59
39F028	82-97	UG-58A/U	S	Receptacle	.....	3.06	2.39	1.95	1.68
39F024	82-84*	UG-94A/U	Z	Plug	11-13	5.37	4.19	3.42	2.95
39F1104	82-89*	UG-95A/U	W	Jack	11-13	6.44	5.03	4.11	3.54
39F018	82-36	UG-107A/U	T	Tee Adapter	.....	17.24	13.45	10.99	9.47
39F078	82-102	UG-107B/U	T	Tee Adapter	.....	13.29	10.37	8.47	7.30
39F1128	82-811	UG-680/U	—	Bulk. Recept.	.....	7.50	5.85	4.78	4.12
39F1114	82-106	MX-913/U	R	Cap & Chain	.....	1.89	1.48	1.21	1.04
39F1115	82-112*	.....	S	Receptacle	.....	7.10	5.54	4.52	3.90
39F1129	82-835	.....	—	Angle Plug	8, 9, 213, 214, 225	11.21	8.75	7.15	6.16
39F1340	91100	UG-300/U	—	Adpg 2F Ends	.....	10.94	8.53	6.97	6.01
39F1323	34000	UG-536/U	Z	Plug	.....	6.75	5.27	4.30	3.71
39F1074	82-340	01-0007	BB	Plug	8, 213	5.97	4.66	3.80	3.28
39F195	82-332	01-0008	BB	Plug	9, 214	6.35	4.96	4.05	3.49
39F196	82-4352	01-0005	—	Plug	8, 9, 213, 214, 225	6.57	5.13	4.19	3.61
39F1187	82-312	UG-1185/U	BB	Plug	8, 9, 213, 214, 225	3.62	2.83	2.31	1.99
39F1188	82-313	UG-1186/U	—	Jack	8, 9, 2123, 214	4.39	3.42	2.80	2.41
39F1076	82-337	02-0006	—	Jack	8, 213	7.83	6.11	4.99	4.30
39F197	82-4360	02-0006	V	Panel Jack	8, 9, 213, 214, 225	8.59	6.70	5.48	4.72
39F186	82-369	04-0001	—	Blkd. recept.	.....	10.76	8.39	6.86	5.91

*70 ohm impedance; not intermateable with 50 ohm connectors.



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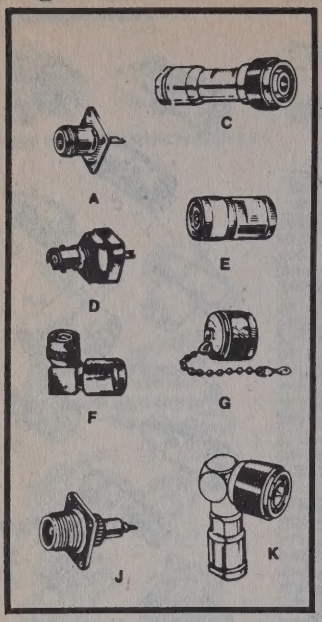


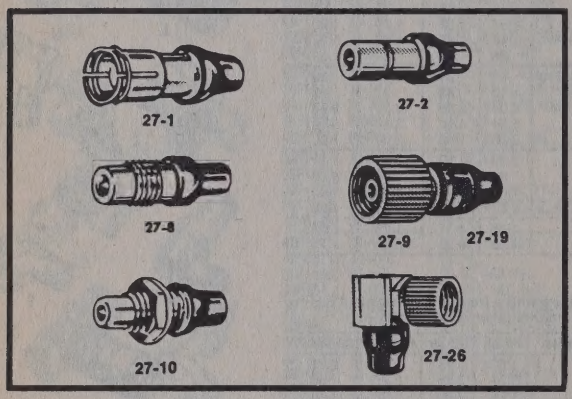
Constant 50 Ohm Impedance Design matched to 50 ohm cables can also be used with 75 ohm cable, at lower frequencies (below 300 MHz). Peak voltage rating of 1500V and low SWR up to 10 GHz. Thermal limits; –67° to 390°C). Pressurized; compression seal. 2-stud bay net lock. "V" groove split silicone rubber gasket and peaked braid clam. Weatherproof gaskets. Meets military specs of MIL-C-3989.

Stock No.	Type	Jan Type	Fig.	Description	For RG/U Cable	Max Jkt. Dia.	1-24	25-99	100-499	500-999
39F087	82-530	UG-573A/U	E	Straight Plug	8, 9	.444	7.04	5.50	4.49	3.87
39F1135	82-508	UG-564/U	...	Adapter C/N	...	...	9.21	7.19	5.87	5.06
39F1133	82-504	UG-568/U	A	Panel Receptacle	...	...	5.79	4.52	3.69	3.18
39F1145	82-532	UG-628A/U	E	Straight Plug	8, 9A	.444	12.96	10.11	8.26	7.12
39F1140	82-514	UG-643/U	...	Straight Adapter	...	...	18.75	14.63	11.95	10.30
39F1141	82-515	UG-634/U	D	Bulkhead Recept.	...	...	12.39	9.67	7.90	6.81
39F1147	82-534	UG-709A/U	E	Straight Plug	55, 58	.219	6.81	5.31	4.34	3.74
39F1144	82-531	UG-710-A/U	F	Angle Plug	...	.444	14.16	11.05	9.02	7.78

TYPE "HN" CONNECTORS

Constant 50 ohm impedance connectors designed for high voltage applications. Frequency range; 0-4GHz. Voltage Rating; 1,500 V peak. Pressurized; compression seal. Thermal limits; –67° to 390°F (–55° to 199°C). Synthetic and silicone rubber weatherproof. Meets military specs of MIL-C-3643. Dielectric withstanding voltage; 5,000 rms. SWR; 1.3. Have 5 KV peak ratings, when used with 307 Silicone compound.

Stock No.	Type	Jan Type	Fig.	Description	For RG/U Cable	Max Jkt. Dia.	1-24	25-99	100-499	500-999
39F026	82-804	UG-598/U	C	Straight Plug	8-9	.444	10.67	8.32	6.80	5.86
39F1150	82-38	UG-59A/V	C	Straight Plug	8-9	.444	10.47	8.17	6.67	5.75
39F1158	82-92	UG-496/U	J	Panel Recept.	...	...	7.68	5.99	4.90	4.22
39F027	82-805	UG-560/U	J	Panel Recept.	...	...	11.87	9.26	7.56	6.52
39F1163	82-130	....	G	Cap & Chain	54A	...	3.66	2.85	2.33	2.01
39F1166	82-816	....	C	Straight Plug	8-9	.257	10.50	8.19	6.69	5.77
39F1167	82-833	....	K	Angle Plug	...	.444	16.87	13.16	10.75	9.27
39F1170	82-856	....	K	Angle Plug	...	.444	17.65	13.77	11.25	9.70



SUBMINAX 27 SERIES SMB AND SMC CONNECTORS

Constant impedance (50 or 75 ohm) types with voltage rating of 500 volts peak and frequency limit of 10 GHz. Two types of coupling mechanisms available-Snap On (push on) for frequent fast mating and limited space; Screw on for vibration type applications. Types do not intermate.

75 OHM

Stock No.	Type No.	Descrip.	RG-C/U Cable	1-24	25-99	100-499	500-999
42F219	27-19	Plug	180, 195	4.88	3.81	3.11	2.68
42F221	27-21	Recep.	180, 195	4.22	3.29	2.69	2.32

50 OHM

Stock No.	Type No.	Descrip.	RG-C/U Cable	1-24	25-99	100-499	500-999
42F201	27-1	Plug	174, 179	2.22	1.73	1.42	1.22
42F202	27-2	Jack	174, 179	2.24	1.75	1.43	1.23
42F207	27-7	Plug	187, 188	3.04	2.37	1.94	1.67
42F208	27-8	Jack	187, 188	2.60	2.03	1.66	1.43
42F209	27-9	Receptacle	...	2.58	2.02	1.65	1.42
42F210	27-10	Jack Blkh.	187, 188	4.46	3.48	2.84	2.45
42F226	27-26	Angle Plug	187, 188	5.44	4.25	3.47	2.99

AMPHENOL RF CONNECTOR CROSS INDEX

This is not a complete listing of military part numbers manufactured by Amphenol, but only a list of items which are stocked by Newark Electronics.

CW-( )/U	Amph. No.
123	31-006
155	31-007
155A	31-027
159	31-017
282	31-210

M-( )	Amph. No.
358	83-1T
359	83-1AP
359A	83-58

MX-( )/U	Amph. No.
913	82-106
1142	85-512
1530	1050

NT-( )	Amph. No.
49190	83-1SP
49190	83-822
49191	83-1J
49192	83-1AP
49192A	83-58
49193	83-1H
49194	83-1RTY
49194	83-1R
49195	83-1SPN
49195	83-756
49199	83-1T

NT-( )	Amph. No.
491049	83-1F

PL-( )	Amph. No.
258	83-1J
259	83-1SP
259	83-1SP-1050
259	83-822
259A	83-1SPN
259A	83-756
275	83-22F

SO-( )	Amph. No.
239	83-1R
239	83-1RTY
239A	83-798

UG-( )/U	Amph. No.
18B	82-86
18C	82-203
21B	82-61
21C	82-96
21D	82-202
21E	82-3202
22B	82-62
22D	82-208
22E	82-3208
23B	82-63

UG-( )/U	Amph. No.
23C	82-94
23D	82-209
23E	82-3209
27A	82-64
27B	82-98
27C	82-213
28A	82-99
29A	82-65
29B	81-101
30	82-66
30C	82-201
30D	91100
57B	82-100
58	82-24
58A	82-97
59A	82-38
59B	82-804
60A	82-39
60B	80-814
88	31-002
88B	31-018
88C	31-202
88E	31-3202
89	31-005
89A	31-019

UG-( )/U	Amph. No.
89B	31-205
94A	81-84
95A	82-89
102	88-22SP
103	83-22R
104	83-22AP
106	83-1H
107A	82-26
107B	82-102
111	83-750
154	82-59
177	83-765
201A	31-216
212A	82-91
254A	31-016
260	31-012
260A	31-021
260B	31-212
261	31-015
261B	31-215
262B	31-211
273	31-028
274	31-008
274A	31-208
274B	31-2208

UG-( )/U	Amph. No.
290	31-003
290A	31-203
291B	31-201
306	31-009
306A	31-209
318	26700
349A	31-217
352	82-80
358	82-21SP
363	83-1F
414	47000
421	6275
422	6225
491A	31-218
492A	31-220
492D	31-3220
496	82-92
536	34000
536B	34025
560	82-805
564	82-508
565A	82-540
567A	82-535
568	82-504
569	82-505

UG-( )/U	Amph. No.
572	82-503
573A	82-530
625B	31-236
628A	82-532
634	82-515
643	82-514
646	83-1AP
657	31-102
705	82-511
709A	82-534
710A	82-531
909	31-206
910	31-207
912	31-238
913	31-204
914	31-219
932A	27975
1033	84975
1051	2175
1094	31-221
1094A	31-2221
1098	31-222
1185	82-312
1186	82-313
1187	82-314
1213	82-320

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

AMPHENOL CONNECTORS

Amphenol
An ALLIED Company

CONNECTORS FOR TWINAXIAL CABLE

For interconnecting computers and information display system. Has gained wide acceptance for terminating Twinaxial cables interconnecting host computer system and peripheral display, printer and other uses. Impedance: 95 ohms nominal. Frequency Range: 0-200 MHz usable to 500 MHz. Voltage Rating: 500 volts peak. Thermal Limits: −67° F to 185° F, (−55° to 85° C) Weatherproof. Mating: Keyway polarization, ¾-20 threaded coupling. Cable Affixment: screw thread nut and braid clamp. Contacts—Male: brass, silver plated. Female: Beryllium copper, silver plated. Other Metal Parts: Brass, ASTRO-plate finish. Insulators: Copolymer of styrene or equal.

Stk. No.	Type No.	Fig.	Description	1-24	25-99	100-499	500-999
39F2997	82-5588	A	Adapter	18.45	14.40	11.76	10.14
39F2998	82-5589	B	Plug	14.98	11.69	9.55	8.23
39F2999	82-5590	C	Receptacle	16.63	12.98	10.60	9.14

MB COAXIAL CONNECTORS

Excellent electrical and mechanical properties at low cost. Extremely small, use up to 500 mc, 500 volts. 400° F. Bayonet lock. Average weight, 4 oz.

Stock No.	Jan Type	Fig.	Description	For RG-/U Cable	Max. Jkt. Dia.	1-24	25-99	100-499	500-999
39F1326	45000	D	Plug	58	.203	6.04	4.71	3.85	3.32
39F1329	46000	E	Receptacle, nylon	.....	.....	3.28	2.56	2.09	1.80
39F1334	48850	D	Plug with Jacket Clamp	180	.158	5.06	3.95	3.22	2.78

MHV COAXIAL CONNECTORS

Miniature high voltage connectors are small bayonet-look connectors for use up to 50 mc., 5,000 volts. 5 amps. Similar, but do not mate with BNC Connectors. Average Shpg. wt., 4 oz.

Stk. No.	IPC Type	Jan Type	Fig.	For RG-/U Cable	Max. Jkt. Dia.	1-24	25-99	100-499	500 999
39F1321	27000	UG931/U	G	.....	.....	3.42	2.67	2.18	1.88
39F1322	28000	UG932/U	F	59	.257	4.11	3.21	2.62	2.26
39F1478	27975	UG932A/U	F	59, 62, 71	.257	4.80	3.75	3.06	2.64
39F3334	29100	.....	....	55, 58, 141, 142	212	5.86	4.57	3.74	3.22
39F3335	27025	.....	....	.....	.....	6.17	4.81	3.93	3.39

TWIN SERIES

Have a nominal impedance of 95 ohms are weather-proof All are polarized to preserve continuity of the individual conductors. These conductors can normally be used at frequencies up to 200 mc. and in some cases to 500 mc with caution. Maximum peak-operating voltage is 500 volts. Type 309-6275 plug for RG-U 22 cable. Average shpg. wt., 4 ounces.

Stk. No.	IPC Type	Jan Type	Fig.	Description	Max. Jkt. Dia.	1-24	25-99	100-499	500 999
39F1314	6275	UG-421/U	....	Plug Keyed 90°	.437	12.83	10.01	8.18	7.05
39F1468	31-224	UG108A/U	H	Plug BNC Type	.....	4.44	3.46	2.83	2.44
39F1470	31-223	.....	F	Bulkhead Receptacle BNC Type		8.21	6.40	5.23	4.51

TRIAX SERIES

TRIAX connectors are used in transmission line applications where maximum RF shielding and minimum noise radiation are required. Have an impedance of 50 ohms, but can be used where impedance matching is not critical.

Stk. No.	Type	RG/U	Fig.	Description	1-24	25-99	100-499	500-999
39F3336	53150	58A	J	Plug $1\frac{1}{16}$-24 Thread	21.04	16.42	13.41	11.56
39F3337	53175	11	J	Plug $\frac{7}{8}$-20 Thread	31.27	24.40	19.93	17.18
39F3338	52975	11		Jack $\frac{7}{8}$-20 Thread	45.12	35.20	28.76	24.79
39F3339	34475	.....	K	Bulkhead Receptacle $\frac{7}{8}$-20	27.83	21.71	17.74	15.29
39F3340	34450	.....	K	Bulkhead Receptacle $1\frac{1}{16}$-24	20.20	15.76	12.88	11.10

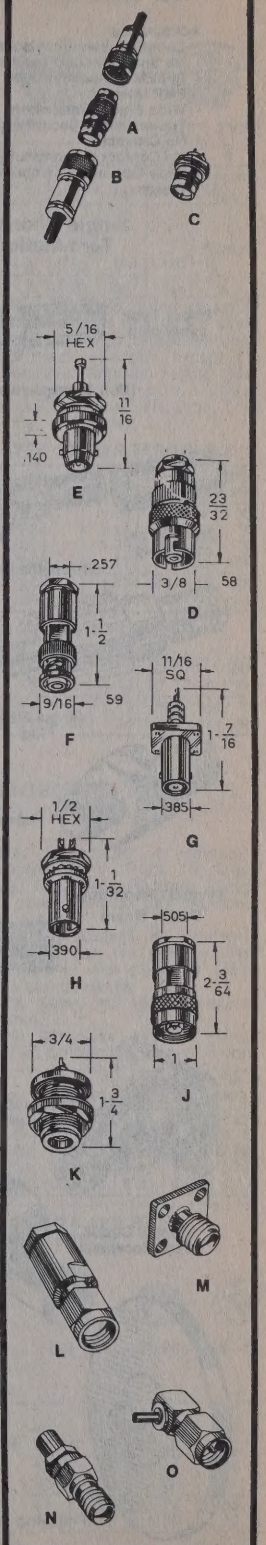
SMA SERIES

50 ohm, semi-precision, subminiature (3mm), high-frequency (0-18 GHz) connectors with ¼-36 threaded coupling. Meet all MIL-C-39012 requirements for SMA connectors.

Stk. No.	Type	RG/U Cables	Fig.	Tool Data Die Set P/N	Description	1-24	25-99	100-499	500-999
39F2950	901-103	55, 58, 141, 142, 223	N	—	Straight Plug	9.97	7.78	6.36	5.48
39F3324	901-9183-1	.141 dia semi-rigid cable	N	—	Straight Plug	3.26	2.63	2.15	1.85
39F3325	901-9501-3	174, 179, 187, 188, 316	N	—	Straight Plug	7.04	5.68	4.64	4.00
39F3326	901-9511-3	174, 179, 187, 188, 316	N	227-1221-03	Straight Plug	7.97	6.43	5.25	4.53
39F3327	901-9601-3	174, 179, 187, 188, 316	N	227-1221-03	Straight Plug	9.49	7.65	6.25	5.39
39F3328	901-9521-3	174, 179, 187, 188, 316	O	—	Angle Plug	10.72	8.65	7.06	6.09
39F3329	901-9531-3	174, 179, 187, 188, 316	O	227-1221-03	Angle Plug	11.42	9.22	7.53	6.49
39F3330	901-9602-3	174, 179, 187, 188, 316	L	227-1221-03	Straight Jack	8.73	7.04	5.75	4.96
39F3331	901-9204-CC	—	M	—	Sq. Flange Rec.	5.30	4.27	3.49	3.01
39F3332	901-9215	—	M	—	Sq. Flange Rec.	5.23	4.22	3.45	2.97
39F3333	901-9214-CC	—		—	Sq. Flange Rec./ Plug Mating Face	6.51	5.25	4.29	3.70

BETWEEN SERIES ADAPTERS

Stk. No.	Type	MIL	Mates With	1-24	25-99	100-499	500 999
39F1038	31-830	UG-201/U	N plug and BNC jack	6.22	4.86	3.97	3.42
39F1029	31-216	UG-201A/U	N plug and BNC jack	4.70	3.66	2.99	2.58
39F074	31-028	UG-273/U	BNC jack and UHF plug	2.97	2.31	1.89	1.63
39F1030	31-217	UG-349A/U	N jack and BNC plug	5.84	4.56	3.72	3.21
39F1135	82-508	UG-564/U	C jack and N plug	9.76	7.61	6.22	5.36
39F1195	82-540	UG-565A/U	C plug and N jack	15.25	11.90	9.72	8.38
39F1217	27-28	.....	BNC female to 50 ohm Screw-on subminax male	3.86	3.01	2.46	2.12
39F1310	4400	UG-146/U	UHF jack and N plug	7.12	5.55	4.54	3.91
39F1307	2900	UG-255/U	BNC plug and UHF jack	4.46	3.48	2.84	2.45
39F1320	26700	UG-318/U	N plug and UHF jack	11.56	9.02	7.37	6.35



10

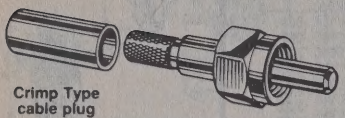
Fiber-Optic, Inter Connections

Advantages
- Complete Electrical Isolation
- No Short Circuit Possibilities
- RFI/EMI Noise Immunity
- EMP Immunity
- Wide Signal Bandwidth
- Transmission Security
- No Crosstalk
- No Contact Discontinuity
- Wide Operating Temperature Range

Single Channel Termination

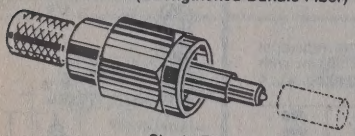
Epoxy Type cable plug

(Non Strengthened Bundle Fiber)

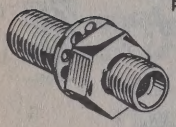


Crimp Type cable plug

(Strengthened Bundle Fiber)

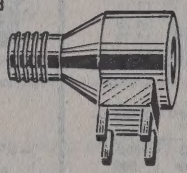


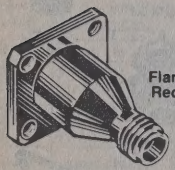
Single Fiber Plug



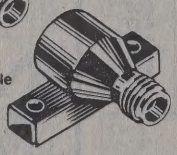
Adapter

Printed Circuit Board Solder Mount

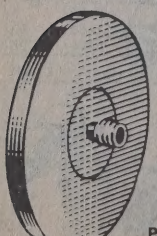




Flange Mtd. Receptable



Printed Circuit Board Receptacle



Receptacle Insert

Polishing Tool

MULTIFIBER BUNDLE CABLE
NON-STRENGTHENING CABLE TERMINATIONS

Stk. No.	Type No.	Optical Cable	** Min. Fiber Hole Dia. (UM)	Max Buffer Dia. (MM) Min. Rear Body I.D.	Max Cable O.D. (MM) Min. I.D. Ferrule	1-9	10-24	25-49	50-99
		Galite (PIRELLI)							
39F3681	905-119-5006	1000-200T	1181	N/A	2.67	11.30	9.40	8.25	7.50
39F3681	905-119-5006	2000-200T	1181	N/A	2.67	11.30	9.40	8.25	7.50
39F3681	905-119-5006	1000-200P	1181	N/A	2.67	11.30	9.40	8.25	7.50
39F3681	905-119-5006	2000-200P	1181	N/A	2.67	11.30	9.40	8.25	7.50

STRENGTHENED CABLE TERMINATIONS

10F8055	905-119-5032*	Belden 221001***	330	2.67	4.42	13.30	11.05	9.70	8.80
		Raychem/Maylight							
39F3693	905-119-5012*	MSC 200A, 200B	610	2.67	4.42	13.30	11.05	9.70	8.80
39F3693	905-119-5012*	KSC 200A, 200B	610	2.67	4.42	13.30	11.05	9.70	8.80
39F3693	905-119-5012*	RSC 200A	610	2.67	4.42	13.30	11.05	9.70	8.80
		DuPont Pifax****							
39F3693	905-119-5012*	S-120 Type 30	610	2.67	4.42	13.30	11.05	9.70	8.80
39F3693	905-119-5012*	S-120 Type 40C	610	2.67	4.42	13.30	11.05	9.70	8.80
39F3693	905-119-5012*	S-220 Type 30	610	2.67	4.42	13.30	11.05	9.70	8.80
		Valtec							
39F3693	905-119-5012*	PC10-40050-2	610	2.67	4.42	13.30	11.05	9.70	8.80
		Fibronic							
39F3693	905-119-5012*	LTD A-242-01	610	2.67	4.42	13.30	11.05	9.70	8.80

SINGLE FIBER CABLE

		Siecor*****							
10F8057	906-110-5014*	112, 122, 212, 222	127	3.96	5.72	36.85	32.45	28.25	25.90
10F8057	906-110-5014*	612, 622, 712, 272	127	3.96	5.72	36.85	32.45	28.25	25.90
10F8057	906-110-5014*	012, 022	127	3.96	5.72	36.85	32.45	28.25	25.90
10F8057	906-110-5014*	Valtec M605-40030-01	127	3.96	5.72	36.85	32.45	28.25	25.90
		Beldon							
10F8058	906-110-5005*	225001, 227001	127	2.67	4.42	36.85	32.45	28.25	25.90
		Siecor*****							
10F8059	906-110-5012*	142, 242	144	3.78	5.56	36.85	32.45	28.25	25.90
		Valtec							
10F8059	906-110-5012*	LC06-40030-01	144	3.78	5.56	36.85	32.45	28.25	25.90
		DuPont Pifax****							
10F8060	905-119-5023	P-140, P-140 Type B	432	N/A	2.67	13.30	11.05	9.70	8.80
10F8060	905-119-5023	P-240, PIR 240	432	N/A	2.67	13.30	11.05	9.70	8.80
10F8060	905-119-5023	PIR 140 Type B	432	N/A	2.67	13.30	11.05	9.70	8.80
		Raychem/Maxlight							
39F3689	905-119-5022*	MSC 200A, 200B	610	1.57	3.58	11.30	9.40	8.25	
39F3689	905-119-5022*	KSC 200A, 200B	610	1.57	3.58	11.30	9.40	8.25	
39F3689	905-119-5022*	RSC 200A	610	1.57	3.58	11.30	9.40	8.25	
		DuPont Pifax****							7.50
39F3689	905-119-5022*	S-120 Type 30	610	1.57	3.58	11.30	9.40	8.25	
39F3689	905-119-5022*	S-120 Type 40C	610	1.57	3.58	11.30	9.40	8.25	
39F3689	905-119-5022*	S-220 Type 30	610	1.57	3.58	11.30	9.40	8.25	
10F8062	906-113-5000*	Beldon 220001***	251	2.67	4.42	16.10	12.95	11.75	10.50

*Requires Crimping.
**Fibersize refers to cladding diameter.
***Plastic clad silica, remove cladding reclad to terminate.
****Pifax is a DuPont trademark for its Fiber Optic cable.
*****Siecor is a registered trademark of Siecor Optical Cables, Inc.

ADAPTER

Stk. No.	Type	Description	1-9	10-24	25-49	50-99
39F3696	905-120-5000	Bulkhd. feadthru, D-Hole Mt. Jack-Jack Adapt.	4.70	4.10	3.65	3.30

RECEPTACLES

39F3697	905-117-5000	4-Hole Flange Mtd. Recept. for TO-5 Devices.	4.85	4.25	3.75	3.40
39F3698	905-118-5000	PC Screw Mount Receptable for TO-5 Devices.	6.75	5.95	5.20	4.70
39F3704	905-131-5000	PC Solder Mount Recept. for TO-5 Devices.	7.35	6.40	5.65	5.15

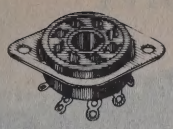
PRESS FIT INSERTS
FOR RECEPTACLES 905-117-5000, 905-118-5000 and 905-131-5000

39F3699	905-5008-1	For TO-46 Device.	1.15	.95	.85	.80
39F3700	905-5008-5	Single Pilot Hole .040" (1.016 MM) Dia.	1.65	1.40	1.20	1.15
39F3701	905-5008-7	Blank	1.15	.95	.85	.80
10F8065	905-5008-10	For RCA 2002A Device.	1.65	1.40	1.20	1.15
10F8066	905-5008-2	For H-P 5082-4220 Device.	1.15	.95	.85	.80
10F8067	905-5008-4	For Monsanto MD-1 Device.	1.15	.95	.85	.80
10F8068	905-5008-3	For Motorola MRD 360 Device.	1.15	.95	.85	.80
10F8069	905-5008-6	For Motorola MRD 510 Device.	1.15	.95	.85	.80

TOOLS

			Each
57F3110	227-944	Crimp tool handle (less die set).	117.52
10F8073	227-909-2012	Polishing kit for 905/906 thrd. connects.	62.40
10F8072	227-909-5001	Termination kit for 905/906 thrd. connects.	78.00

MIP TYPE SOLDER TERMINALS



Sold in std. pkg. of 10 only.

Stock No.	Type	1-49	50-99	100-249	250-999
38F840	77MIP4	1.27	1.05	.94	.80
38F841	77MIP5	1.40	1.16	.99	.87
38F842	77MIP6	1.47	1.24	1.08	.94
38F845	77MIP8	1.27	1.05	.94	.80
38F846	78-88-8	1.11	.91	.80	.69
38F847	78-88-8x	1.53	1.28	1.12	.97
38F848	77MIP9	1.27	1.05	.94	.80
38F849	77MIP11	1.47	1.24	1.08	.94
38F850	77MIP12	1.40	1.16	.99	.87
39F149	*77MIP20	3.07	2.55	2.23	1.93

(*) Sold in std. pkg. of 5 only.

MIP TYPE PRINTED CIRCUIT TERMINALS

42F825	77MIP8W-125	1.56	1.27	1.10	.98
42F827	77MIP11W-125	1.76	1.46	1.25	1.09

MIP TYPE WIRE WRAP TERMINALS

42F828	77MIP8W-500	1.56	1.27	1.10	.98
42F830	77MIP11W-500	1.76	1.46	1.25	1.09

2-POLE GROUNDING TYPE RECEPTACLES AND PLUGS

160-2N

160-4N

160-9N

Rated 15 amps, 110 volts. Fig. A mount in $1^{9}/_{32}$" dia. center hole and two $^{5}/_{32}$" holes on $1^{1}/_{2}$" to $1^{55}/_{64}$" centers. Fig. B mount in $1^{7}/_{16}$" hole; two $^{5}/_{32}$" screw holes on $1^{3}/_{4}$" centers. Fig. C $^{7}/_{16}$" I. D. grommet or clamp to $^{3}/_{8}$" O.D. Meets MIL-M-14F req. Mount in $1^{1}/_{64}$" keyed hole. Sold in std. pkg. of 5 only.

Stk. No.	Type	1-49	50-99	100-249	250-999
39F1230	160-2-N	2.84	2.38	2.06	1.79
39F1231	160-3-N	3.92	3.28	2.84	2.49
39F1232	160-4-N	4.27	3.54	3.07	2.68
39F1233	160-5-N	4.63	3.84	3.34	2.90
39F1237	†160-9-N	3.98	3.32	2.87	2.51
39F1238	**160-10-N	2.68	2.22	1.95	1.68
39F1239	**160-11-N	3.16	2.63	2.29	2.02
42F811	*12-001-03	.17	.14	.12	.11

(†) with steel cap for cable.
(*) mounting plate for 160-10-N. Sold in pkg. of 50 only.
(**) with retainer ring.

MINIATURE CABLE CONNECTORS

For cables up to six conductors. Bakelite elements are housed in cadmium plated brass shells. Plugs are $1^{3}/_{16}$" long. Chassis units mount on $1^{1}/_{4}$" centers. Suffix "L" in Type—long ($1^{3}/_{16}$") "S" short ($1^{3}/_{16}$"). Sold in std. pkg. of 5 only.

Stk. No.	Type	1-49	50-99	100-249	250-999
39F080	91-MPF-3L	2.16	1.80	1.56	1.33
39F3000	91-MPF3S	1.83	1.52	1.33	1.14
39F082	91-MPM3L	2.13	1.75	1.52	1.31
39F3001	91-MPM3S	1.75	1.47	1.27	1.09
39F081	91-MPF4L	1.99	1.67	1.46	1.24
39F3002	91-MPF4S	1.96	1.63	1.42	1.22
39F083	91-MPM4L	1.83	1.52	1.33	1.14
39F084	91-MPM5L	2.16	1.80	1.56	1.33
39F3003	91-MPM4S	2.07	1.72	1.50	1.27
39F085	91-MPM6L	1.51	1.26	1.10	.95
39F159	91-MPM5S	1.81	1.50	1.31	1.12
39F160	91-MPF5S	2.31	1.93	1.68	1.43
39F161	91-MPM6S	1.44	1.20	1.04	.90
39F162	91-MPF6S	2.40	1.99	1.73	1.48
39F163	91-MPF5L	2.40	1.99	1.82	1.48
39F164	91-MPF6L	2.75	2.29	1.99	1.70
39F090	*78-PCG3	1.49	1.24	1.09	.94
39F091	*78-PCG4	1.78	1.47	1.29	1.12
39F092	*78-PCG5	2.17	1.79	1.56	1.35
39F093	*78-PCG6	2.29	1.91	1.67	1.46

(*) Sold in std. pkg. of 10 only.

RECEPTACLES AND PLUGS

F,M

F1

F10

Mount on or below panels, or with cable terminals. Rated 110V, 15A. or 250V, 10A. Bakelite insulation. Retainer ring types require $1^{11}/_{64}$" hole. Mounting plate types require $1^{9}/_{32}$" hole and mounting centers, slotted $1^{1}/_{2}$" to $1^{7}/_{8}$"; recessed shell types require $1^{3}/_{8}$" hole with mounting centers, $1^{3}/_{4}$". Two pole female receptacles take standard or polarized plugs. Fig. A with retainer ring. Fig. B with removable mounting plate. Fig. C with recessed shell. U.L. Approved. Av. shpg. wt. 3 oz. Sold only in std. pkg. of 10 only.

Stk. No.	Type	1-49	50-99	100-249	250-999
39F100	160-61F	1.57	1.28	1.17	1.00
39F101	160-60F	1.66	1.39	1.20	1.03
39F102	160-61M*	1.63	1.35	1.18	1.02
39F104	160-60M*	1.90	1.61	1.36	1.20
39F105	160-61-F1	1.90	1.61	1.36	1.20
39F106	160-60-F1	1.95	1.63	1.40	1.23
39F110	160-61-F10	2.84	2.38	2.06	1.79
39F116	160-61-M1P-61F	1.63	1.35	1.18	1.02

(*) With retainer ring.

TYPE S AND MP TERMINALS

"S" TYPE

"MIP" TYPE

Sockets	A	B	C	D	E
78-S4, -S5, -S6, -S7S	$1^{1}/_{4}$	$1^{5}/_{32}$	.135	.420	Approx. $^{27}/_{32}$
78-S8, -S9, -S11, -S12, -S16, -A7P, -A9P	$1^{1}/_{4}$	$1^{5}/_{32}$	.145	.490	Approx. $^{7}/_{8}$
78-S8L	$1^{1}/_{4}$	$1^{5}/_{32}$	$^{3}/_{32}$	$2^{3}/_{64}$	$^{9}/_{16}$

Retainer ring sockets. For easy assembly to chassis or panel from 19 gauge (.044") to 16 gauge (.062") with tempered steel retainer ring. Black phenolic except (*) mica filled phenolic. Rotation feature permits lining up contacts. All mount in $1^{11}/_{64}$" to $1^{7}/_{32}$" hole. With retainer. Wt. 2 oz. Sold only in std. pkg. of 10 only.

78 "S" TYPE SOLDER TERMINALS

Stk. No.	Type	1-49	50-99	100-249	250-999
38F810	78S4	1.07	.88	.76	.68
38F811	78S5	1.16	.96	.86	.74
38F812	78S6	1.25	1.05	.90	.79
38F816	78S8	1.17	.96	.86	.74
38F817	78S9	1.07	.89	.76	.68
38F821	78S11	1.29	1.09	.94	.81

78 "S" TYPE PRINTED CIRCUIT TERMINALS

Stk. No.	Type	1-49	50-99	100-249	250-999
42F814	78S8W-125	1.17	.96	.86	.74
42F816	78S11W-125	1.34	1.12	.97	.86

INDUSTRIAL TUBE RELAY SOCKETS

Type 146-817. 11 contact 4 molded-in threaded inserts. 600 V. RMS, 10 Amps.
Type 146-103. 8 contact standard socket without tie point inserts top mounted. 1250 V. RMS, 5 Amps.
Type 146-104. 8 contact 4 molded-in threaded inserts for tie points. Top mounted. Molded in one piece of Melamine. Removable contacts.
Type 146-203. Same as 146-103 except bottom mounted.
Type 146-204. Same as 146-104 except bottom mounted. Sold in std. pkg. of 5 only.

Stk. No.	Type	Oz.	1-49	50-99	100-249	250-999
38F930	146-103	8	3.53	2.95	2.55	2.22
38F931	146-104	8	4.37	3.62	3.15	2.75
38F933	146-203	8	3.53	2.95	2.55	2.22
38F934	146-204	8	4.37	3.62	3.15	2.75
39F1247	146-817	10	7.58	6.33	5.50	4.79

"CP" TYPE PLUGS DIMENSIONS

Part No.	A	B	C	D
86-CP4, -CP5, -CP6	$1^{1}/_{4}$	$1^{5}/_{32}$	$^{5}/_{32}$	$^{7}/_{16}$
86-CP8, -CP9, -CP11, -CP12	$1^{1}/_{4}$	$1^{5}/_{32}$	.145	$^{7}/_{16}$

Sold in std. pkg. of 20 only.

Stk. No.	Type	1-49	50-99	100-249	250-999
42F030	86-CP4	.75	.63	.54	.47
42F031	86-CP5	.77	.65	.57	.48
42F032	86-CP6	.83	.69	.59	.52
42F034	86-CP8	.83	.69	.59	.52
42F036	86-CP9	.87	.72	.63	.55
42F037	86-CP11	.87	.72	.63	.55
42F038	86-CP12†	.90	.75	.65	.57

†Sold in std. pkg. of 20 only.

CAPS, CABLE CLAMPS AND STEEL MOUNTING SHELLS

86-3-858

86-3-CC4

86-3-13

61-23

61-61

Sold in std. pkg. of 10 only.

Stk. No.	Type	1-49	50-99	100-249	250-999
42F017	86-3-13*	.59	.48	.43	.36
39F150	86-3-CC4*	.55	.46	.41	.35
38F1400	86-3-858	1.30	1.08	.92	.80
39F1243	160-61-61	1.01	.86	.74	.65
39F1242	160-61-23	1.44	1.19	1.02	.90

(*)Sold in std. pkg. of 25 only.

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

17D SERIES CONNECTORS

TOOLING AND ACCESSORIES

Amphenol
An ALLIED Company

357-100

356-214

356-248

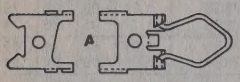
TOOLING

Stk. No.	Type	Description	Each
39F3044	357-100	Hand crimp for 357-300-02 bushing	128.40
38F1437	357-300-02	Locator bushing for crimp contact	25.00
39F1262	356-200	Handle assembly for 356-400 bits	8.00
39F3037	356-400-1	Insertion kit, crimp contacts	15.00
39F3038	356-400-5	Removal kit, crimp cont. (socket)	7.00
39F3039	356-400-6	Removal bit, crimp cont. (plug)	3.09
10F7877	356-400-10	Insertion bit, encapsulated con.	16.80
38F914	357-571	Hand crimp for 22-26 AWG wire	125.00
10F7876	356-248	Plastic removal tool for r. release	.73
38F915	356-214	Contact removal tool r. release	3.00

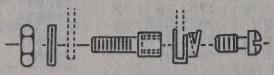
CRIMP, SNAP-IN, STAMPED AND FORMED CONTACTS

Stock No.	Type No.	Description	per pkg. of 100		
			1-9	10-49	50-99
38F912 ·	17-1391-04-100	Female	13.20	11.20	9.20
38F913	17-1392-04-100	Male	9.40	8.00	6.50

LOCKING ASSEMBLIES



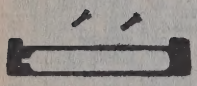
SPRING LATCH CLIP
Spring latch except (*) screw type clip.



B SCREW TYPE CLIP

C

D



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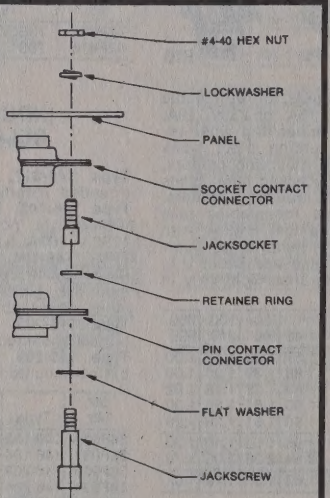
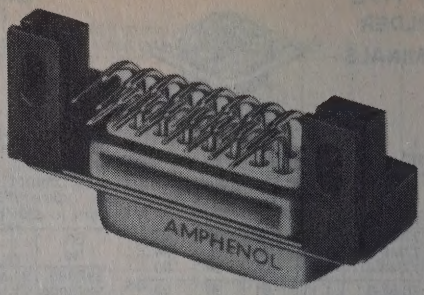


Jack Screw & Jack Socket Assembly
(for front mounting only)

Stock No.	Type	Use With	Fig.	1-24	25-49	50-99	100-249
39F1390	17-529	9-37 size	A	1.06	.88	.74	.62
39F1391	17-768	9-50 size	B	1.34	1.11	.94	.79
39F1392	17-770	50 size	A	1.08	.90	.76	.63
81F5203	17-893	Jack socket	F	1.53	1.27	1.07	.90
81F5204	17-894	Jack screw	G	1.83	1.52	1.29	1.08
81F5205	17-895	Set *	H	3.03	2.52	2.13	1.78
81F5206	D20419	Male 9-37	C	.42	.39	.35	.31
81F5207	D20420	Male 50	C	.62	.59	.48	.40
81F5208	D20418-2	Female-All	D	.66	.61	.56	.42
81F5209	D51224-1	9	E	1.26	1.21	1.04	.84
81F5210	D51220-1	15	E	.71	.66	.59	.48
81F5211	D51221-1	25	E	.71	.65	.58	.47
81F5212	D51222-1	37	E	.93	.88	.71	.60
81F5213	D51223-1	50	E	1.15	1.07	.89	.67
81F5214	D530-18	Post-2 Req.		.63	.56	.47	.39

*Set consists of jackscrew, washers, jacksocket, retainer ring, and nut.



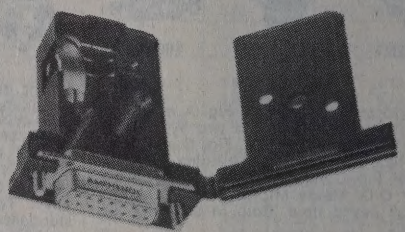
PLASTIC RIGHT ANGLE BRACKETS-(SET)

Stock No.	P/N	Each			
		1-24	25-49	50-99	100-249
81F5218	D4G819-1	.93	.88	.71	.60
81F5219	D4G820-1 (50 size)	1.11	1.05	.86	.72

PLASTIC BACKSHELL

Protects connector and secures its cable. Two piece construction permits installing at any convenient point in assembly process, and is easily removable for servicing. Interchangeable cable clamp and removable insert allows side or top cable entry location. Constructed of glass-filled nylon with hardware and clamp cadmium plated steel.

Stock No.	Shell Size	Type	1-24	25-49	50-99	100-249
38F1411	9	17-1370	1.69	1.40	1.19	.99
38F1412	15	17-1371	1.69	1.42	1.19	.99
38F1413	25	17-1372	1.69	1.42	1.19	.99
38F1414	37	17-1373	1.92	1.60	1.35	1.13
38F1415	50	17-1374	1.95	1.62	1.37	1.15



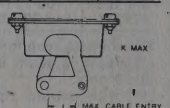
HINGE BACKSHELL

One-piece Noryl black hood. Clamp and screws are cadmium pl. cold rolled steel with clear chromate finish. Cable outlet knock-outs can be removed with pliers.

38F1800	9	17-1587-06	1.95	1.63	1.39	1.17
38F1801	15	17-1588-06	2.02	1.69	1.44	1.22
38F1802	25	17-1589-06	1.95	1.63	1.39	1.17
38F1803	37	17-1590-06	2.11	1.77	1.51	1.27
38F1804	50	17-1591-06	2.16	1.81	1.54	1.30

METAL CABLE HOUSING

Used to adapt connector for cable to panel or cable to cable applications. Easily attached to connector by two screws.



Stk. No.	Contact	Type	1-24	25-49	50-99	100-249
39F1380	9	17-310-01	2.40	1.99	1.68	1.41
39F1381	15	17-311-01	1.69	1.40	1.19	.99
39F1382	25	17-312-01	2.00	1.66	1.43	1.17
39F1383	37	17-313-01	2.40	1.94	1.68	1.41
39F1384	50	17-314-01	2.61	2.16	1.83	1.63

TWO PIECE MOLDED HOOD

Stock No.	P/N	Each			
		1-24	25-49	50-99	100-249
81F5215	DB-51226-1A	2.42	2.04	1.62	1.50

SCREW LOCK BACK SHELL

Stock No.	P/N	Each			
		1-24	25-49	50-99	100-249
81F5216	17-1485 (15 size)	2.51	2.09	1.77	1.48
81F5217	17-1486 (50 size)	2.54	2.11	1.78	1.49

SPECTRA STRIP CONNECTORS FROM AMPHENOL

Amphenol
An ALLIED Company

FLAT CABLE CONNECTORS

FRC 2-IDC socket connectors are mass terminated to flat cable and mate with the header which is affixed to the PC board. Features include positive header locking device, simplified one motion mating and unmating, with both visual and physical polarization. Specs: Voltage rating 250 VAC (PMS). Current Rating: 1A. Housing and Lock: Polyester Resin UL 94VO black—Socket Housing and Cover: Polycarbonate resin UL 94V-O black. Stain relief: Polyamide resin UL 94VO black. Contacts: Copper alloy with gold over nickel plating.

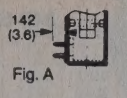


Fig. A

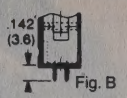
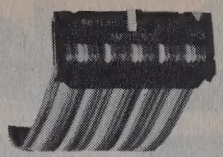


Fig. B

840HU-006



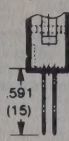
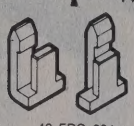


Fig. C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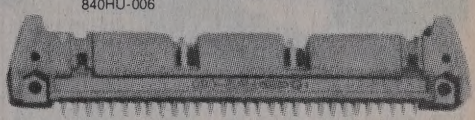


RIGHT ANGLE—DIP SOLDER W/OUT LOCK AND EJECT EAR Figure A

Stock No.	Type	Contacts	1-24	25-99	100-499
81F5006	840-FRC2-C20-L110N	20	2.31	1.82	1.43
81F5007	840-FRC2-C26-L110N	26	2.79	2.19	1.73
81F5008	840-FRC2-C34-L110N	34	3.55	2.79	2.20
81F5009	840-FRC2-C40-L110N	40	4.01	3.15	2.48
81F5010	840-FRC2-C50-L110N	50	4.75	3.73	2.94

STRAIGHT TYPE—WIRE WRAP W/OUT LOCK AND EJECT EAR Figure C

Stock No.	Type	Contacts	1-24	25-99	100-499
81F5115	840-FRC2-C20-S210N	20	4.66	3.66	2.88
81F5116	840-FRC2-C26-S210N	26	5.65	4.44	3.50
81F5117	840-FRC2-C34-S210N	34	6.64	5.21	4.11
81F5118	840-FRC2-C40-S210N	40	7.60	5.97	4.71
81F5119	840-FRC2-C50-S210N	50	8.82	6.93	5.46

STRAIGHT TYPE DIP SOLDER W/OUT LOCK AND EJECT EAR Figure B

Stock No.	Type	Contacts	1-24	25-99	100-499
81F5011	840-FRC2-C20-S110N	20	2.31	1.82	1.43
81F5012	840-FRC2-C26-S110N	26	2.79	2.19	1.73
81F5013	840-FRC2-C34-S110N	34	3.55	2.79	2.20
81F5014	840-FRC2-C40-S110N	40	4.01	3.15	2.48
81F5015	840-FRC2-C50-S110N	50	4.75	3.73	2.94

SOCKET WITH POLARIZATION KEY-LESS STRAIN RELIEF

38F1558	840-FRC2-A020-10	20	3.23	2.43	1.91
38F1560	840-FRC2-A026-10	26	4.20	3.15	2.48
38F1564	840-FRC2-A034-10	34	5.48	4.11	3.12
38F1567	840-FRC2-A040-10	40	6.47	4.85	3.82
38F1569	840-FRC2-A050-10	50	7.96	5.97	4.71

D-SUB MINIATURE—FRC CONNECTORS

841 Series D—Subminiature pin and socket connectors allow hi-re mass termination of standard .050" pitch round-conductor FRC. Without prestripping or separation of conductors. Accepts 28 and 26 AWG standard and 28 AWG solid conductors. Fully intermatable with standard D-Subminiature connectors having .054" contact spacing. Insulator: Gray-glass filled polyester UL94-V/O rating. Contacts: gold over nickel plating. Material: Phosphor bronze alloy.

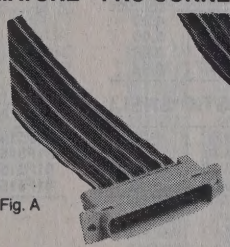


Fig. A

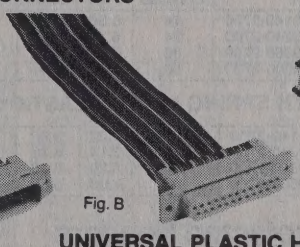


Fig. B

Fig. C

PLASTIC 841-17 SERIES—PLUGS Fig. A

Stock No.	Type	Contacts	1-24	25-99	100-499
81F5022	841-17-DEFR-B9P	9	4.46	3.39	2.66
81F5023	841-17-DAFR-B15P	15	4.89	3.71	2.91
81F5024	841-17-DBFR-B25P	25	6.67	5.05	3.98
81F5025	841-17-DCFR-B37P	37	9.55	7.23	5.70

SOCKETS Figure B

81F5026	841-17-DEFR-B9S	9	4.70	3.58	2.81
81F5027	841-17-DAFR-B15S	15	5.81	4.40	3.47
81F50	841-17-DBFR-B25S	25	7.68	5.82	4.58
81F5029	841-17-DCFR-B37S	37	10.94	8.28	6.53

UNIVERSAL PLASTIC HOODS Figure C

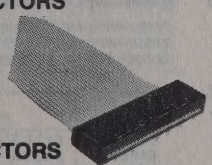
Stock No.	Type	Contacts	1-24	25-99	100-499
81F5030	841-17-10G09-12	9	1.30	1.20	.90
81F5031	841-17-10G15-12	15	1.30	1.20	.90
81F5032	841-17-10G25-12	25	1.43	1.33	.99
81F5033	841-17-10G37-12	37	1.62	1.50	1.12

METALIZED HOODS

Stock No.	Type	Contact	1-24	Each 29-99	100-499
81F5034	841-17-10G09-5032	9	3.97	3.68	2.75
81F5035	841-17-10G15-5032	15	3.97	3.68	2.75
81F5036	841-17-10G25-5032	25	4.37	4.05	3.02
81F5037	841-17-10G37-5032	37	4.97	4.60	3.43

PCB TRANSITION CONNECTORS

Mass termination up to 50 contacts at one time. FRC I/O access to PC boards on .100 ctrs.Use with boards of .062" thickness. Insulator Material: Thermoplastic glass reinforced black UL 94V/O. Contacts Phosphor bronze. Bright tin plated.



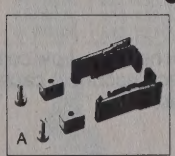
PCB TRANSITION CONNECTORS

Stock No.	Type	Contacts	1-24	25-99	100-499
81F5124	842-806-1004-002	10	1.37	1.10	.82
81F5125	842-806-2004-002	20	1.75	1.41	1.05
81F5126	842-806-2604-002	26	2.28	1.83	1.31
81F5127	842-806-3404-002	34	2.37	1.91	1.43
81F5128	842-806-4004-002	40	3.02	2.44	1.82
81F5129	842-806-5004-002	50	3.74	3.01	2.25

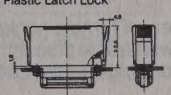
ACCESSORIES

Stock No.	P/N	Use	Pkg. of 100
67F1908	840-HU-005-1	Alternate key	11.50
67F1909	840-HU-006	Key guide	5.75
81F5114	840-FRC-001	Polarization key	5.75

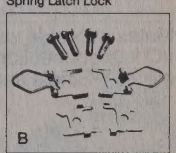
LOCKING SYSTEMS FOR PLASTIC D-SUB CONNECTORS


A

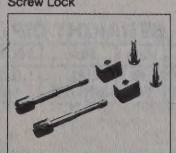
Locking systems
Plastic Latch Lock

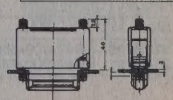


Spring Latch Lock


B

Screw Lock



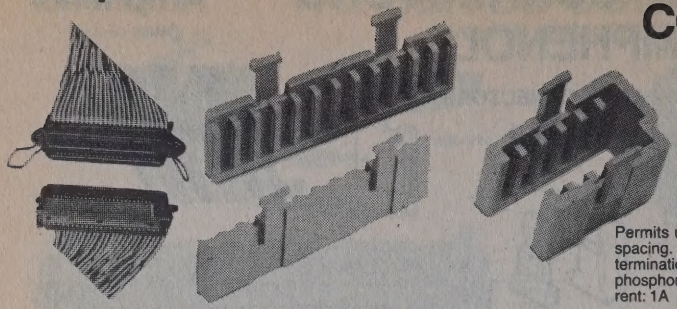

C

Stock No.	Type	Style	Fig.	1-24	25-99	100-499
81F5130	841-17-N02-V2	Plastic lock system	A	1.88	1.65	1.43
81F5131	841-17-N03-V2	Metal spring latch	B	.97	.86	.74
81F5132	841-17-N04-V2	Screw lock	C	2.07	1.83	1.58

10

Amphenol

SPECTRA STRIP CONNECTORS FROM AMPHENOL



840-57F Micro Ribbon Connectors

Permits use of standard .050" FRC in conjunction with .085" contact center spacing. Mates with Amphenol 57 solder series termination and 157 solderless termination connector. Housing: Blue polycarbonate resin UL94/VD. Contacts: phosphor bronze/gold over nickel plating. Voltage rating 250 VAC RMS. Current: 1A

ALL PLASTIC STRAIGHT PLUGS

Stock No.	Type	Contacts	1-24	25-99	100-499
81F5133	840-57F-30240-20	24	5.87	5.37	4.03
81F5134	840-57F-30360-20	30	6.91	6.32	4.74
81F5135	840-57F-30500-20	50	7.87	7.20	5.40

STRAIN RELIEF

81F5136	840-57F-24-04	24	.40	.35	.30
81F5137	840-57F-36-04	36	.40	.35	.30
81F5138	840-57F-50-04	50	.40	.35	.30

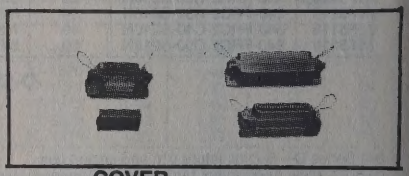
PANEL MOUNT RECEPTACLE WITH SPRING LATCH

Stock No.	Type	Contacts	1-24	25-99	100-499
81F5139	840-57F-40240-20	24	5.87	5.37	4.03
81F5140	840-57F-40360-20	36	6.91	6.32	4.74
81F5141	840-57F-40500-20	50	7.87	7.20	5.40

PANEL MOUNT RECEPTACLE LESS SPRING LATCH

81F5142	840-57F-40240-20(D1)	24	5.87	5.37	4.03
81F5143	840-57F-40360-20(D1)	36	6.91	6.32	4.74
81F5144	840-57F-40500-20(D1)	50	7.87	7.20	5.40

RIGHT ANGLE PC HEADER



RECEPTACLE WITH SPRING LATCH METAL SHELL

Stock No.	P/N	Contacts	1-24	25-99	100-499
81F5145	842-57LE-40140-2700	14	5.36	4.58	4.20
81F5146	842-57LE-40240-2700	24	6.43	5.48	5.05
81F5147	842-57LE-40360-2700	36	7.86	6.70	6.26
81F5148	842-57LE-40500-2700	50	8.83	7.44	6.85

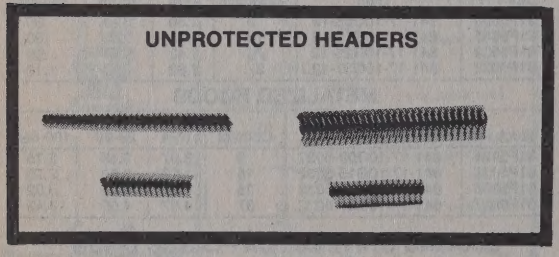
RECEPTACLE WITH SPRING LATCH PLASTIC SHELL

81F5149	840-57L-40140-2700	14	4.29	3.66	3.36
81F5150	840-57L-40240-2700	24	5.14	4.38	4.04
81F5151	840-57L-40360-2700	36	6.29	5.36	5.01
81F5152	840-57L-40500-2700	50	7.06	5.95	5.48

COVER

Stock No.	P/N	Contacts	1-24	25-99	100-499
81F5153	840-57L-14-004	14	.57	.48	.40
81F5154	840-57L-24-004	24	.57	.48	.40
81F5155	840-57L-36-004	36	.57	.48	.40
81F5156	840-57L-50-004	50	.57	.48	.40

Unprotected Headers



Mates with wide variety of female socket headers. Low cost I/O interconnection with quick disconnect/reconnect capabilities—Single and double row available.

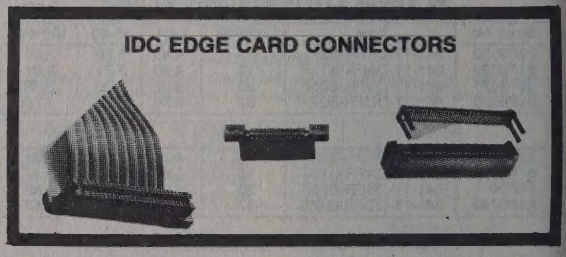
STRAIN RELIEF

Stock No.	P/N	Pins	Row	100-400	500-900	1000-Up
81F5120	842-800-560	36	DUAL	3.39	3.07	2.78
81F5121	842-800-272	36	SINGLE	1.92	1.74	1.56

RIGHT ANGLE DIP

81F5122	842-801-056	36	DUAL	4.07	3.69	3.33
81F5123	842-800-840	36	SINGLE	2.05	1.86	1.66

807 Edge Card Connectors



Mass terminated to 60 lines at one time. Flat cable access to PC boards on .100" ctrs.—insulator. Thermoplastic glass filled black UL 94VO. Contact: berylium copper. Plating: gold over nickel. Current Rating: 1A.

NO EARS

Stock No.	P/N	No. of Contacts	1-24	25-99	100-499
81F5157	842-807-1005-001	10	3.12	2.51	1.88
81F5159	842-807-2005-001	20	4.77	3.85	2.87
81F5161	842-807-2605-001	26	5.36	4.32	3.22
81F5163	842-807-3405-001	34	6.58	5.29	3.95
81F5165	842-807-4005-001	40	7.67	6.18	4.62
81F5167	842-807-5005-001	50	8.29	6.68	4.99
81F5169	842-807-6005-001	60	9.64	7.76	5.80

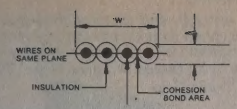
THRU HOLE

81F5158	842-807-1005-003	10	3.12	2.51	1.88
81F5160	842-807-2005-003	20	4.77	3.85	2.87
81F5162	842-807-2605-003	26	5.36	4.32	3.22
81F5164	842-807-3405-003	34	6.58	5.29	3.95
81F5166	842-807-4005-003	40	7.67	6.18	4.62
81F5168	842-807-5005-003	50	8.29	6.68	4.99
81F5170	842-807-6005-003	60	9.64	7.76	5.80

Spectra Strip Cables & Tools

Amphenol
An ALLIED Company

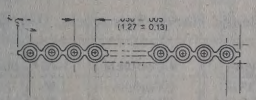
SPECTRA BOND SS SERIES



Planar cable for point to point wiring. Conductor insulation .010 nom. wall, flame retardant PVC. 300v per UL Cable style UL 2697-2693

Stock No.	P/N	AWG/STR	Cond.	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5038	843-111-3001-010	30/7/38	10	.32	38.69	23.53	16.48
81F5039	843-111-3001-015	30/7/38	15	.48	58.04	35.30	24.65
81F5040	843-111-3001-020	30/7/38	20	.64	77.38	47.06	32.86
81F5041	843-111-3001-030	30/7/38	30	.96	116.07	70.60	49.29
81F5042	843-111-2801-010	28/7/36	10	.35	33.71	20.46	14.31
81F5043	843-111-2801-015	28/7/36	15	.53	50.66	30.69	21.47
81F5044	843-111-2801-020	28/7/36	20	.70	67.42	40.92	28.62
81F5045	843-111-2801-030	28/7/36	30	1.05	101.12	61.37	42.93
81F5046	843-111-2601-010	26/7/34	10	.39	32.12	19.93	13.57
81F5047	843-111-2601-014	26/7/34	14	.55	44.97	27.90	19.00
81F5048	843-111-2601-015	26/7/34	15	.59	48.18	29.89	20.35

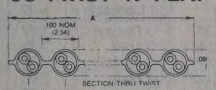
3C COLOR CODED PLANAR



3 C cable used for digital and analog signal transmission. Cable thickness .042 nom. Clear PVC laminate VoltageRating300VCurrent IAUL Style 2697

Stock No.	P/N	Cond.	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5060	843-135-2801-010	10	.45	36.24	30.81	25.39
81F5061	843-135-2801-014	14	.65	45.06	38.31	31.57
81F5062	843-135-2801-016	16	.75	50.03	42.53	35.02
81F5063	843-135-2801-020	20	.95	62.54	53.16	43.78
81F5064	843-135-2801-024	24	1.15	75.05	63.79	52.53
81F4954	843-135-2801-025	25	1.20	78.18	66.45	54.73
81F5065	843-135-2801-026	26	1.25	81.30	69.11	56.91
81F5066	843-135-2801-034	34	1.65	106.32	90.38	74.42
81F4955	843-135-2801-037	37	1.80	115.70	98.35	80.99
81F5067	843-135-2801-040	40	1.95	125.08	106.32	87.56
81F5068	843-135-2801-050	50	2.45	156.35	132.90	109.45
81F5069	843-135-2801-060	60	2.95	187.62	159.48	131.33
81F5070	843-135-2801-064	64	3.15	200.13	170.11	140.09

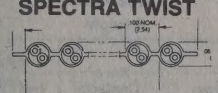
3C TWIST 'N' FLAT



Mass termination of twisted pairs to all standard 50 mil IDC connectors UL Cable style 2697—Flexible PVC insulation. Color coded with a tan common to allow ten repeatable colors—28 AWG—7/36 strand tin copper: Conductor Spacing—twisted—.100 nom—Flats .050" ± .005". Thickness—.042" nom flat sections.

Stock No.	P/N	Pairs	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5083	843-132-2801-10	10	.53	57.23	44.96	38.15
81F5084	843-132-2801-14	14	.73	80.06	62.91	53.38
81F5085	843-132-2801-16	16	.83	91.35	71.78	60.90
81F5086	843-132-2801-20	20	1.03	114.19	89.73	76.13
81F5087	843-132-2801-26	26	1.33	148.58	116.74	99.05
81F5088	843-132-2801-34	34	1.73	194.51	152.84	129.68
81F5089	843-132-2801-40	40	2.03	233.63	183.56	155.75
81F5090	843-132-2801-50	50	2.53	286.13	224.81	190.75
81F5091	843-132-2801-60	60	3.03	343.09	269.58	228.73
81F5092	843-132-2801-64	64	3.23	365.93	287.51	243.95

SPECTRA TWIST



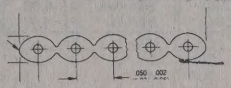
Stock No.	P/N	Pairs	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5099	843-138-2601-014	7	.8	60.00	51.00	42.00
81F5100	843-138-2601-016	8	.9	68.56	58.28	48.00
81F5101	843-138-2601-020	10	1.1	85.70	72.84	60.00
81F5102	843-138-2601-026	13	1.4	111.42	94.70	77.98
81F5103	843-138-2601-034	17	1.8	145.70	123.84	101.98
81F5104	843-138-2601-040	20	2.1	171.40	145.70	119.98
81F5105	843-138-2601-050	25	2.6	214.26	182.12	149.98
81F5106	843-138-2601-060	30	3.1	257.10	218.54	179.98
81F5107	843-138-2601-064	32	3.3	274.24	233.10	191.97

Stock No.	P/N	AWG/STR	Cond.	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5049	843-111-2601-016	26/7/34	16	.63	51.39	31.88	21.71
81F5050	843-111-2601-020	26/7/34	20	.78	64.24	39.86	27.14
81F5051	843-111-2601-030	26/7/34	30	1.17	96.35	59.78	40.70
81F5052	843-111-2401-010	24/7/32	10	.44	38.05	23.53	15.90
81F5053	843-111-2402-015	24/19/36	15	.68	78.71	48.65	32.91
81F5054	843-111-2402-020	24/19/36	20	.90	104.94	64.87	43.88
81F5055	843-111-2401-030	24/7/32	30	1.32	114.16	70.60	47.70
81F5056	843-111-2201-010	22/7/30	10	.51	49.29	30.63	20.67
81F5057	843-111-2202-015	22/19/34	15	.77	92.06	56.76	38.73
81F5058	843-111-2202-020	22/19/34	20	1.02	122.75	75.68	51.52
81F5059	843-111-2202-030	22/19/32	30	1.53	134.12	113.53	77.27

SPECTRA GUARD JACKETED

Stock No.	P/N	Cond.	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5108	843-151-2810-020	20	1.12	124.47	102.07	83.41
81F5109	843-151-2810-025	25	1.37	155.19	127.26	103.98
81F5110	843-151-2810-026	26	1.42	160.10	131.28	107.27
81F5111	843-151-2810-034	34	1.82	203.77	167.09	136.52
81F5112	843-151-2810-050	50	2.62	298.21	244.53	199.80

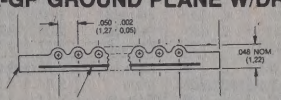
SPECTRA ZIP GRAY 28AWG RED EDGE



Low cost terminations to all standard 50 mil IDC connectors. 28 AWG. 7/36 strand. Color-Gray-one edge red. Thickness .036" nom. Laminate-Gray PVC flame retardant.

Stock No.	P/N	Cond.	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5071	843-191-2801-010	10	.45	20.83	17.71	14.59
81F5072	843-191-2801-014	14	.65	29.16	34.79	20.41
81F5073	843-191-2801-016	16	.75	33.33	28.33	23.34
81F5074	843-191-2801-020	20	.95	41.67	35.42	29.18
81F5075	843-191-2801-024	24	1.15	49.99	42.49	35.00
81F5076	843-191-2801-025	25	1.20	52.06	44.25	36.75
81F5077	843-191-2801-026	26	1.25	54.17	46.04	37.93
81F5078	843-191-2801-034	34	1.65	70.82	60.19	49.59
81F5079	843-191-2801-040	40	1.95	83.32	70.81	58.33
81F5080	843-191-2801-050	50	2.45	104.16	88.53	72.93
81F5081	843-191-2801-060	60	2.95	124.98	106.24	87.51
81F5082	843-191-2801-064	64	3.15	133.30	113.30	93.34

SPECTRA-GP GROUND PLANE W/DRAIN WIRE



Lower crosstalk with integrally laminated ground plane of expanded copper mesh. Edge mark: Black edge with drain. Conductors and drain: 28 AWG—7/36 strand tin copper. .050" ctr.

Stock No.	P/N	Cond.	Width	Price Per 100' Spool 1-4	5-9	10-up
81F5093	843-133-2801-020	20	1.25	146.94	124.84	102.93
81F5094	843-133-2801-026	26	1.55	188.53	160.19	132.07
81F5095	843-133-2801-034	34	1.95	246.34	209.30	172.57
81F5096	843-133-2801-040	40	2.25	290.57	246.88	203.55
81F5097	843-133-2801-050	50	2.75	365.26	310.42	255.87
81F5098	843-133-2801-060	60	3.25	427.45	363.16	299.44

TOOLS AND ATTACHMENTS

Fig. 1

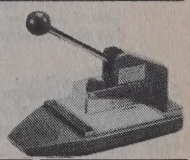
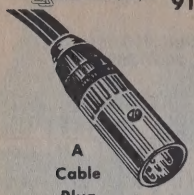


Fig. 2

Stock No.	P/N	Use	Fig.	Each
67F3800	840-357J-4231	Termination Tool Less Attach.	1	320.00
67F3801	840-357J-4256	Cutting Tool/Less Attach. Attachments	2	245.00
81F4958	840-357J-4291	Term. FRC 2 Socket		100.00
81F4947	841-FL-0100-17	Term. 17D Sub. Min.		135.00
81F4948	840-357J-4378	Term. 57F Microribbon		100.00
81F4949	842-322-0602-003	Term PCB Conn.		95.40
81F4950	842-322-0702-004	Term. Edge Conn.		95.40
81F4951	842-322-0207-022	Cover removal tool		11.45

10

91 -Q-Audio Connectors



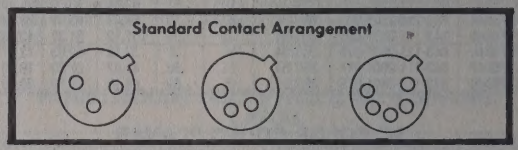
A
Cable
Plug

B
Square
Flange
Receptacle

C
Round
Flange
Receptacle

● Intermatable and interchangeable with all present industry standard latch-lock type audio connectors ● Solid Diecast ● Satine Nickel Plating ● Quick, Easy Assembly ● Set Screw Cable Grip

The 91 contact resistance has a voltage drop between 45-50 mV. Its corrosion resistance can withstand standard MIL-STD-202 48-hour salt spray test without damage or corrosion. It's Zinc die-cast with protective satine and nickel plated. Insert dielectric is thermoplastic. Contacts are copper alloy with tin-lead plating. Pins and socket are solder cup termination. Cable clamp set screw accept commonly use 3/16" to 5/16" diameter cables.



Cable Plug Fig. A.

Stk. No.	Type	# Contacts	1-49	50-99	100-249	250-999
38F1546	91-3CF	3 Female	2.87	2.15	1.69	1.60
38F1547	91-3CM	3 Male	2.47	1.85	1.45	1.38
38F1552	91-4CF	4 Female	3.57	2.69	2.11	2.00
38F1553	91-4CM	4 Male	2.66	2.01	1.58	1.48
10F7680	91-5CF	5 Female	6.01	4.53	3.55	3.34
10F7681	91-5CM	5 Male	4.87	3.65	2.88	2.71

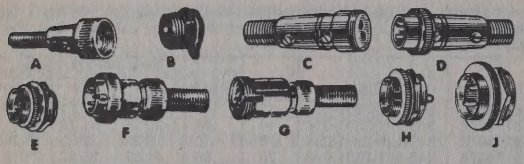
Square Flange Receptacle-Fig. B.

38F1550	91-3SF	3 Female	3.86	2.91	2.29	2.15
38F1551	91-3SM	3 Male	2.36	1.77	1.39	1.31
38F1556	91-4SF	4 Female	4.03	3.03	2.39	2.25
38F1557	91-4SM	4 Male	2.52	1.90	1.49	1.41
10F7686	91-5SF	5 Female	6.35	4.78	3.76	3.54
10F7687	91-5SM	5 Male	4.42	3.31	2.61	2.46

Round Flange-Receptacle (Fig. C.)

Stk. No.	Type	# Contacts	1-49	50-99	100-249	250-499
38F1548	91-3RF	3 Female	3.80	2.87	2.26	2.12
38F1549	91-3RM	3 Male	1.92	1.44	1.13	1.07
38F1554	91-4RF	4 Female	3.98	2.99	2.36	2.22
38F1555	91-4RM	4 Male	2.06	1.55	1.23	1.14
10F7682	91-5RF	5 Female	6.30	4.73	3.73	3.51
10F7683	91-5RM	5 Male	4.48	3.38	2.66	2.50

MICROPHONE CONNECTORS



10

SINGLE CONTACT

For standard audio equipment. Plugs can be converted to jacks by removing coupling ring. Mounts in .385" holes when grounded.

FOR USE WITH SHIELDED CABLE

Stk. No.	Type	Fig.	Con.	Description	1-49	50-99	100-249	250-499
39F007	80-M	D	1M	Male	2.66	2.22	1.91	1.64
39F008	80-C	E	1F	Female	1.89	1.57	1.38	1.18
39F009	80-MC2F	C	2F	Female	3.00	2.51	2.17	1.86
39F1284	80-MC2F1	D	2F	Female	3.77	3.15	2.74	2.34
39F010	80-MC2M	D	2M	Male	2.75	2.29	1.99	1.69
39F1285	80-MC2M1	C	2M	Male	2.84	2.37	2.05	1.75
39F011	80-PC2F	H	2F	Female	2.11	1.75	1.52	1.31
39F1286	80-PC2M	J	2M	Male	2.01	1.68	1.47	1.25

SINGLE BUTTON CONTACT

Shielded general purpose audio connector for use in microphones and wherever a single conductor, shielded connector is required. Screw on coupling ring to lock.

Stk. No.	Type	Fig.	Con.	Description	1-49	50-99	100-249	250-499
39F000	80-75-MC1F	A	1	Male	2.28	1.89	1.64	1.41
39F002	80-75-PC1M	B	1	Female	1.94	1.62	1.41	1.20

Plugs-Fig. F

Stk. No.	Type	# Contacts	1-49	50-99	100-249	250-999
39F013	91-MC3M	3 Male	3.50	2.92	2.54	2.17
39F1287	91-MC3F1	3 Female	3.75	3.12	2.71	2.31
39F016	91-MC4M	4 Male	3.15	2.63	2.28	1.95
39F1290	91-MC4F1	4 Female	3.75	3.12	2.71	2.31
38F1543	91-MC6M	6 Male	3.47	2.89	2.51	2.15

Jacks-Fig. G

Stk. No.	Type	# Contacts	1-49	50-99	100-249	250-499
39F012	91-MC3F	3 Female	3.67	3.05	2.65	2.27
39F1288	91-MC3M1	3 Male	3.67	3.05	2.65	2.27
39F015	91-MC4F	4 Female	3.75	3.12	2.71	2.31
39F1291	91-MC4M1	4 Male	3.63	3.02	2.63	2.24
38F1542	91-MC6F	6 Female	4.22	3.51	3.05	2.62

Receptacles-Fig. H except (*) J

Stk. No.	Type	# Contacts	1-49	50-99	100-249	250-499
39F014	91-PC3F	3 Female	2.88	2.40	2.08	1.77
39F1289	91-PC3M*	3 Male	2.35	1.96	1.70	1.46
39F017	91-PC4F	4 Female	2.66	2.23	1.94	1.65
39F1292	91-PC4M*	4 Male	2.40	1.99	1.73	1.48
38F1544	91-PC6F	6 Female	3.15	2.63	2.28	1.95

Mobile Radio Interconnects

Stk. No.	Type	Fits	1-49	50-99	100-249	250-499
10F7703	91-MC4M-12	Motorola	3.63	3.02	2.63	2.24
10F7704	91-PC4F-12	G.E.	2.66	2.23	1.94	1.65

91T Series Microphone Connectors

SPECIFICATIONS

Current Rating: 3 amps per contact. **Voltage Rating:** 3, 4, 5, 6, and 7 contacts—120V; 12 contacts—60V. **Dielectric:** Black polycarbonate. **Contacts** Pin—Silver-plated brass; Socket—Silverplated phosphor bronze. **Wire Size:** 20 ga.

PANEL RECEPTACLES

Stk. No.	Type	No. of Contacts	Each 1-49	50-99	100-249	250-999
47F030	91-T-3263-9	3	2.14	1.73	1.46	1.25
47F031	91-T-3303-9	4	2.20	1.81	1.51	1.31
47F032	91-T-3363-9	5	2.41	1.96	1.64	1.42
47F033	91-T-3403-9	6	2.43	1.98	1.67	1.44
47F034	91-T-3478-9	7	2.62	2.15	1.79	1.55
47F035	91-T-3638-9	12	5.87	4.80	4.01	3.48

CABLE PLUGS

Straight

Stk. No.	Type	No. of Contacts	Each 1-49	50-99	100-249	250-999
47F020	91-T-3260-1	3	4.09	3.35	2.78	2.42
47F021	91-T-3300-1	4	4.09	3.35	2.78	2.42
47F022	91-T-3360-1	5	4.17	3.40	2.86	2.46
47F023	91-T-3400-1	6	4.58	3.73	3.12	2.70
47F024	91-T-3475-1	7	4.63	3.79	3.16	2.74
47F025	91-T-3635	12	7.70	6.29	5.25	4.55

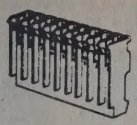
Right Angle

47F026	91-T-3360-6	5	5.74	4.70	3.93	3.39
47F027	91-T-3400-6	6	5.76	4.73	3.94	3.42
47F028	91-T-3475-6	7	5.98	4.90	4.09	3.54
47F029	91-T-3635-6	12	10.90	8.92	7.44	6.44

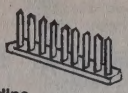
IDC Connectors and Headers

PANDUIT CORP

Designed for mass-termination of both discrete wire and notched flat cable. Pre-loaded insulation displacement contacts eliminate need for hand crimping and hand loading of contacts into housings.



.100" and .156" centerline connectors



.100" and .156" centerline headers

MAS-CON .100" Centerline END CONNECTORS

Stk. No.	Model	No. of Circuits	AWG	Std. Pkg.	Per Pkg. 1-4	Per Pkg. 5-Up
67F911	CE100F26-2	2	26	100	21.75	18.10
67F912	CE100F26-3	3	26	100	29.35	24.44
67F913	CE100F26-4	4	26	100	38.00	31.66
67F914	CE100F26-5	5	26	100	46.41	38.67
67F915	CE100F26-6	6	26	100	54.39	45.30
67F916	CE100F26-7	7	26	100	62.73	52.22
67F917	CE100F26-8	8	26	100	71.52	59.60
67F918	CE100F26-10	10	26	50	88.28	73.53
67F919	CE100F26-12	12	26	50	106.76	88.95
67F920	CE100F24-2	2	24	100	21.75	18.10
67F921	CE100F24-3	3	24	100	29.35	24.44
67F922	CE100F24-4	4	24	100	38.00	31.66
67F923	CE100F24-5	5	24	100	46.41	38.67
67F924	CE100F24-6	6	24	100	54.39	45.30
67F925	CE100F24-7	7	24	100	62.73	52.22
67F926	CE100F24-8	8	24	100	71.52	59.60
67F927	CE100F24-10	10	24	50	88.28	73.53
67F928	CE100F24-12	12	24	50	106.76	88.95
67F929	CE100F22-2	2	22	100	21.75	18.10
67F930	CE100F22-3	3	22	100	29.35	24.44
67F931	CE100F22-4	4	22	100	38.00	31.66
67F932	CE100F22-5	5	22	100	46.41	38.67
67F933	CE100F22-6	6	22	100	54.39	45.30
67F934	CE100F22-7	7	22	100	62.73	52.22
67F935	CE100F22-8	8	22	100	71.52	59.60
67F936	CE100F22-10	10	22	50	88.28	73.53
67F937	CE100F22-12	10	22	50	106.76	88.95

MAS-CON .156" Centerline END CONNECTORS

Stk. No.	Model	No. of Circuits	AWG	Std. Pkg.	Per Pkg. 1-4	Per Pkg. 5-Up
67F947	CE156F24-2	2	24	100	24.62	20.52
67F948	CE156F24-3	3	24	100	33.67	28.04
67F949	CE156F24-4	4	24	100	43.78	36.48
67F950	CE156F24-5	5	24	100	53.58	44.69
67F951	CE156F24-6	6	24	100	63.00	52.52
67F952	CE156F24-7	7	24	100	72.81	60.65
67F953	CE156F24-8	8	24	50	83.14	69.31
67F954	CE156F24-10	10	24	50	102.83	85.65
67F955	CE156F24-12	12	24	50	124.18	103.51
67F956	CE156F22-2	2	22	100	24.62	20.52
67F957	CE156F22-3	3	22	100	33.67	28.04
67F958	CE156F22-4	4	22	100	43.78	36.48
67F959	CE156F22-5	5	22	100	53.58	44.69
67F960	CE156F22-6	6	22	100	63.00	52.52
67F961	CE156F22-7	7	22	100	72.81	60.65
67F962	CE156F22-8	8	22	50	83.14	69.31
67F963	CE156F22-10	10	22	50	102.83	85.65
67F964	CE156F22-12	12	22	50	124.18	103.51
67F965	CE156F20-2	2	20	100	24.62	20.52
67F966	CE156F20-3	3	20	100	33.67	28.04
67F967	CE156F20-4	4	20	100	43.78	36.48
67F968	CE156F20-5	5	20	100	53.58	44.69
67F969	CE156F20-6	6	20	100	63.00	52.52
67F970	CE156F20-7	7	20	100	72.81	60.65
67F971	CE156F20-8	8	20	50	83.14	69.31
67F972	CE156F20-10	10	20	50	102.83	85.65
67F973	CE156F20-12	12	20	50	124.18	103.51
67F974	CE156F18-2	2	18	100	24.62	20.52
67F975	CE156F18-3	3	18	100	33.67	28.04
67F976	CE156F18-4	4	18	100	43.78	36.48
67F977	CE156F18-5	5	18	100	53.58	44.69
67F978	CE156F18-6	6	18	100	63.00	52.52
67F979	CE156F18-7	7	18	100	72.81	60.65
67F980	CE156F18-8	8	18	50	83.14	69.31
67F981	CE156F18-10	10	18	50	102.83	85.65
67F982	CE156F18-12	12	18	50	124.18	103.51

.100" Centerline HEADER ASSEMBLIES Flat Wafer with Straight, Square Posts

Stock No.	Model	No. of Circuits	Std. Pkg.	Per Pkg. 1-4	Per Pkg. 5-Up
67F938	HFSS100-2	2	100	23.56	19.60
67F939	HFSS100-3	3	100	27.65	23.00
67F940	HFSS100-4	4	100	31.30	26.10
67F941	HFSS100-5	5	100	34.70	28.95
67F942	HFSS100-6	6	100	38.40	32.00
67F943	HFSS100-7	7	100	42.50	35.40
67F944	HFSS100-8	8	100	46.90	39.10
67F945	HFSS100-10	10	50	52.45	43.70
67F946	HFSS100-12	12	50	60.65	50.55

.156" Centerline HEADER ASSEMBLIES Flat Wafer with Straight, Square Posts

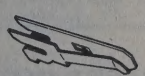
Stock No.	Model	No. of Circuits	Std. Pkg.	Per Pkg. 1-4	Per Pkg. 5-Up
67F983	HFSS156-2	2	100	11.88	9.94
67F984	HFSS156-3	3	100	17.82	14.85
67F985	HFSS156-4	4	100	18.36	15.34
67F986	HFSS156-5	5	100	20.41	17.01
67F987	HFSS156-6	6	100	22.25	18.58
67F988	HFSS156-7	7	100	26.03	21.71
67F989	HFSS156-8	8	50	29.70	24.79
67F990	HFSS156-10	10	50	37.26	31.05
67F991	HFSS156-12	12	50	42.77	35.64

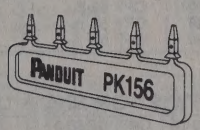
CONNECTOR INSTALLATION TOOLS—Individually Terminated Wires

MRT Hand Tool

Ideal for prototypes and repair.

Stock No.	Type	Description	Each
67F996	MRT-100F	For .100" connectors	8.80
67F997	MRT-156F	For .156" connectors	8.80

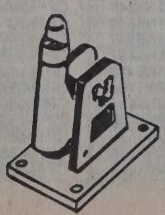




Polarizing Keys

Stock No.	Type	Per Pkg. of 100
67F998	PK100	7.65
67F999	PK156	7.65

PCT Pneumatic Tool



MCT Manual Tool

Controlled cycle insures proper termination. Self indexing. Used with either nose section shown below. Wgt. 10 oz.

Stock No.	Type	NET
67F994	MCT	82.50

CTD Interchangeable Nose Sections

Used with MCT or PCT tools to terminate unstripped wires in end connectors. Wire insertion guide. Self-indexing. Controlled cycle assures consistent connections.

Stock No.	Type	Description	Net Price
67F992	CTD-100F	For .100" connectors	55.00
67F993	CTD-156F	For .156" connectors	55.00

PCT Pneumatic Tool

Use with either CTD nose section. Includes hose and filter/regulator. Wgt. 11 oz.

PCTBM Bench Mount

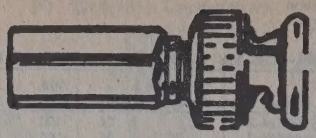
Converts PCT Tool to single wire insertion bench press. Includes foot valve, hose and hose fittings. PCT tool and CTD nose section must be ordered separately.

Stock No.	Type	Description	Net Price
67F995	PCT	Pneumatic Tool	137.50
81F4602	PCTBM	Bench Mount	75.00

10

EASY-ON™ brand Coaxial Connectors

ADVANCE IN COAXIAL CABLE CONNECTOR DESIGN



EASY-ON FAMILY®
SELF-ENERGIZING CONNECTORS

Self-energizing center contact, pre-assembled in the body, provides a positive mating of the center conductor and the contact. Cable attachment is achieved by tapered and threaded back-end opening, which makes it easy to twist the unit onto the cable braid and jacket, insuring good grounding and a high integrity termination. Patent pending.

- **Save Time and Money on Assembly**

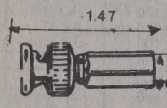
No contact soldering or contact crimping, no additional parts such as loose clamp nuts, insulators, or sub-assemblies to handle. No wrenches required, and no need for training or dexterity. The SPC Technology Easy-On series of BNC connectors reduces average installation time by 83% (40 seconds vs. 4 minutes for standard BNCs).

ELECTRICAL CHARACTERISTICS

- **Nominally 50 or 75 Ohm impedance.**
- **Peak voltage rating 500 Volts rms.**
- **Dielectric withstanding voltage 1500 volts rms.**
- **Insertion loss less than .1 db @ 2 gHz.**
- **VSWR 1.05 @ 1 gHz, 1.2 @ 2 gHz.**
- **Bright nickel-plated brass body and ferrule.**
- **High-density polyethylene insulators.**

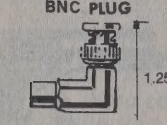
TWIST-ON COAXIAL CABLE CONNECTORS

- **Twist-On cable attachment (pat. pend.)**
- **No solder or special tools required**
- **No loose contact or other parts to handle**
- **Utilizes self-contained, self-energizing contact (pat. pend.)**
- **Material: brass, bright nickel plated hardware, high density polyethylene insulator**



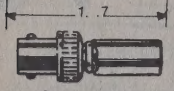
BNC PLUG

Type	Cable Type	C Dia.
CPFI-UG88-1	RG58/U	.344
CPFI-UG88-2	RG59&62/U	.344
CPFI-UG88-3	Belden 8281	.375
CPFI-UG88-4	CATV/MATV 59/U	.344
CPFI-UG88-10	TFE 62/U Plenum cable	.344



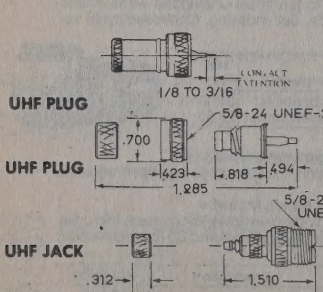
BNC PLUG
RIGHT ANGLE

Type	Cable Type	
CPFI-RA-1	RG58/U	.344
CPFI-RA-2	RG59&62/U	.344
CPFI-RA-3	Belden 3281	.375
CPFI-RA-4	CATV/MATV 59/U	.344
CPFI-RA-10	TFE 62/U Plenum cable	.344



BNC JACK

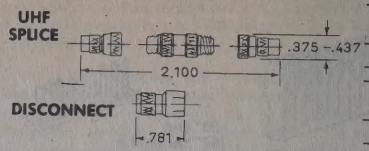
Type	Cable Type	
CPFI-UG89-1	RG58/U	.344
CPFI-UG89-2	RG59/U &62/U	.344



Type	Cable Type
CPFI 259-19	RG58/U
CPFI 259-11	RG59/U

Type	Cable Type
CPFI 259-13	RG8/U

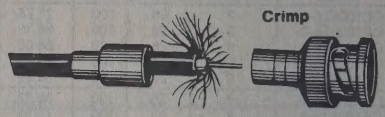
Type	Cable Type
CPFI 249-15	RG58/U



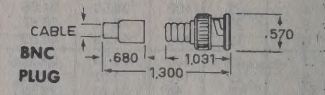
Type	Cable Type
CPFI 5858	RG58/U

Type	Cable Type
CPFI 59QD	RG59/U

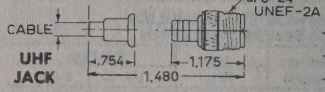
CRIMP TYPE COAXIAL CABLE CONNECTORS



- **One-step temination with strain relief. (No center contact crimp or soldering required).**
- **Two-piece connector construction (no loose contact or other parts to handle).**
- **Utilizes self contained, self energizing contact (pat. pend.).**
- **Hand, bench & power tools available.**
- **Material: brass, bright nickel plated hardware high density polyethylene insulator.**



Type	Cable Type	C Dia.
CP88-1	RG58/U	.213
CP88-2	RG59&62/U	.260
CP88-3	Belden 8281	
CP88-4	CATV-MATV 59/U	.260



Type	Cable Type	A
CPF 249-10	RG58/U	.213
CPF 249-14	RG59/U	.260

MALE "F" SERIES FITTING

Type	Cable Type
CPF 59-S	59/U
CPF 59-1/8	59/U
CPF 56-1/8	6/U

Stock No.	Type	Each 1-9	10-24	25-99	100-499
32N1108	CP 88-1	3.08	2.62	2.31	1.93
32N1109	CP 88-2	3.08	2.62	2.31	1.93
32N1127	CP 88-4	3.08	2.62	2.31	1.93
32N1111	CPF-249-10	1.92	1.64	1.37	1.08
32N1128	CPF-249-14	2.12	1.81	1.59	1.33

		Packages of 2			
32N1110	CPF 59-S	.72	.62	.54	.45
32N1129	CPF 59-1/8	.72	.62	.54	.45
32N1130	CPF 56-1/8	.72	.62	.54	.45

TWIST-ON BNC & UHF PLUGS & JACKS

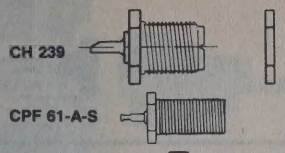
32N1100	CPFI-UG88-1	3.84	3.27	2.88	2.40
32N1101	CPFI-UG88-2	3.84	3.27	2.88	2.40
32N1123	CPFI-UG88-3	4.56	3.88	3.42	2.85
32N1124	CPFI-UG88-4	3.84	3.27	2.88	2.40
81N5459	CPFI-UG88-10	3.84	3.27	2.74	2.16
81N5343	CPFI-RA-1	8.24	7.01	6.18	5.15
81N5344	CPFI-RA-2	8.24	7.01	6.18	5.15
81N5345	CPFI-RA-3	8.24	7.01	6.18	5.15
81N5346	CPFI-RA-4	8.24	7.01	6.18	5.15
81N5347	CPFI-RA-10	8.24	7.01	6.18	5.15
81N5437	CPFI-UG89-1	3.76	3.13	2.44	2.00
81N5438	CPFI-UG89-2	4.08	3.40	2.66	2.17
32N1103	CPFI-259-11	2.04	1.74	1.53	1.28
32N1104	CPFI-259-13	2.16	1.84	1.62	1.35
32N1102	CPFI-259-19	2.04	1.74	1.53	2.17
32N1105	CPFI-59-QD	1.92	1.64	1.44	1.20
32N1106	CPFI-5858	3.52	3.00	2.64	2.20
32N1107	CPFI-249-15	3.04	2.59	2.28	1.90

Coaxial Connectors

EASY-ON™ brand

MISCELLANEOUS FITTINGS

- Aluminum or brass, contacts and bodies
- All brass parts, cadmium plated
- All steel parts, zinc plated
- High density polyethylene insulation



Panel mounting UHF receptacle CH 239 series

F series chasis mounting for thick wall housings. Lock washer and nut included. ½ HEX.

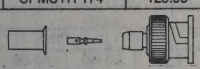
F series male splice for use with RG/U type cables. Accepts 18-22 AWG conductors. Lock washers and nuts included. ½ HEX.

Stk. No.	Type	Each 1-9	10-24	25-99	100-499
32N1112	CH 239	1.28	1.09	.96	.80
32N1113	CPF 61-A-S	.96	.82	.72	.60
32N1114	CPF 81-AB	.76	.65	.57	.48

CRIMP CONNECTOR TOOL RATCHET HAND CRIMP TOOL WITH STEEL DIES

Cable-RG/U#	Connector Type	Tool Type	Description
58	CP-88-1	CTR 88-1	Tool
		CTR 88-1 D.S.	Die Set
59	CP 88-2	CTR 88-2	Tool
		CTR 88-2 D.S.	Die Set
55, 58, 141, 142 223, 400	CPMC-88	CPCTR 88-58	Tool
59, 62, 140, 210 88, 174	CPMC-88	CPCTR 88-59	Tool
	CPM-88	CPMCTR	Tool

Stock No.	Type	1-9	10-Up
32N1115	CTR 88-1	125.95	113.35
32N1116	CTR 88-2	125.95	113.25
37N2146	CTR 88-1DS	37.10	29.68
37N2147	CTR 88-2DS	37.10	29.68
81N5467	CPCTR 88-58	128.95	105.95
81N5468	CPCTR 88-59	128.95	105.95
81N5469	CPMCTR 174	128.95	105.95

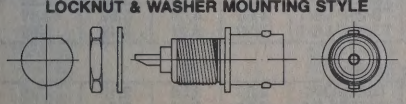


COMMERCIAL-MIL. TYPE CRIMP-ON BNC PLUG

Features: Crimp center conductor, Crimp braid with cable strain relief, Attractive wrap-around crimp sleeve flange.

Stk. No.	Type	RG/U Cable	Each 1-24	25-99	100-499	500-999
81N5445	CPMC 88-55	55	2.62	2.04	1.67	1.44
81N5443	CPMC 88-58	58	2.44	1.90	1.55	1.34
81N5439	CPMC 88-59	59	2.46	1.92	1.57	1.35
81N5440	CPMC 88-62	62	2.49	1.95	1.59	1.37
81N5441	CPMC 88-140	140	2.46	1.92	1.57	1.35
81N5444	CPMC 88-141	141	2.44	1.90	1.55	1.34
81N5446	CPMC 88-142	142	2.62	2.04	1.67	1.44
81N5442	CPMC 88-210	210	2.46	1.92	1.57	1.35
81N5443	CPMC 88-223	223	2.62	2.04	1.67	1.44
81N5448	CPMC 88-400	400	2.62	2.04	1.67	1.44

LOCKNUT & WASHER MOUNTING STYLE



RECOMMENDED PANEL MOUNTING HOLE

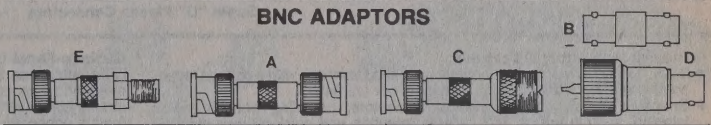
CABLEMATIC

Coaxial Wire Stripper

Specially modified providing fast, easy cable stripping for the EASY-ON connector types shown below. Insert cable in one end and turn cablematic to strip jacket. Strip dielectric in opposite end of tool.

Stock No.	Type	Cable Size	For connector types	1-4	5-9	10-up
81N5465	Cablematic-RG-58	RG-58/U	CP-88-1, CPF 249-10	34.20	28.50	22.80
81N5466	Cablematic-RG-59	RG-59/U	CP-88-2, CP-88-4, CPF 249-14	34.20	28.50	22.80

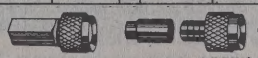
BNC ADAPTORS



Stock No.	Type	Overall Length	F1 G	1-9	10-24	25-99	100-499
81N5460	BNC Plug/Plug	2″	A	7.60	6.46	5.70	4.75
81N5461	BNC Jack/Jack	1¼″	B	5.20	4.42	3.90	3.25
81N5462	BNC Plug/UHF Jack	2″	C	7.80	6.63	5.85	4.88
81N5463	BNC Jack/UHF Plug	2″	D	5.80	4.93	4.35	3.63
81N5464	BNC Plug/F Jack	2″	E	6.00	5.10	4.50	3.75

TNC PLUGS

TWIST–ON



CRIMP–ON

EASY-ON twist on CPFI-TNC model one piece connector construction with both crimpless and solderless center conductor/braid connections. Requires no tools.

Easy-On crimp on CP-TNC model two piece connector construction with crimpless solderless captive center contact and crimped outer band. Note: Same overall dimensions and "C" dia. as CPFI-UG & CP-88 BNC models for equivalent cable.

Stock No.	Type	RG/U Cable	1-9	10-24	25-99	100-499
81N5444	CPFI-TNC-2	RG 59, 62/U	5.04	4.38	3.78	3.15
81N5445	CPFI-TNC-10	TFE 62/U Plenum	5.04	4.28	3.78	3.15
81N5446	CP-TNC-2	RG 59, 62/U	4.28	3.64	3.21	2.68
81N5447	CP-TNC-10	TFE 62/U Plenum	4.28	3.63	3.21	2.68

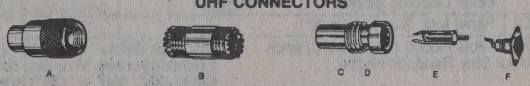
RIGHT ANGLE TNC PLUGS

Twist-on TNC right angle model features one piece connector and solderless center conductor/ braid connections. Requires no tools.

Stock No.	Type	RG/U Cable	C-Dia.	1-9	10-24	25-99	100-499
81N5348	CPFI-TNC-RA-1	RG-58/U	.394	8.24	7.01	5.88	4.64
81N5349	CPFI-TNC-RA-2	RG 59 & 62U	.394				
81N5350	CPFI-TNC-RA-3	Belden 8281	.375				
81N5351	CPFI-TNC-RA-4	CATV/MATV 59/U	.344				
81N5352	CPFI-TNC-RA-10*	TFE 62/U Plenum	.344				

*Teflon insulator

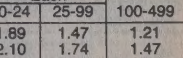
UHF CONNECTORS



Use for connecting RG-6, RG-8, RG-11, RG-58 and RG-59U cables. PL-259. Brass, silver plated shell. PL-258. Junction for joining separate cable lengths. Other types include UG-175U reducing adapter for RG-58U cable, UG-176U reducing adapter for RG-59U cable. Motorola plug and jack.

Stock No.	Description	Fig.	Each 1-9	10-24	25-99	100-499
39N030	PL-259 Straight Solder Type Plug	A	2.07	1.89	1.47	1.21
39N035	PL-258 Straight Adapter	B	2.30	2.10	1.74	1.47
39N040	UG-175U Reducing Adaptor for RG-58U	C	.46	.42	.34	.30
39N041	UG-176U Reducing Adaptor for RG-59U	D	.58	.53	.42	.37
16N1080	Motorola Plug	E	.48	.40	.37	.32
16N1081	Motorola Jack	F	.51	.43	.39	.34

MINI COAXIAL TYPE CRIMP-ON BNC PLUG



Features: crimp center bonductor, crimp braid with cable strain relief

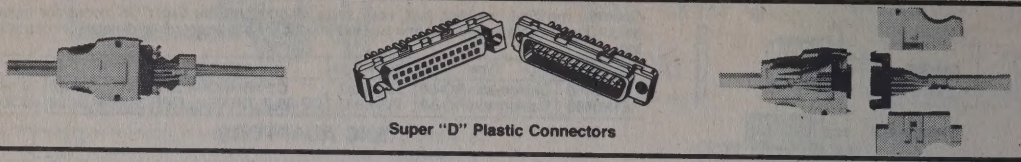
Stk. No.	Type	RG/U Cable	Each 1-24	25-99	100-499	500-999
81N5449	CPM 88-174	174	3.62	2.83	2.31	1.99
81N5450	CPM 88-188	188	3.62	2.83	2.31	1.99

BNC BULKHEAD RECEPTACLES (JACKS)

Electrical characteristics: Working voltage 500 VRMS @ sea level, contact resistance, outer contact .2 milliohms, center contact 1.5 milliohms, insulation resistance 5000 megohms min., dielectric withstanding voltage 1500 VRMS @ sea level. Materials: Brass QQ-B-626, Alloy 360, ½ hard, phosphor bronze, beryllium copper alloy #25, Delrin insulator MIL-P-3902A-type 1, class 1.

Stk. No.	Type	L Length	D Diameter	F Flat	Each 1-9	10-24	25-99	100-499
81N5451	CP 625A-LN-D	1.187	.446	.188	1.48	1.26	1.11	.93
81N5452	CP 625U-LN-D	1.062	.446	.188	1.44	1.22	1.08	.90
81N5453	CP 1094A-LN-D	1.187	.382	.157	1.44	1.22	1.08	.90
81N5454	CP 1094U-LN-D	1.062	.382	.157	1.40	1.19	1.05	.88

Super D Connector System



Super "D" Plastic Connectors

Exclusive New Super D Features:

- 9, 15, 25 and 37 contacts, plastic connectors intermate with existing D type connectors. No shock hazard. Materials per UL 94V-0.
- Snap-on plastic hoods captivate connectors, providing positive, self-latching, audible mating with reliable retention and quick-release disconnect.
- Pre-loaded pin/socket contacts provide solderless (IDC) 4-point termination of 24-26 AWG stranded wires, at positive time and cost reduction, without wire stripping.
- Meets EIA Standard—RS449 for 9 and 37 contacts interface for DTE and DCE equipment. Includes compatible latching and form factor to fit specified envelope for handling. Also meets RS232 for 25 contact connectors.
- 3 terminating tools—Auto-Clinch D for high volume; Certi-Clinch D for moderate production and field installation; and Uni-Clinch D for field repair or retrofit—provide reliable termination of all four sizes.

Cable-to-Panel-Latch-N-Lock
After solderless termination connector w/molded latching blocks, is screw-mounted from behind thru a panel opening. An accessory plastic wire strain-relief may be snapped on insulator after wire termination. Terminated mating connector, w/o latching blocks, is then captivated with snap-on hood containing latch-levers and assembly is mated and latched to panel mounted connector w/an audible click. To release, squeeze latch-levers towards each other with thumb and forefinger and pull to unmate.

Cable-to-Cable-Latch-N-Lock
Connector without latching blocks, captivated by a hood with latch-levers, mates with and latches to a connector with latching blocks, captivated by a hood with filler inserts. Push assemblies together—an audible click indicates they are latched. Squeeze latch-levers and pull for quick-release.

Super D ordering information

Distributor Part Number Series	Required Components	Connector System				Adapter System			Super Shielded 'D'		
		Cable to Cable		Cable to Panel		Cable to Cable	Cable to Panel		Cable to Cable	Cable to Panel	
		Latch-N-Lock	Screw Lock	Latch-N-Lock	Screw Mount	Latch-N-Lock	Latch-N-Lock	Screw Mount	Latch-N-Lock	Latch-N-Lock	Screw Mount
TX-XXX	Connector w/Mtg. Holes	1	1	1	1						
TX-XXX-TB	Connector w/T. Bushings****										
TX-XXX-LB	Connector w/Latch Blocks	1									
TX-XXX-LB-1	Connector w/Latch Blocks w/T. Bushings		1	1	1						
TX-XX-SH	Super Shielded 'D'								1	1	1
SDH-XXX-GL	Gray Hood w/Latches*	1		1							
SDH-XXX-GF	Gray Hood w/Filler Ends*	1	2		1						
SDH-XXX-BL	Black Hood w/Latches*					1	1		1	1	
SDH-XXX-BF	Black Hood w/Filler Ends*					1		1	1		1
SD-WCXX	Strain Relief/Wire Covers***			2***	2***						
SD-4-40 (3/4)	4-40 Screws for Filler End Hoods		2		2	2		2	2		2
SD-LB	Metal Latching Blocks**					2	2		2	2	
SD-LB-XXXX	Panel Mtg. Sems Screws**			2	2		2			2	

*One Stay Band/Cable Clamp supplied with each hood. Additional Stay Bands available.

**Latching blocks available with and without mounting screws. Mounting screws available for either .060"/.080" or .125" panel thickness along with latch blocks.

***For 9 position connector strain relief is one piece, so only one required.

****Connector w/T. Bushings may be used to mount to panel and to mate to a connector without hoods.

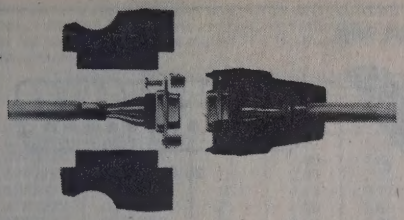
Connectors with Mounting Holes

Plug, Plain							Plug with Latching Blocks						
			Price							Price			
Stk. No.	Size	Type	1-24	25-49	50-99	100-249	Stk. No.	Size	Type	1-24	25-49	50-99	100-249
12F1300	9	TE-9P	1.80	1.58	1.36	1.11	12F1304	9	TE-9P-LB	1.82	1.60	1.37	1.12
12F1301	15	TA-15P	2.48	2.13	1.83	1.50	12F1305	15	TA-15P-LB	2.49	2.14	1.85	1.52
12F1302	25	TB-25P	3.42	3.02	2.61	2.15	12F1306	25	TB-25P-LB	3.44	3.03	2.62	2.16
12F1303	37	TC-37P	4.66	4.12	3.56	2.94	12F1307	37	TC-37P-LB	4.70	4.15	3.59	2.96
Socket Plain							Socket with Latching Blocks						
12F1308	9	TE-9S	1.71	1.50	1.28	1.04	12F1312	9	TE-9S-LB	1.73	1.53	1.30	1.05
12F1309	15	TA-15S	2.29	2.01	1.72	1.40	12F1313	15	TA-15S-LB	2.31	2.02	1.73	1.41
12F1310	25	TB-25S	3.20	2.80	2.40	1.96	12F1314	25	TB-25S-LB	3.23	2.83	2.43	1.98
12F1311	37	TC-37S	4.36	3.83	3.29	2.69	12F1315	37	TC-37S-LB	4.37	3.84	3.30	2.70

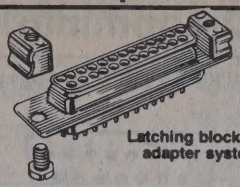
Connectors with 4-40 Threaded Bushings

Plug, Plain							Plug with Latching Blocks						
			Price							Price			
Stk. No.	Size	Type	1-24	25-49	50-99	100-249	Stk. No.	Size	Type	1-24	25-49	50-99	100-249
12F1316	9	TE-9P-TB	2.53	2.22	1.90	1.54	12F1320	9	TE-9P-LB-1	3.02	2.64	2.25	1.83
12F1317	15	TA-15P-TB	3.13	2.75	2.36	1.92	12F1321	15	TA-15P-LB-1	3.64	3.19	2.73	2.22
12F1318	25	TB-25P-TB	4.14	3.65	3.13	2.57	12F1322	25	TB-25P-LB-1	4.66	4.09	3.52	2.88
12F1319	37	TC-37P-TB	5.37	4.73	4.08	3.36	12F1323	37	TC-37P-LB-1	5.92	5.21	4.49	3.68
Socket, Plain							Socket with Latching Blocks						
12F1324	9	TE-9S-TB	2.43	2.12	1.81	1.46	12F1328	9	TE-9S-LB-1	2.93	2.55	2.17	1.75
12F1325	15	TA-15S-TB	3.00	2.63	1.82	1.68	12F1329	15	TA-15S-LB-1	3.53	3.09	2.64	2.13
12F1326	25	TB-25S-TB	3.94	3.45	2.95	2.40	12F1330	25	TB-25S-LB-1	4.42	3.87	3.31	2.68
12F1327	37	TC-37S-TB	5.06	4.44	3.81	3.10	12F1331	37	TC-37S-LB-1	5.55	4.86	4.16	3.39

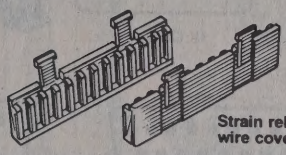
Super D Adapter System/Super Shielded D Connectors



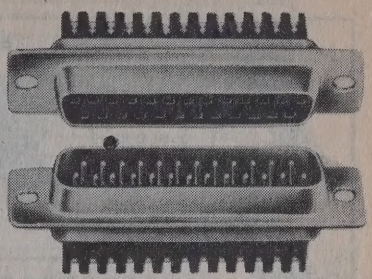
Super D adapter system



Latching blocks for adapter system



Strain relief wire covers



Specially designed black two-piece snap-on plastic hoods, with and without latches, captivate metal shell D-Subminiature connectors. Add-on metal latching blocks are screw mounting flanges to accept the latch locks.
For cable to panel screw mount, the mating metal shell D-Subminiature connector is captivated in a filler end hood with screws. Screws are screwed into screw lock assembly for semi-permanent locking.

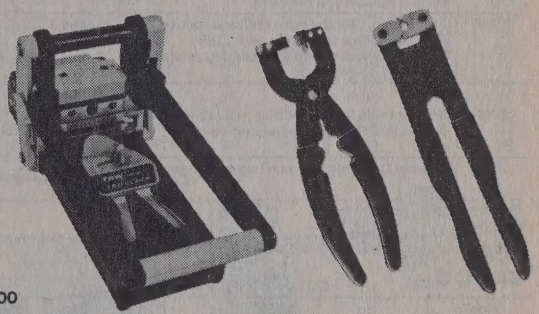
D-Subminiature connectors in 9, 15, 25 and 37 contact sizes in standard D-sub. metal shell. Termination is insulation displacement for cost saving. Connector uses same black hoods, add-on latching blocks, hood and mounting screws as in the super D adaptor system. It may be used for grounding in applications using shielded cable.

CERTI CLINCH D FIELD TERMINATION TOOL
Designed for mass termination of individual wires, eliminating wire stripping, soldering and crimping. It handles all four Super D sizes, is readily portable and requires no set-up time and little operator time. Rugged, all metal construction affords trouble-free long life.
Stock No. 10F8176 . . . Type SD-CC . . . . . Price 485.00

UNI CLINCH D SINGLE WIRE HAND INSERTION TOOL
Designed to insert one 24-26 AWG wire at a time, Uni Clinch D is used as a field repair tool by field service engineers.
Stock No. 10F8177 . . . Type SD-UC . . . . . Price 45.00

Super D Manual Stay Band Tool
Designed for applying the steel stay band/strain relief to the cable before termination of wires to the Super D connector, the manual Stay Band tool applies both Stay Band sizes to the full range of cable sizes.
39F386 . . . Type SD-MSBT . . . . . price $49.00

SD-CCN Conversion nest converts SD-CC Certi-Cinch D for use with Super Shielded D Connectors.
81F4926...Type: SDCCN . . . . . Net $69.02



FIELD TERM. TOOL | HAND INSERT. TOOL | STAY BAND TOOL

10

LATCHING BLOCKS FOR ADAPTOR SYSTEM: Metal Sold in multiples of 10

Stock No.	Type	Thread	Price
10F8174	SD-LB	4-40	.36

SCREWS FOR HOODS AND HOOD ADAPTOR SYSTEM Sold in multiples of 100

Stock No.	Type	Thread	Price
10F8175	SD-4-40 (3/4)	4-40	.04

HOODS: PLASTIC, GRAY (Includes stay bands)†

With Latches				With Filler Ends—With No Screws			
Stock No.	Size	Type	Price	Stock No.	Size	Type	Price
10F8168	9	SDH-9GL	1.35	10F8150	9	SDH-9GF	1.24
10F8169	15	SDH-15GL	1.40	10F8151	15	SDH-15GF	1.26
10F8170	25	SDH-25GL	1.51	10F8152	25	SDH-25GF	1.37
10F8171	37	SDH-37GL	1.62	10F8153	37	SDH-37GF	1.48

HOOD ADAPTOR SYSTEM: PLASTIC, BLACK (Includes stay bands)†

Stock No.	Size	Type	Price	Stock No.	Size	Type	Price
10F8154	9	SDH-9BL	1.35	10F8158	9	SDH-9BF	1.24
10F8155	15	SDH-15BL	1.40	10F8159	15	SDH-15BF	1.26
10F8156	25	SDH-25BL	1.51	10F8160	25	SDH-25BF	1.37
10F8157	37	SDH-37BL	1.62	10F8161	37	SDH-37BF	1.48

(Strain Relief) Wire Covers Sold in multiples of 10

Stock No.	Size	Type	Price
10F8162	9	SD-WC9	.28
10F8163	15*	SD-WC15	.29
10F8164	25*	SD-WC25	.29
10F8165	37*	SD-WC37	.30

STAY BANDS Sold in multiples of 10

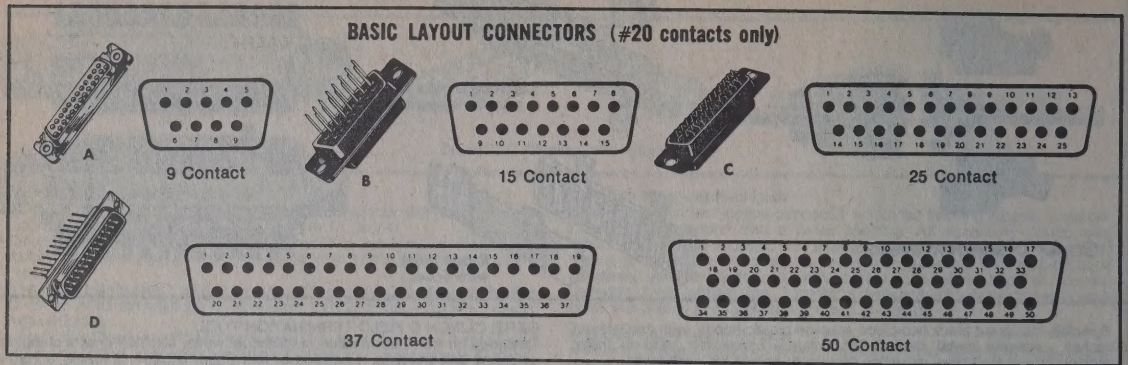
Stock No.	Size	Type	Price
10F8166	9	SD-9-15-SB	.06
10F8166	15	SD-9-15-SB	.06
10F8167	25	SD-25-37-SB	.07
10F8167	37	SD-25-37-SB	.07

*Two required per connector
+Available with two captive 4-40 screws in hood.

SUPER SHIELDED D CONNECTORS

Stock No.	Size	Type	Prices 1-24	25-49	50-99	100-249
81F1161	9	TE-9P-SH	2.31	2.02	1.73	1.41
81F1162	9	TE-9S-SH	2.23	1.95	1.66	1.34
81F1163	15	TA-15P-SH	2.93	2.58	2.21	1.81
81F1164	15	TA-15S-SH	2.79	2.44	2.09	1.69
81F1165	25	TB-25P-SH	3.93	3.46	2.98	2.45
81F1166	25	TB-25S-SH	3.70	3.24	2.77	2.26
81F1167	37	TC-37P-SH	5.17	4.56	3.93	3.24
81F1168	37	TC-37S-SH	4.88	4.28	3.67	2.99

D-Subminiature



Voltage Rating at Sea Level: D* and D*M—1250 Vac; D*MA and D*C—1000 Vac. **Current Rating:** 5 Amperes. **D* Contacts:** Brass. Plating: Gold over Nickel. **D*MA Contacts:** Pin-Leaded Copper. Socket—Copper Alloy. **Plating:** Gold over Nickel. **D*C Contacts:** Machined—Copper Alloy. Stamped—Cadmium Copper. Plating—Gold over Nickel. **Shells:** Steel, Zinc plated with Yellow Chromate Supplementary Coating. Exception: Dataphone Shell has Clear Chromate Coating. **Add suffix "F" for shell with float mounts, as DEF, DEMF, etc.**

TYPE	DESCRIPTION	COMMON NAME	INSULATOR TYPE	CONTACT TERMINATION
D*C	D connectors for commercial applications where economy is an important factor. Rear-release crimp snap-in contacts, that are readily inserted and removed	Econo-D	Two-piece glass filled nylon (per Fed. Spec. L-P-395B)	Crimp snap-in inserted and removed with small hand tool
D*MA	D connectors for the most critical applications. Monobloc insulators and "Little Caesar" contact assemblies Military version meets MIL-C-24308.	Series 3	Monobloc diallyl, phthalate, GD-1-30-F	Crimp insert by hand, remove with small tool
D*M	D connectors with monobloc insulator for more critical application requirements.	Series 1	Monobloc, diallyl phthalate, SDG-F	Solder pot
		Series 1 Combination	Monobloc, diallyl phthalate, SDG-F	Solder pot
D*	Original D connectors with two-piece insulators.	Basic D	Two-piece, nylon	Solder pot
		Basic D	Two-piece, nylon	.025" Sq., 0.375" longwire-wrap
DATA PHONE	Same as D*	—	Diallyl phthalate, GDI-30	Solder pot

*Insert No. of contacts. (Example: D37MA for 37 contacts.)

BASIC D

SOLDER POT — Fig. A

Stock No.	Type	No. of Contacts	1-9	10-49	50-99	100-249
43F200	DE- 9P	9	2.07	1.88	1.61	1.30
43F201	DE- 9S	9	3.01	2.72	2.30	1.89
43F202	DA-15P	15	2.96	2.69	1.87	1.75
43F203	DA-15S	15	4.38	3.99	2.80	2.59
43F205	DB-25P	25	4.31	4.04	3.39	2.75
43F206	DB-25S	25	6.77	6.15	5.22	4.33
43F208	DC-37P	37	5.87	5.35	4.54	3.78
43F209	DC-37S	37	9.61	8.75	7.45	6.16
43F210	DD-50P	50	7.68	6.99	5.95	4.94
43F211	DD-50S	50	12.69	11.55	9.85	8.10

WIRE WRAP — FIG. D

29F1350	DE- 9P-F179	9	3.28	2.68	2.36	2.10
29F1362	DE- 9S-F179	9	5.80	4.67	3.92	3.17
29F1351	DA-15P-F179	15	4.30	3.47	3.09	2.78
29F1363	DA-15S-F179	15	7.94	6.37	5.34	4.32
29F1352	DB-25P-F179	25	6.75	5.46	4.80	4.08
29F1364	DB-25S-F179	25	9.48	7.75	6.84	5.82
29F1353	DC-37P-F179	37	9.24	7.45	6.69	5.86
29F1365	DC-37S-F179	37	12.57	10.23	9.78	9.31
29F1354	DD-50P-F179	50	11.06	9.00	8.03	7.32
29F1366	DD-50S-F179	50	16.60	13.44	12.82	12.14

P.C. CONTACTS — FIG. C

45F817	DE- 9PV	9	3.06	2.63	2.32	2.06
45F818	DE- 9SV	9	4.30	3.69	3.30	2.85
29F2661	DA-15PV	15	4.29	3.89	3.53	3.14
29F2660	DA-15SV	15	6.17	5.60	4.99	4.41
45F819	DB-25PV	25	9.40	8.52	7.19	5.85
45F820	DB-25SV	25	13.48	12.19	10.30	8.36
45F821	DC-37PV	37	9.79	8.41	7.64	6.84
45F822	DC-37SV	37	14.84	12.71	11.44	10.13
45F823	DD-50PV	50	12.97	11.13	10.11	9.07
45F824	DD-50SV	50	19.73	16.92	15.18	13.47

DATAPHONE — FIG. A

43F249	DA-19603-403	15	4.70	4.44	4.04	3.66
43F246	DA-19603-404	15	9.99	9.21	8.50	7.66
43F250	DB-19604-432	25	6.60	6.21	5.64	5.09
43F247	DB-19604-433	25	16.27	14.98	13.72	12.48

SERIES 1

SOLDER POT — Fig. B

Stock No.	Type	No. of Contacts	1-9	10-49	50-99	100-249
43F233	DEM- 9P	9	4.01	3.62	3.06	2.48
43F234	DEM- 9S	9	5.59	5.08	4.30	3.54
43F235	DAM-15P	15	5.78	5.26	4.41	3.61
43F236	DAM-15S	15	8.35	7.57	6.41	5.23
43F238	DBM-25P	25	8.58	7.77	6.60	5.36
43F239	DBM-25S	25	12.91	11.71	9.96	8.15
43F241	DCM-37P	37	11.77	10.26	8.72	7.51
43F242	DCM-37S	37	18.46	16.75	14.20	11.65
43F243	DDM-50P	50	15.55	14.14	11.95	9.81
43F244	DDM-50S	50	24.21	21.97	18.71	15.38

SERIES 3

CRIMP/REMOVABLE CONTACTS

45F825	DEMA- 9P	9	10.99	10.01	8.52	6.86
45F826	DEMA- 9S	9	11.24	10.24	8.72	7.03
45F827	DAMA-15P	15	15.39	14.02	11.95	9.64
45F828	DAMA-15S	15	15.63	14.24	12.13	9.79
45F829	DBMA-25P	25	23.10	21.06	17.94	14.65
45F830	DBMA-25S	25	23.35	21.29	18.15	14.67
45F831	DCMA-37P	37	32.60	29.73	25.34	20.45
45F832	DCMA-37S	37	32.40	29.55	25.20	20.37
45F833	DDMA-50P	50	41.26	37.63	32.08	25.92
45F834	DDMA-50S	50	41.63	37.97	32.40	26.20

CRIMP/REMOVABLE CONTACTS, MIL VERSION

Stock No.	Type	Desc.	No. of Contacts	1-9	10-49	50-99	100-249
45F844	M24308/4-1	Plug	9	12.73	11.62	9.91	8.01
45F995	M24308/2-1	Socket	9	13.06	11.93	10.21	8.30
45F996	M24308/4-2	Plug	15	17.97	16.41	14.02	11.38
45F997	M24308/2-2	Socket	15	18.42	16.85	14.44	11.76
45F998	M24308/4-3	Plug	25	27.39	25.01	21.40	17.38
45F999	M24308/2-3	Socket	25	28.03	25.65	22.01	17.96
45F1001	M24308/4-4	Plug	37	38.46	35.15	30.08	24.46
45F1002	M24308/2-4	Socket	37	39.35	36.01	30.92	25.26
45F1003	M24308/4-5	Plug	50	50.05	45.74	39.16	31.86
45F1004	M24308/2-5	Socket	50	51.20	46.88	40.27	32.93

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

Connector Division
TRW Electronic Components Group

D-Subminiature

ECONO D CONNECTORS

Two piece insulator. Crimp, snap-in contacts can be inserted by hand in rear of insulator, and can be removed with a hand tool. Economical connector for commercial applications. The D*U/version of this insulator is UL recognized.

CONNECTOR WITH MACHINED CONTACTS

Stk. No.	Type	No. of Cont.	1-24	25-49	50-99	100-249
57F3218	DEC-9P	9	2.17	1.96	1.62	1.30
57F3219	DEC-9S	9	2.89	2.64	2.14	1.81
57F3220	DAC-15P	15	2.97	2.70	2.24	1.88
57F3221	DAC-15S	15	4.14	3.77	3.09	2.57
57F3222	DBC-25P	25	4.28	3.89	3.26	2.73
57F3223	DBC-25S	25	6.12	5.56	4.64	3.91
57F3224	DCC-37P	37	5.96	5.45	4.60	3.90
57F3225	DCC-37S	37	8.78	8.00	6.74	5.64
57F3226	DDC-50P	50	7.56	6.93	5.86	4.98
57F3227	DDC-50S	50	11.25	10.26	8.68	7.29

TOOLS

TYPE CET-20-11. SERIES 3 Commercial Extraction Tool.
45F976. NET 34

TYPE CIET-20-HDB ECONO D Insertion-Extraction Tool.
45F877. NET 1.90

TYPE BT-20-HC. ECONO D loose stamped contacts Hand Crimp Tool.
45F978. NET 219.74

TYPE CIET-20-HD. Military Insertion-Extraction Tool.
45F979. NET 2.81

MACHINED CONTACTS

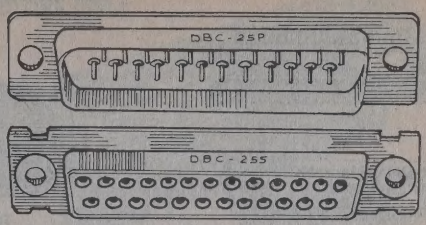
Stk. No.	Type	Description	100-4900	5000 & Up
45F974	030-1952-000	Pin	.10	.08
45F975	030-1953-000	Socket	.15	.13

Sold only in multiples of 100

STAMPED CONTACTS

SOLD IN MULTIPLES OF 100 PIECES ONLY

Stk. No.	Type	Description	100-4900	5000 & Up
45F980	030-1960-005	Pin	.09	.07
45F981	030-1957-005	Socket	.12	.10



CONNECTORS LESS CONTACTS

Stk. No.	Type	No. of Cont.	1-24	25-49	50-99	100-249
57F3208	DEC-9PFO	9	1.05	.94	.77	.63
57F3209	DEC-9SFO	9	1.05	.94	.77	.63
57F3210	DAC-15PFO	15	1.15	1.03	.83	.67
57F3211	DAC-15SPO	15	1.15	1.03	.83	.67
57F3212	DBC-25PFO	25	1.28	1.10	.97	.74
57F3213	DBC-25SFO	25	1.19	1.04	.88	.69
57F3214	DCC-37PFO	37	1.53	1.33	1.10	.89
57F3215	DCC-37SFO	37	1.46	1.29	1.09	.86
57F3216	DDC-50PFO	50	1.63	1.46	1.16	1.94
57F3217	DDC-50SFO	50	1.50	1.32	1.14	.88

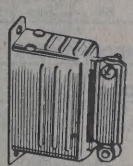
CONNECTORS LESS CONTACTS—D*U SERIES

Stock No.	Type	No. of Cont.	1-24	25-49	50-99	100-249
81F723	DEU-9P-FO	9	1.05	.94	.77	.63
81F724	DEU-9S-FO	9	1.05	.94	.77	.63
81F725	DAU-15P-FO	15	1.15	1.03	.83	.67
81F726	DAU-15S-FO	15	1.15	1.03	.83	.67
81F727	DBU-25P-FO	25	1.28	1.10	.97	.74
81F728	DBU-25S-FO	25	1.19	1.04	.88	.69
81F729	DCU-37P-FO	37	1.53	1.33	1.10	.89
81F730	DCU-37S-FO	37	1.46	1.29	1.09	.86
81F731	DDU-50P-FO	50	1.63	1.46	1.16	.94
81F732	DDU-50S-FO	50	1.50	1.32	1.14	.88

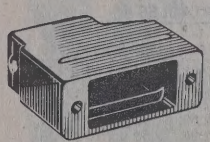
10

D-SUBMINIATURE ACCESSORIES

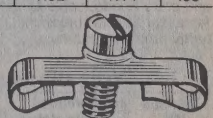
Right Angle


Deep Straight Clamp

Dataphone Hood


Plastic Straight Clamp

Straight Clamp


Male

Female

Shell Size	Right Angle Clamp Stk. No.	Type	1-24	25-49	Deep Straight Clamp Stk. No.	Type	1-24	25-49
9	**43F220**	DE-19977-5	2.79	2.51	**45F986**	DE-24657	3.12	2.87
15	**43F216**	DA-19977-1	2.19	1.96	**29F2662**	DA-24658	3.07	2.85
25	**43F217**	DB-19977-2	2.41	2.17	**45F987**	DB-24659	2.48	2.26
37	**43F218**	DC-19977-3	2.54	2.28	**45F988**	DC-24660	2.58	2.36
50	**43F219**	DD-19977-4	2.77	2.48	**45F989**	DD-24661	2.90	2.73

Shell Size	Dataphone Hoods Stk. No.	Type	1-24	25-49	Plastic Straight Stk. No.	Type	1-24	25-49
9					**45F990**	DE-51218-1	1.77	1.51
15	**43F252**	DA-51225-1	2.19	1.96	**45F991**	DA-51210-1	1.77	1.51
25	**43F253**	DB-51226-1A	2.42	2.04	**29F2663**	DB51212-1	1.76	1.50

Straight Clamp Stk. No.	Type	Shell Size	1-24	25-49	50-99
43F212	DA-19678-1	15	1.67	1.53	1.29
43F213	DB-19678-2	25	1.99	1.80	1.52
43F214	DC-19678-3*	37	2.38	2.15	1.80
43F215	DD-19678-4*	50	2.60	2.40	1.94

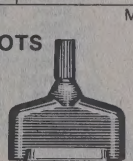
2 Cable Locking Screws required except (*) 3

Screw Lock Assemblies Stk. No.	Type	Shell Size	1-24	25-49	50-99
43F231	D-20419-0	9, 15, 25 & 37	.42	.39	.35
43F992	D-20419-16	9, 15, 25 & 37	.65	.57	.48
43F232	D-20420-0	50	.62	.59	.48
43F993	D-20420-12	9, 15, 25, 37 & 50	.87	.74	.62
43F230	D-20418-2*	9, 15, 25, 37 & 50	.66	.61	.56

Male except (*) Female

ALPHA WIRE FIT-BOOTS

FIT-BOOTS—For D-Subminiature Connectors—Shrinks Tight Over Connector Shells. Designed specifically for subminiature rectangular connectors manufactured by Cinch. Replaces metal molds and plotting forms used on molded harnesses. Provide a strain relief, a convenient handle, and seal out contaminants. Molded of a heat shrinkable, modified polyolefin compound with excellent physical and electrical properties. Any heat gun may be used to shrink boots.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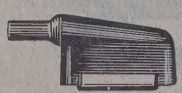
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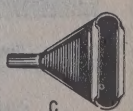
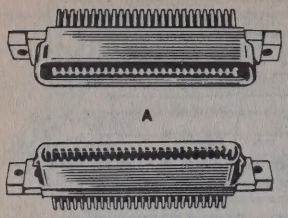

C

Stk. No.	Top Entry A Alpha No.	Fits Cinch	Each	Stk. No.	End Entry B Alpha No.	Fits Cinch		Stk. No.	Side Entry C Alpha No.	Fits Cinch	Each
37F1094	FIT-BOOT-1	DE-9	13.94	**37F1099**	FIT-BOOT-6	DE-9	13.94	**37F1104**	FIT-BOOT-11	DE-9	16.69
37F1095	FIT-BOOT-2	DA-15	14.86	**37F1100**	FIT-BOOT-7	DA-15	15.33	**37F1105**	FIT-BOOT-12	DA-15	17.21
37F1096	FIT-BOOT-3	DB-25	16.64	**37F1101**	FIT-BOOT-8	DB-25	17.64	**37F1106**	FIT-BOOT-13	DB-25	20.90
37F1097	FIT-BOOT-4	DC-37	21.36	**37F1102**	FIT-BOOT-9	DC-37	21.85	**37F1109**	FIT-BOOT-14	DC-37	25.07
37F1098	FIT-BOOT-5	DD-50	25.57	**37F1103**	FIT-BOOT-10	DD-50	26.01	**37F1110**	FIT-BOOT-15	DD-50	29.71

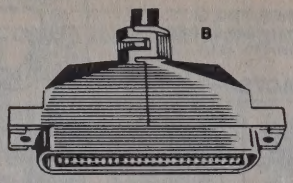
A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

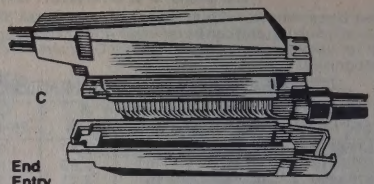
SUPERIBBON CONNECTOR SYSTEM



Rack & Panel Plug & Receptable



Top Entry Hood



End Entry Hood

- Instantaneous Latching
- Snapable Plastic Hood
- Integral Cable Clamp
- For Solid 24-26 AWG
- Strain-reliefs Incorporated in Connectors
- Panel Mounting Clips Permit Fast Chassis Mounting
- Threaded Bushings Molded Into Each Connector

SPECIFICATIONS

Insulator: .....30% glass filled polyester.
Contact Material: .....copper base alloy.
Contact Plating: Gold finish per MIL-G-45204 Type II over .000050" copper per MIL-C-14550. Selectively gold plated.
Termination: Insulation displacement Cinch ribbon solderless termination system. Accommodates solid wire. Built in wire restraint feature on each contact.
Polarization: Keystone shape prevents "wrong way" mating.
Electrical Ratings 500 volts RMS AC at sea level. 700 volts RMS DC at sea level. 5 amps.
Number of Contacts: .....14, 24, 36, 50 and 64.
Styles: Rack and panel and cable to cable with end entry and top entry hoods.

U.L. Recognition

Reduces connector assembly costs by combining a hardware-eliminating connector design. Latching is instantaneous, without separate hardware. The plastic hood snaps in place. Cable clamp is part of the connector and requires no additional hardware. Unmating is accomplished by inserting any pointed object into window at either end of connector. Connectors come in three styles: rack and panel plugs and receptacles, cable to cable plugs and receptacles with end entry hoods, cable to cable plugs and receptacles with top entry hoods. Accessories listed below include panel mounting clips, locking screws, buff gold hoods and wire restraints.

10

RACK AND PANEL PLUGS & RECEPTACLES A

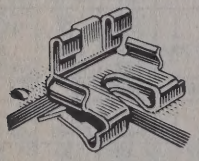
Stock No.	Threaded Mntg Hole	No. of Contacts	Desc.	1-24	25-49	50-99	100-249
10F7889	97-12140-01	14	Plug	2.01	1.70	1.40	1.26
10F7890	97-22140-01	14	Rec.	2.31	1.96	1.62	1.46
10F7891	97-12240-01	24	Plug	2.41	2.05	1.70	1.54
10F7892	97-22240-01	24	Rec	2.69	2.30	1.90	1.71
10F7893	97-12360-01	36	Plug	2.96	2.53	2.10	1.91
10F7894	97-22360-01	36	Rec.	3.23	2.75	2.29	2.07
10F7895	97-12500-01	50	Plug	3.62	3.10	2.59	2.35
10F7896	97-22500-01	50	Rec.	3.81	3.26	2.72	2.47
10F7897	97-12640-01	64	Plug	4.18	3.59	3.00	2.72
10F7898	97-22640-01	64	Rec.	4.45	3.80	3.17	2.89

CABLE TO CABLE PLUGS & RECEPTACLS - END ENTRY HOODS C

Stock No.	Threaded Mntg Hole	No. of Contacts	Desc.	1-24	25-49	50-99	100-249
10F7901	97-22140-91	14	Rec.	3.40	2.88	2.36	2.12
10F7902	97-12240-91	24	Plug	3.50	2.96	2.44	2.20
10F7903	97-22240-91	24	Rec.	3.79	3.21	2.64	2.37
10F7904	97-12360-91	36	Plug	4.05	3.44	2.85	2.56
10F7905	97-22360-91	36	Rec.	4.33	3.68	3.04	2.74
10F7906	97-12500-91	50	Plug	4.68	3.99	3.31	2.99
10F7907	97-22500-91	50	Rec.	4.91	4.19	3.47	3.13
10F7908	97-12640-91	64	Plug	5.25	4.50	3.74	3.40
10F7909	97-22640-91	64	Rec.	5.54	4.73	3.92	3.56

CABLE TO CABLE PLUGS & RECEPTACLES - TOP ENTRY HOODS B

Stock No.	Threaded Mntg Hole	No. of Contacts	Desc.	1-24	25-49	50-99	100-249
10F7910	97-12140-181	14	Plug	3.25	2.75	2.26	2.04
10F7912	97-12240-181	24	Plug	3.78	3.21	2.64	2.37
10F7913	97-22240-181	24	Rec.	4.08	3.46	2.85	2.57
10F7914	97-12360-181	36	Plug	4.33	3.68	3.04	2.75
10F7915	97-22360-181	36	Rec.	4.72	3.99	3.30	2.96
10F7916	97-12500-181	50	Plug	5.15	4.40	3.63	3.28
10F7917	97-22500-181	50	Rec.	5.35	4.57	3.77	3.41
10F7918	97-12640-181	64	Plug	5.83	4.98	4.13	3.75
10F7919	97-22640-181	64	Rec.	6.17	5.25	4.36	3.94



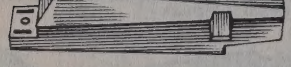
Panel Mounting Clips

PANEL MOUNTING CLIPS

Stock No.	Type	Thickness In.	Thickness MM	1-24	25-49	50-99
65F240	97-MC-062	.062	1.57	.09	.08	.06
65F241	97-MC-092	.093	2.29	.09	.08	.06
65F242	97-MC-125	.125	3.18	.09	.08	.06

LOCKING SCREWS (4-40-UNC)

Stock No.	Type	Length	1-24	25-49	50-99
65F243	2AX-17/32	17/32"	.11	.09	.09
65F244	2AX-5/8"	5/8"	.05	.04	.04
10F7936	2AX-3/4"	3/4"	.03	.03	.02

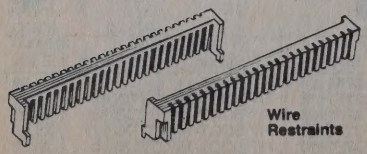


End Entry Hoods

BUFF GOLD HOODS (END AND TOP ENTRY)

Stock No.	End Entry Type	No. of Pos.	1-24	25-49	50-99
10F7920	97-14-90	14	.80	.67	.55
10F7921	97-24-90	24	.84	.71	.57
10F7922	97-36-90	36	.87	.73	.60
65F236	97-50-90	50	.91	.77	.62
10F7923	97-64-90	64	.95	.80	.65

Stock No.	Top Entry Type	No. of Pos.	1-24	25-49	50-99
10F7924	97-14-180	14	.81	.68	.56
10F7925	97-24-180	24	.85	.71	.58
10F7926	97-36-180	36	.88	.74	.60
65F237	97-50-180	50	.91	.76	.62
10F7927	97-64-180	64	.96	.81	.86



Wire Restraints

WIRE RESTRAINTS (2 PER PLUG OR RECEPTACLE)

Stock No.	Plug Type	No. of Pos.	1-24	25-49	50-99
10F7928	97-WR-P14	14	.13	.11	.09
10F7930	97-WR-P36	36	.13	.11	.09
65F238	97-WR-P50	50	.13	.11	.09
10F7931	97-WR-P64	64	.13	.11	.09

Stock No.	Rec. Type	No. of Pos.	1-24	25-49	50-99
10F7932	97-WR-S14	14	.13	.11	.09
10F7933	97-WR-S24	24	.13	.11	.09
10F7934	97-WR-S36	36	.13	.11	.09
65F239	97-WR-S50	50	.13	.11	.09
10F7935	97-WR-S64	64	.13	.11	.09

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

Connector Division
TRW Electronic Components Group

FOR 24 AND 26 GAUGE SOLID CONDUCTORS ONLY

RACK & PANEL — RECEPTACLE

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
43F156	77-22140	14	3.01	2.57	2.08	1.93
43F157	77-22240	24	4.05	3.44	2.85	2.56
43F158	77-22360	36	4.71	3.99	3.30	3.01
43F159	77-22500	50	6.11	5.22	4.31	3.90

RACK & PANEL — PLUG

43F160	77-12140	14	2.94	2.49	2.04	1.90
43F161	77-12240	24	3.98	3.38	2.94	2.52
43F162	77-12360	36	4.59	3.91	3.24	2.93
43F163	77-12500	50	6.06	5.16	4.24	3.84

CABLE TO CHASSIS — RECEPTACLE

43F172	77-42140	14	3.98	3.14	2.57	2.33
43F173	77-42240	24	4.44	3.76	3.08	2.80
43F174	77-42360	36	4.84	4.13	3.39	3.07

CABLE-TO-CHASSIS — PLUG

43F180	77-32140	14	5.54	4.82	3.81	3.44
43F181	77-32240	24	6.16	5.18	4.24	3.83
43F182	77-32360	36	7.55	6.41	5.23	4.72
43F183	77-32500	50	8.35	7.09	5.83	5.26

CABLE-TO-CABLE — RECEPTACLE

43F188	77-82500	*50	5.95	5.07	4.19	3.78
43F189	77-82500-1	#50	5.95	5.07	4.19	3.78

CABLE-TO-CABLE — PLUG

43F192	77-72500	*50	5.95	5.07	4.19	3.78
43F193	77-72500-1	#50	5.95	5.07	4.19	3.78

(*) High Hood (#) Low Hood

CINCH RIBBON SOLDER CONTACTS — RACK & PANEL

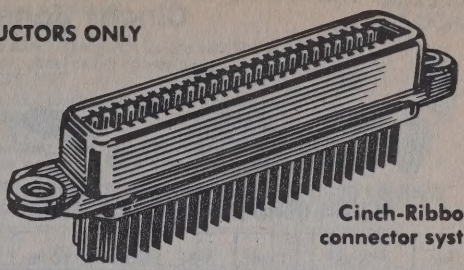
Stk. No.	Type	Description/No. of Contacts	1-24	25-49	50-99	100-249
45F960	57-20140	Recept/14	3.17	2.70	2.17	2.03
45F961	57-10140	Plug/14	3.10	2.61	2.14	1.99
45F962	57-20240	Recept/24	4.25	3.61	2.99	2.68
45F963	57-10240	Plug/24	4.18	3.55	3.07	2.64
45F964	57-20360	Recept/36	4.94	4.18	3.46	3.14
45F965	57-10360	Plug/36	4.81	4.11	3.38	3.07
45F966	57-20500	Recept/50	6.40	5.49	4.50	4.08
45F967	57-10500	Plug/50	6.35	5.42	4.44	4.00

HIGH BARRIER — CABLE TO CABLE

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
45F969	57-10500-7	Plug	7.16	6.12	5.04	4.46
45F971	57-20500-7	Recept	7.52	6.43	5.28	4.71

SOLDER CONTACTS — CABLE TO CHASSIS

Stk. No.	Type	Description/No. of Contacts	1-24	25-49	50-99	100-249
45F952	57-40140	Recept/14	4.17	3.28	2.70	2.43
45F953	57-30140	Plug/14	5.82	5.05	4.00	3.62
45F954	57-40240	Recept/24	4.65	3.94	3.24	2.94
45F955	57-30240	Plug/24	6.45	5.44	4.46	4.03
45F956	57-40360	Recept/36	5.08	4.33	3.55	3.23
45F957	57-30360	Plug/36	7.93	6.72	5.48	4.95
45F958	57-40500	Recept/50	6.66	5.66	4.65	4.21
45F959	57-30500	Plug/50	8.76	7.40	6.10	5.51



Cinch-Ribbon connector system

Intermateable and interchangeable with solder type ribbon connectors now in use.

Termination speed exceed conventional soldering techniques.

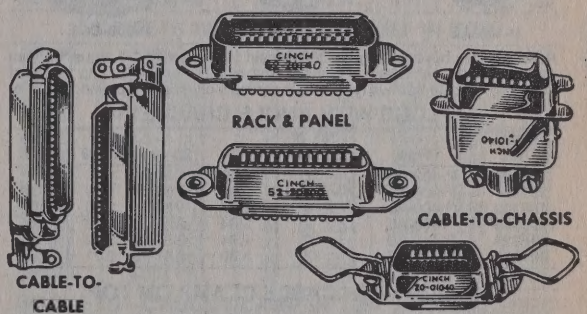
Four gas-tight connections for each conductor.

Accommodates solid and stranded wire.

Built-in strain relief for each conductor prevents inadvertent wire removal.

Insulator: 30% glass-filled polyester. **Contact style:** Ribbon. **Contact material:** Copper base alloy. **Contact plating:** Gold finish per MIL-G-45204 Type II over .000050" copper per MIL-C-14550. Selectively gold plated .000040" in contact mating area, and .000005" in contact terminating area. **Shells:** Steel with a finish of zinc, and clear chromate. **Termination:** Insulation displacement. Cinch ribbon solderless termination system. **Polarization:** Keystone shape prevents "wrong way" mating. **Electrical ratings:** 500 V rms AC at sea leavel. 700 V rms DC at sea level. 5A.

CINCH RIBBON



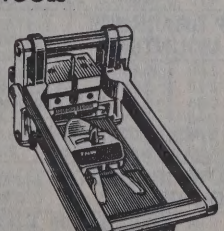
Insulator: Diallyl phthalate, Type MDG per MIL-M14. **Contact style:** Ribbon. **Contact material and finish:** Copper base alloy with a finish of gold per MIL-G-45204 Type II, over .000050" copper per MIL-C-14550. Selectively gold plated .000040" in contact mating area, and .000005" in contact terminating area. **Shells:** Steel, with a finish of zinc and clear chromate. **Termination:** Solder and printed circuit tails on .085" (2.16 mm) centers for terminating to 1/16" (1.59 mm), printed circuit boards. **Polarization:** Keystone shape prevents "wrong way" insertion. **Mounting:** Shells for rack and panel receptacles have float mounts. **Electrical rating:** 500V rms AC at sea level 700V rms DC at sea level. 5A.

TERMINATION TOOLS

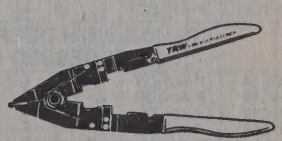
Certi-Clinch terminates a 50 contact connector in less than 5 minutes. For field assembly and low production applications. Portable and requires no set-up time. Accept all sizes and shell styles. Standard Certi-Clinch handles solid wire only. Max. insulator outer diameter is .040 (1.02 mm).
43F197. SCT-334 ..... **633.66**

Versa-Clinch hand operated tool used to perform four basic functions: 1. Cut off and terminate one wire to Clinch Solderless Superibbon. Ribbon and some connectors manufactured by others. 2. Unlatch the Superibbon 90° Hood for removal. 3. Open and close Superibbon. Metal Cable-Clamp. 4. Unlock mated Superibbon Connectors, Versa-Clinch is used to cut, patch, remove, repair, open, close, latch, unlatch, tap and terminate.
43F155. VCTT-361 ..... **42.63**

Pliers designed for reterminating wires removed from solid wire solderless Cinch-Ribbon and Superibbon Connectors.
43F196. SRT-358 ..... **25.00**



Certi-Clinch



Versa-Clinch

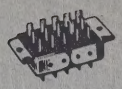
Pliers

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

Cinch "Jones" Plugs & Sockets

Series 300


P-315-EB

S-315-EB

S-304-RP

P-304-RP

PLUGS WITH RECESSED PLATE

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
39F260	P-302-RP	2	1.24	.97	.84	.72
39F261	P-303-RP	3	1.30	1.01	.89	.74
39F262	P-304-RP	4	1.37	1.12	.93	.78
39F263	P-306-RP	6	1.57	1.27	1.00	.84
39F264	P-308-RP	8	1.78	1.46	1.20	.96
39F265	P-310-RP	10	2.03	1.58	1.33	1.12
39F266	P-312-RP	12	2.21	1.78	1.49	1.20

SOCKETS WITH RECESSED PLATE

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
39F270	S-302-RP	2	1.30	1.01	.85	.73
39F271	S-303-RP	3	1.32	1.11	.90	.74
39F272	S-304-RP	4	1.41	1.17	.96	.80
39F273	S-306-RP	6	1.61	1.31	1.12	.89
39F274	S-308-RP	8	1.93	1.52	1.31	1.05
39F275	S-310-RP	10	2.21	1.78	1.49	1.20
39F276	S-312-RP	12	2.56	2.02	1.67	1.39

PLUGS WITH END BRACKETS

29F1064	P-315-EB	15	1.97	1.57	1.32	1.11
29F1065	P-318-EB	18	2.33	1.92	1.57	1.27
29F1066	P-321-EB	21	2.88	2.32	1.96	1.57
29F1067	P-324-EB	24	3.46	2.78	2.33	1.92
29F1068	P-327-EB	27	4.03	3.25	2.72	2.18
29F1069	P-330-EB	30	4.62	3.69	3.09	2.53
29F1070	P-333-EB	33	5.15	4.16	3.46	2.78

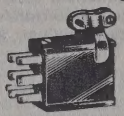
SOCKETS WITH END BRACKETS

29F1071	S-315-EB	15	2.25	1.86	1.51	1.24
29F1072	S-318-EB	18	3.59	2.07	1.76	1.41
29F1073	S-321-EB	21	3.18	2.57	2.13	1.67
29F1074	S-324-EB	24	3.71	2.99	2.56	2.02
29F1075	S-327-EB	27	4.30	3.46	2.88	2.33
29F1076	S-330-EB	30	4.92	3.95	3.30	2.66
29F1077	S-333-EB	33	5.48	4.38	3.68	2.92

Series 400

P-406-AB

S-406-AB


P-406-CCE

S-406-CCE

P-406-CCT

S-406-CCT

10

Rated for duty beyond range of 300 Series: 1100 Vrms at 1-5 amps. Contact resistance: .001 ohm avg. Polarized and suitable for either cap or panel mounting. Double bellows type socket contacts of cadmium-plated phosphor bronze engage both sides of flat plug contacts. Plug prongs are cadmium-plated brass ¼" wide, 1/16" thick.

PLUGS WITH ANGLE BRACKETS

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
39F320	P-402-AB	2	1.60	1.29	1.09	.87
39F321	P-404-AB	4	1.96	1.58	1.33	1.03
39F322	P-406-AB	6	2.27	1.82	1.56	1.26
39F323	P-408-AB	8	2.64	2.09	1.73	1.41
39F324	P-410-AB	10	2.94	2.37	2.02	1.61
39F325	P-412-AB	12	3.30	2.67	2.21	1.77

SOCKETS WITH ANGLE BRACKETS

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
39F330	S-402-AB	2	1.87	1.50	1.26	.98
39F331	S-404-AB	4	2.37	1.90	1.60	1.29
39F332	S-406-AB	6	2.89	2.33	1.98	1.58
39F333	S-408-AB	8	3.40	2.71	2.27	1.86
39F334	S-410-AB	10	3.88	3.13	2.64	2.09
39F335	S-412-AB	12	4.41	3.53	2.95	2.38

PLUGS WITH CABLE CLAMP ON TOP

39F340	P-402-CCT	2	2.62	2.09	1.73	1.41
39F341	P-404-CCT	4	2.95	2.38	2.02	1.61
39F342	P-406-CCT	6	3.40	2.71	2.29	1.87
39F343	P-408-CCT	8	3.75	2.98	2.53	2.05
39F344	P-410-CCT	10	4.32	3.46	2.92	2.84
39F345	P-412-CCT	12	4.69	3.76	3.14	2.56

SOCKETS WITH CABLE CLAMP ON TOP

39F346	S-402-CCT	2	2.94	2.37	2.01	1.60
39F347	S-404-CCT	4	3.48	2.80	2.37	1.90
39F348	S-406-CCT	6	4.06	3.29	2.71	2.19
39F349	S-408-CCT	8	4.58	3.72	3.10	2.49
39F350	S-410-CCT	10	5.19	4.16	3.48	2.84
39F351	S-412-CCT	12	5.77	4.58	3.85	3.10

PLUGS WITH CABLE CLAMP IN END

29F1060	P-402-CCE	2	2.69	2.18	1.82	1.49
29F1061	P-404-CCE	4	3.04	2.41	2.06	1.65
29F1078	P-406-CCE	6	3.47	2.78	2.34	1.90
29F1079	P-408-CCE	8	3.85	3.08	2.61	2.07
29F1080	P-410-CCE	10	4.37	3.50	2.95	2.38
29F1081	P-412-CCE	12	4.79	3.84	3.23	2.61

SOCKETS WITH DEEP BRACKETS FOR RECESSED MOUNTING

29F1048	S-402-DB	2	2.37	1.90	1.60	1.29
29F1049	S-404-DB	4	2.95	2.38	2.02	1.61
29F1050	S-406-DB	6	3.57	2.89	2.40	1.98
29F1051	S-408-DB	8	4.17	3.36	2.80	2.25
29F1052	S-410-DB	10	4.80	3.84	3.23	2.62
29F1053	S-412-DB	12	5.40	4.33	3.60	2.93

PLUGS WITH DEEP BRACKETS FOR RECESSED MOUNTING

29F514	P-402-DB	2	2.09	1.68	1.41	1.17
29F515	P-404-DB	4	2.56	2.05	1.70	1.36
29F516	P-406-DB	6	2.95	2.38	2.02	1.61
29F517	P-408-DB	8	3.40	2.71	2.29	1.87
29F518	P-410-DB	10	3.84	3.07	2.61	2.07
29F519	P-412-DB	12	4.28	3.43	2.89	2.29

SOCKETS WITH SHALLOW BRACKETS FOR FLUSH MOUNTING

39F380	S-402-SB	2	2.27	1.82	1.56	1.26
39F381	S-404-SB	4	2.89	2.33	1.98	1.58
39F382	S-406-SB	6	3.48	2.83	2.37	1.90
39F383	S-408-SB	8	4.09	3.31	2.77	2.21
39F384	S-410-SB	10	3.75	3.15	2.66	2.57
39F385	S-412-SB	12	5.31	4.28	3.57	2.89

PLUGS WITH SHALLOW BRACKETS FOR FLUSH MOUNTING

29F1054	P-402-SB	2	2.04	1.63	1.36	1.09
29F1055	P-404-SB	4	2.41	2.01	1.65	1.34
29F1056	P-406-SB	6	2.89	2.33	1.98	1.58
29F1057	P-408-SB	8	3.33	2.68	2.22	1.78
29F1058	P-410-SB	10	3.75	2.98	2.56	2.05
29F1059	P-412-SB	12	4.17	3.33	2.80	2.25

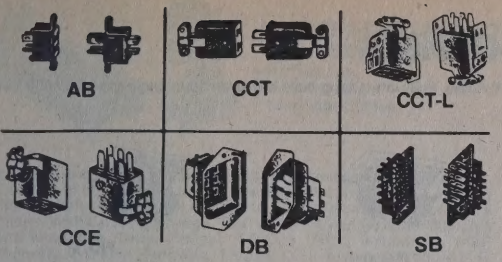
SOCKETS WITH CABLE CLAMP IN END

29F1088	S-402-CCE	2	3.00	2.40	2.05	1.65
29F1089	S-404-CCE	4	3.57	2.89	2.40	1.96
29F1090	S-406-CCE	6	4.16	3.33	2.78	2.25
29F1091	S-408-CCE	8	4.70	3.76	3.15	2.56
29F1092	S-410-CCE	10	5.26	4.23	3.53	2.84
29F1093	S-412-CCE	12	5.83	4.67	3.91	3.14

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

Connector Division
TRW Electronic Components Group



Small size, good separation between contacts for medium-duty applications. Molded phenolic insulator, cadmium-plated phosphor bronze socket. Brass plug contacts, for cap or panel mounting. Polarized so only common sizes will mate. "Knife-switch" type socket contacts engage both sides of flat plug contacts. 730Vrms. Current (2-12 contacts) 7.5 Amps (15-33 contacts) 4.5 Amps.

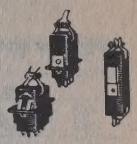
AUXILIARY LOCKS

Type 63. Spring lock for use with 400 Series panel mounted connectors.
45F788. NET 1.00

Type 63A.† Spring lock for use with 300 Series 15-33 contact panel-mount connectors.
45F789. NET ..... .81

Type 93.† Extension-cable lock for use with 400 Series.
45F790. NET ..... .98

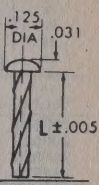
†Connector shells must be specifically adapted for these locks.



REPLACEMENT DRIVE PINS FOR 300 SERIES CAP-TYPE PLUGS AND SOCKETS

Stk. No.	Type	Contacts	L± .005	1-24	25-49	50-99	100-249
29F1195	302-R	2	.687	.33	.30	.26	.21
29F1196	303-R	3	.468				
29F1197	304-R	4,6,8,10*	.718				
29F1198	312-R	12	.953				
29F1199	333-R	15-33*	1.125				

*10-contact size and 15 thru 33-contact sizes require 2 pins per unit; all other sizes require only 1. Sold only in multiples of ten.



PLUGS WITH ANGLE BRACKETS

Stock No.	Type No.	Cont.	1-24	25-49	50-99	100-249
39F200	P-302-AB	2	.70	.52	.49	.43
39F201	P-303-AB	3	.76	.58	.51	.45
39F202	P-304-AB	4	.82	.70	.56	.49
39F203	P-306-AB	6	1.00	.82	.73	.55
39F204	P-308-AB	8	1.17	.93	.80	.68
39F205	P-310-AB	10	1.30	1.01	.89	.74
39F206	P-312-AB	12	1.46	1.18	.96	.80
39F207	P-315-AB	15	1.93	1.52	1.30	1.01
39F208	P-318-AB	18	2.28	1.86	1.52	1.26
39F209	P-321-AB	21	2.84	2.28	1.93	1.52
39F210	P-324-AB	24	3.41	2.73	2.29	1.87
39F211	P-327-AB	27	3.99	3.23	2.69	2.14
39F212	P-330-AB	30	4.58	3.65	3.04	2.48
39F213	P-333-AB	33	5.12	4.09	3.42	2.73

SOCKETS WITH ANGLE BRACKETS

Stock No.	Type No.	Cont.	1-24	25-49	50-99	100-249
39F220	S-302-AB	2	.73	.56	.50	.40
39F221	S-303-AB	3	.80	.68	.52	.48
39F222	S-304-AB	4	.85	.73	.58	.50
39F223	S-306-AB	6	1.11	.85	.76	.58
39F224	S-308-AB	8	1.30	1.02	.89	.74
39F225	S-310-AB	10	1.49	1.20	1.01	.82
39F226	S-312-AB	12	1.76	1.41	1.20	.96
39F227	S-315-AB	15	2.21	1.78	1.49	1.20
39F228	S-318-AB	18	2.56	2.02	1.67	1.39
39F229	S-321-AB	21	3.09	2.53	2.07	1.65
39F230	S-324-AB	24	3.68	2.92	2.52	1.97
39F231	S-327-AB	27	4.24	3.41	2.86	2.29
39F232	S-330-AB	30	4.87	3.91	3.27	2.64
39F233	S-333-AB	33	5.44	4.35	3.64	2.89

PLUGS WITH CABLE CLAMP IN TOP

39F280	P-302-CCT	2	1.31	1.05	.89	.74
39F281	P-303-CCT	3	1.46	1.18	.96	.80
39F282	P-304-CCT	4	1.51	1.24	1.01	.82
39F283	P-306-CCT	6	1.67	1.39	1.18	.93
39F284	P-308-CCT	8	1.87	1.49	1.27	1.00
39F285	P-310-CCT	10	2.02	1.62	1.39	1.15
39F286	P-312-CCt	12	2.18	1.76	1.49	1.20
39F287	P-315-CCT	15	2.88	2.33	1.97	1.57
39F288	P-318-CCT	18	3.36	2.70	2.28	1.86
39F289	P-321-CCT	21	4.00	3.24	2.70	2.17
39F290	P-324-CCT	24	4.69	3.76	3.18	2.57
39F291	P-327-CCT	27	5.39	4.27	3.59	2.88
39F292	P-330-CCT	30	6.02	4.84	4.03	3.25
39F293	P-333-CCT	33	6.67	5.37	4.46	3.59

SOCKETS WITH CABLE CLAMP IN TOP

39F300	S-302-CCT	2	1.33	1.12	.93	.76
39F301	S-303-CCT	3	1.48	1.19	.97	.81
39F302	S-304-CCT	4	1.55	1.27	1.05	.84
39F303	S-306-CCT	6	1.78	1.46	1.20	.96
39F304	S-308-CCT	8	2.00	1.58	1.33	1.12
39F305	S-310-CCT	10	2.23	1.83	1.51	1.24
39F306	S-312-CCT	12	2.56	2.02	1.66	1.37
39F307	S-315-CCT	15	3.23	2.62	2.17	1.70
39F308	S-318-CCT	18	3.64	2.89	2.44	1.97
39F309	S-321-CCT	21	4.27	3.44	2.88	2.32
39F310	S-324-CCT	24	4.94	3.99	3.33	2.66
39F311	S-327-CCT	27	5.62	4.50	3.77	3.02
39F312	S-330-CCT	30	6.32	5.10	4.24	3.41
39F313	S-333-CCT	33	6.96	5.57	4.69	3.76

PLUGS—CABLE CLAMP IN TOP WITH LOCKS

29F859	P-302-CCT-L	2	1.61	1.31	1.12	.89
29F860	P-303-CCT-L	3	1.70	1.41	1.19	.95
29F861	P-304-CCT-L	4	1.86	1.48	1.26	.97
29F862	P-306-CCT-L	6	2.02	1.62	1.37	1.12
29F863	P-308-CCT-L	8	2.14	1.70	1.48	1.19
29F864	P-310-CCT-L	10	2.33	1.92	1.58	1.30
29F865	P-312-CCT-L	12	2.48	2.01	1.66	1.37
29F1028	P-315-CCT-L	15	3.23	2.62	2.17	1.70
29F1029	P-318-CCT-L	18	3.68	2.92	2.52	2.00
29F1030	P-321-CCT-L	21	4.00	3.24	2.70	2.17

SOCKETS—CABLE CLAMP IN TOP WITH KEEPERS

29F866	S-302-CCT-K	2	1.64	1.33	1.17	.90
29F867	S-303-CCT-K	3	1.78	1.46	1.20	.96
29F868	S-304-CCT-K	4	1.88	1.51	1.27	1.00
29F869	S-306-CCT-K	6	2.07	1.65	1.41	1.17
29F870	S-308-CCT-K	8	2.29	1.87	1.55	1.27
29F871	S-310-CCT-K	10	2.57	2.03	1.67	1.39
29F872	S-312-CCT-K	12	2.84	2.28	1.93	1.52
29F1035	S-315-CCT-K	15	3.50	2.84	2.35	1.93
29F1036	S-318-CCT-K	18	3.95	3.18	2.65	2.13
29F1037	S-321-CCT-K	21	4.61	3.69	3.09	2.52

PLUGS WITH CABLE CLAMP IN END

81F1047	P-302-CCE	10	1.42	1.14	.95	.78
81F1048	P-303-CCE	10	1.57	1.27	1.01	.83
81F1049	P-304-CCE	10	1.62	1.32	1.29	.85
29F1008	P-306-CCE	6	1.78	1.47	1.24	.96
29F1009	P-308-CCE	8	1.94	1.55	1.31	1.05
29F1010	P-310-CCE	10	2.11	1.66	1.46	1.18
29F1011	P-312-CCE	12	2.28	1.86	1.52	1.26
29F1012	P-315-CCE	15	2.95	2.36	2.01	1.61
29F1013	P-318-CCE	18	3.44	2.74	2.32	1.88

SOCKET WITH CABLE CLAMP IN END

81F1050	S-302-CCE	10	1.44	1.20	.98	.80
81F1051	S-303-CCE	10	1.59	1.28	1.02	.84
81F1052	S-304-CCE	10	1.64	1.35	1.32	.87
29F1019	S-306-CCE	6	1.87	1.49	1.30	1.00
29F1020	S-308-CCE	9	2.06	1.64	1.41	1.17
29F1021	S-310-CCE	10	2.32	1.88	1.58	1.27
29F1022	S-312-CCE	12	2.62	2.07	1.76	1.41
29F1023	S-315-CCE	15	3.29	2.65	2.21	1.78
29F1024	S-318-CCE	18	3.69	2.95	2.53	2.01

PLUGS WITH DEEP BRACKETS FOR RECESSED MOUNTING

28F1094	P-304-DB	4	1.65	1.33	1.15	.90
28F1095	P-306-DB	6	1.87	1.48	1.26	1.00
28F1096	P-308-DB	8	1.97	1.61	1.33	1.11
28F1097	P-312-DB	12	2.25	1.86	1.52	1.24
28F1098	P-315-DB	15	2.73	2.21	1.88	1.49
28F1099	P-318-DB	18	3.27	2.64	2.17	1.82
28F1100	P-321-DB	21	3.91	3.17	2.64	2.11
28F1101	P-324-DB	24	4.58	3.68	3.08	2.48

SOCKETS WITH DEEP BRACKETS FOR RECESSED MOUNTINGS

29F875	S-304-DB	4	1.66	1.37	1.18	.93
29F876	S-306-DB	6	1.93	1.52	1.31	1.01
29F877	S-308-DB	8	2.11	1.66	1.46	1.18
29F878	S-312-DB	12	2.62	2.06	1.76	1.41
29F879	S-315-DB	15	3.04	2.48	2.06	1.64
29F880	S-318-DB	18	3.51	2.84	2.35	1.94
29F881	S-321-DB	21	4.20	3.36	2.79	2.25
29F882	S-324-DB	24	4.85	3.90	3.27	2.64

10

Plugs & Sockets

Designed for excellent electrical and mechanical performance. Rated 1700 Volts, 10 Amps. Fully interchangeable with corresponding units of the 400 Series.

FIG. A

FIG. B

FIG. C

FIG. D

PLUGS WITH CABLE CLAMP ON TOP

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
29F524	P-2404-CCT	4	3.10	2.49	2.09	1.68
29F525	P-2406-CCT	6	3.47	2.78	2.34	1.90
29F526	P-2408-CCT	8	3.84	3.08	2.62	2.07
29F528	P-2412-CCT	12	4.41	3.54	2.97	2.38

PLUGS WITH CABLE CLAMPS IN END FIG. A

29F1112	P-2402-CCE	2	2.80	2.27	1.91	1.55
29F1115	P-2408-CCE	8	3.91	3.14	2.67	2.10
29F1117	P-2412-CCE	12	4.68	3.75	3.13	2.50

PLUGS WITH DEEP BRACKETS FOR RECESSED MOUNTING FIG. D

29F1095	P-2404-DB	4	2.50	1.96	1.68	1.36
29F1096	P-2406-DB	6	2.89	2.29	1.96	1.58
29F1097	P-2408-DB	8	3.23	2.62	2.18	1.71
29F1098	P-2410-DB	10	3.57	2.89	2.39	1.96
29F1099	P-2412-DB	12	3.91	3.14	2.67	2.10

PLUGS WITH SHALLOW BRACKETS FOR FLUSH MOUTNING

29F1106	P-2402-SB	2	2.02	1.61	1.35	1.09
29F1107	P-2404-SB	4	2.37	1.90	1.60	1.29
29F1108	P-2406-SB	6	2.70	2.18	1.82	1.50
29F1109	P-2408-SB	8	3.07	2.49	2.06	1.85
29F1111	P-2412-SB	12	3.79	3.00	2.56	2.05

PRINTED CIRCUIT SOCKETS WITH SHIELD BASES

Stock No.	Type	Description	1-24	25-49	50-99	100-249
29F603	9PC-M2	9-pin Min.	4.61	3.68	3.19	2.50

MOLDED TUBE SOCKETS

Brass solder coated contacts. • Black, † Mica.

8AB MOLDED OCTAL 1 5/16" MOUNTING CENTERS

Stock No.	Type	Mtg. Hole	1-24	25-49	50-99	100-249
38F670*	8AB	.136D.	.62	.49	.44	.40
38F671†	8AM	.136D.	.83	.66	.62	.61

MOLDED OCTAL 1½" MOUNTING CENTERS

38F672*	8EB	.143 D.	.62	.49	.44	.40
38F673†	8EM	.140 D.	.83	.66	.62	.61

MOLDED CONNECTOR PLUGS AND SOCKETS

Stock No.	Type	Mfr. No.	Contacts	1-24	25-49	50-99	100-249
29F701	8PB	54B16021	8 plugs	.90	.75	.65	.59
29F702	11PB	54B13795	11 plugs	1.16	.83	.75	.65
29F703	11RB	54A13783	11 sockets	1.07	.85	.72	.63

SOCKETS WITH CABLE CLAMP ON TOP

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
29F530	S-2404-CCT	4	3.30	2.67	2.21	1.77
29F531	S-2406-CCT	6	3.69	2.94	2.43	2.02
29F632	S-2408-CCT	8	4.06	3.29	2.71	2.19
29F534	S-2412-CCT	12	4.82	3.86	3.24	2.62

SOCKETS WITH CABLE CLAMPS IN END FIG. B

29F1124	S-2402-CCE	2	3.07	2.43	2.06	1.65
29F1127	S-2408-CCE	8	4.14	3.33	2.78	2.22
29F1128	S-2410-CCE	10	4.52	3.60	3.04	2.41
29F1129	S-2412-CCE	12	4.94	3.95	3.31	2.67

SOCKETS WITH DEEP BRACKETS FOR RECESSED MOUNTING FIG. C

29F901	S-2404-DB	4	2.69	2.18	1.82	1.49
29F902	S-2406-DB	6	3.07	2.43	2.06	1.65
29F903	S-2408-DB	8	3.43	2.74	2.33	1.89
29F904	S-2410-DB	10	3.78	3.04	2.56	2.06
29F905	S-2412-DB	12	4.16	3.35	2.80	2.25

SOCKETS WITH SHALLOW BRACKET FOR FLUSH MOUNTING

29F535	S-2402-SB	2	2.18	1.71	1.49	1.20
29F536	S-2404-SB	4	2.53	2.05	1.70	1.36
29F537	S-2406-SB	6	2.92	2.34	1.98	1.58
29F538	S-2408-SB	8	3.29	2.64	2.21	1.77
29F540	S-2412-SB	12	4.03	3.23	2.70	2.18

CONVENTIONAL STAND-OFF TYPE PRINTED CIRCUIT SOCKETS

*7PC-B1

9PC-B1

Stand-off sockets resting on shoulder of contact tail providing air gap for cooling and eliminating moisture. Designed for 1/16" printed circuit boards having bottom circuitry.

Stock No.	Type	1-24	25-49	50-99	100-249
29F605	7 PC-B1	.46	.41	.37	.33
29F608	9 PC-B1	.62	.49	.44	.40

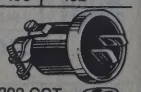
MINIATURE SOCKETS

7 PIN MOLDED SADDLE TYPE BOTTOM MOUNT

Stock No.	Type	Description	1-24	25-49	50-99	100-249
38F636	7EB	Black	.53	.46	.41	.37
38F637	7EM	Mica-Filled	.63	.50	.46	.41
9 PIN MOLDED SADDLE TYPE BOTTOM MOUNT						
38F679	9EB	Black	.62	.49	.44	.40
38F680	9EM	Mica-Filled	.83	.66	.62	.61
7 PIN—SHIELD BASE TYPE						
38F675	7MX1	Mica-Filled	.93	.76	.64	.58
9 PIN MINIATURE SOCKETS—SHIELD BASE TYPE						
38F682	9XM	Mica	1.31	1.18	.93	.82

AUDIO CONNECTORS

Metal parts are brass with bright nickel finish. Insulation is molded phenolic. Phosphor bronze "knife switch" type socket contacts engage both sides of flat brass plug contacts. Formed fibre linings in caps. Knurled nut has 3/4"-27 thread. P-202-CCT makes ideal microphone cable connector.



P-202,CCT

S-202-B

Stock No.	Type	Description	1-24	25-49	50-99	100-249
29F507	P-202-CCT	Plug with Cable Clamps	2.34	1.87	1.60	1.28
29F512	S-202-B	Socket with Mounting Base	2.80	2.27	1.90	1.55

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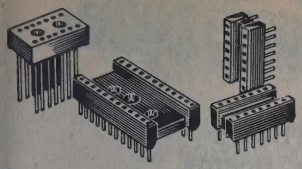
A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

Connector Division
TRW Electronic Components Group



INTEGRATED CIRCUIT SOCKETS

- DIP Sockets
- 1 AMP Rating
- Low Capacitance

Ideal for testing and prototype purposes as well as production applications. Protect leads and hermetic seals. Positive electrical contact. Low contact resistance. Resistive to corrosive atmosphere and extremes in temperature and humidity. Withstanding Voltage: 1800 VRMS, dip solder tails; 1000 VAC RMS, wire wrap tails. Temp. Range: −65° C to 150° C. Insulations: 1-GP Black Phenolic. 2-Diallyl Phthalate. 3-Black G.F. Polyester. 4-White G.F. Polyester Lead Plating. 5-Electro Tin. 6-Gold.

DIP SOLDER TERMINALS .017" x .033" x .170" Long THROAT

Stock No.	Type No.	Contacts	Plating	1-24	25-49	50-99	100-249
29F545	14-DIP	14	1,5	1.50	1.20	1.01	.81
29F546	14-DIP-1	14	2,6	2.15	1.70	1.44	1.18
29F547	16-DIP	16	1,5	1.67	1.34	1.12	.90
29F548	16-DIP-1	16	2,6	2.29	1.86	1.57	1.29
29F650	24-DIP	24	1,5	2.49	2.01	1.68	1.36
29F651	24-DIP-1	24	2,6	3.16	2.57	2.20	1.82

DIP SOLDER TERMINALS .017" x .017" x .110" Long THROAT

29F1400	14-N-DIP	14	1,5	1.50	1.20	1.01	.81
29F1401	14-N-DIP-1	14	2,6	2.15	1.70	1.44	1.18
29F1402	16-N-DIP	16	1,5	1.67	1.34	1.12	.90
29F1403	16-N-DIP-1	16	2,6	2.29	1.86	1.57	1.29
29F1404	24-N-DIP	24	1,5	2.49	2.01	1.68	1.36

WIRE WRAP TERMINALS

28F1159	14-W-DIP	14	3,5	1.52	1.25	1.05	.84
28F1160	14-W-DIP-1	14	4,5	1.52	1.25	1.05	.84
28F1161	14-W-DIP-2	14	3,6	2.18	1.78	1.53	1.27
28F1162	14-W-DIP-3	14	4,6	2.18	1.78	1.53	1.27
28F1163	16-W-DIP	16	3,5	1.86	1.49	1.26	1.02
28F1164	16-W-DIP-1	16	4,5	1.86	1.49	1.26	1.02
28F1165	16-W-DIP-2	16	3,6	2.52	2.10	1.80	1.50
28F1166	16-W-DIP-3	16	4,6	2.52	2.10	1.80	1.50

110-125 VOLT 2 PRONG POLARIZED SOCKET

Stock No.	Type	Mfr. No.	1-24	25-49	50-99	100-249
39F394	2R2-1	54A12844	1.06	.85	.71	.58

VIDICON SOCKETS

Stock No.	Type	1-24	25-49	50-99	100-249
29F999	8VT	5.96	4.71	3.99	3.21

LOW PROFILE SOCKETS WITH PC BOARD TERMINALS

Low profile DIP sockets are extremely economical. Unique design permits substantial reduction in assembly costs. Produced in 8, 14, 16, and 24 contact sizes as standard items. 22 & 40 sizes also std. items for low profile DIP sockets.

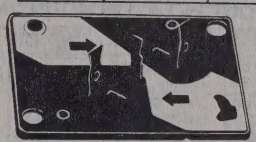
Stock No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
57F3232	8E-DIP	8	.35	.28	.24	.19
57F3233	14E-DIP	14	.44	.36	.30	.25
57F3234	16E-DIP	16	.47	.38	.31	.26
29F1189	18E-DIP	18	.48	.39	.33	.28
29F1190	22E-DIP	22	.62	.50	.43	.40
57F3235	24E-DIP	24	.65	.53	.44	.36
29F1191	40E-DIP	40	.94	.75	.63	.51
57F3236	*8E-DIP-4	8	.50	.41	.35	.29
57F3237	*14E-DIP-4	14	.72	.60	.51	.43
57F3238	*16E-DIP-4	16	.79	.66	.56	.46
57F3239	*24E-DIP-4	24	1.16	.95	.82	.67

*Gold Plated Contacts

TO-5, OR TO-18*, LOW PROFILE TRANSISTOR SOCKETS

*Directly accept TO-5; accept TO-18 with full length or formed leads.

Stock No.	Type	Color	1-24	25-49	50-99	100-249
45F907 45F908 45F909	3-LPS-B 3LPS-N 3LPS-G	Black Natural Green	.52	.42	.35	.29



2TS-1 A TRANSISTOR SOCKET

Laminated. Vacuum wax impregnated. Mount. holes: .136" dia. 2TS-2; same as 2TS-1 exc. Integral eyelets for chassis mount.

Stock No.	Type	Description	1-24	25-49	50-99	100-249
38F684	2TS-1	6-20 Threaded Mtg. Holes	.27	.22	.20	.18

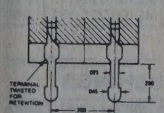
TO-5 AND TO-18 SEMICONDUCTOR SOCKETS

Stock No.	Type No.	Socket Size	Contacts	1-24	25-49	50-99	100-249
29F1406	3-MSS	TO-5	3	.41	.33	.28	.22
29F1407	4-MSS	TO-5	4	.84	.68	.57	.46
29F1408	6-MSS	TO-5	6	1.16	.93	.77	.62
29F1409	6-MSS-1	TO-5	6	2.40	1.93	1.61	1.29
29F1410	8-MSS	TO-5	8	1.39	1.12	.93	.74
29F541	*6-ICS	TO-5	6	1.30	1.08	.96	.84
29F542	*8-ICS	TO-5	8	1.59	1.30	1.12	.95
29F521	*10-ICS	TO-5	10	1.76	1.42	1.26	1.06
29F1411	3-MSS-2	TO-18	3	.59	.48	.39	.32
29F1412	4-MSS-2	TO-18	4	.80	.64	.53	.43

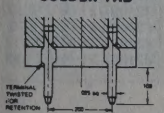
*Gold Plated Contacts

PRECISION PRINTED CIRCUIT EDGE CONNECTORS FOR 1/16" BOARDS

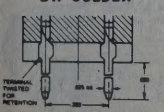
Molded of diallyl phthalate type SDG-F. Handle 1/16" thick single or double sided boards. Gold plated. 3 amps. 600 VDC, U.L. recognized. (−1) suffix means these connectors are alternately polarized by pin location number. Double Readout. Mounted on .100" centers.



SOLDER TAB



DIP SOLDER



WIRE WRAP

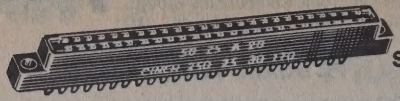
Stock No.	Type	Stock No.	Type	No. Cont.	1-24	25-49	50-99	100-249
CONVENTIONAL SOLDER								
65F245	50-30C-10-1	29F1323	50-30C-10	15/30	5.84	4.75	4.07	3.32
65F246	50-44C-10-1	29F1324	50-44C-10	22/44	6.99	5.71	4.90	4.05
65F247	50-72C-10-1	29F1325	50-72C-10	36/72	9.32	7.68	6.59	5.53
65F248	50-80C-10-1	29F1326	50-80C-10	40/80	9.88	8.16	6.98	5.80
65F249	50-86C-10-1	29F1327	50-86C-10	43/86	10.50	8.64	7.44	6.20
65F250	50-100C-10-1	65F263	50-100C-10	50/100	11.67	9.63	8.28	6.95
DIP SOLDER								
65F251	50-30C-20-1	29F1328	50-30C-20	15/30	5.80	4.71	4.03	3.28
65F252	50-44C-20-1	29F1329	50-44C-20	22/44	6.94	5.66	4.85	4.00
65F253	50-72C-20-1	29F1330	50-72C-20	36/72	9.22	7.58	6.49	5.43
65F254	50-80C-20-1	29F1331	50-80C-20	40/80	9.85	8.13	6.95	5.77
65F255	50-86C-20-1	29F1332	50-86C-20	43/86	10.47	8.61	7.41	6.17
65F256	50-100C-20-1	65F264	50-100C-20	50/100	11.58	9.54	8.19	6.86
WIRE WRAP								
65F257	50-30C-30-1	29F1333	50-30C-30	15/30	5.98	4.90	4.22	3.50
65F258	50-44C-30-1	29F1334	50-44C-30	22/44	7.17	5.90	5.04	4.21
65F259	50-72C-30-1	29F1335	50-72C-30	36/72	9.54	7.92	6.82	5.75
65F260	50-80C-30-1	29F1336	50-80C-30	40/80	10.11	8.40	7.23	6.10
65F261	50-86C-30-1	29F1337	50-86C-30	43/86	10.78	8.91	7.70	6.47
65F262	50-100C-30-1	65F265	50-100C-30	50/100	12.07	9.99	8.64	7.26

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

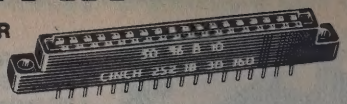
Connector Division
TRW Electronic Components Group

TRW



SOLDER EYELET

DIP SOLDER



Precision Military and Commercial Printed Circuit Board Edge Connectors—Featuring .156 Lead Spacing, 1/16" Boards

Designed for minimum printed circuit card wear, low insertion force, and positive contact with the printed circuit board. Insulation is glass-filled diallyl phthalate. Type SDG-F per MIL-M-14. Commercial type: Stripe plated with .000030" gold in contact area and .000010" gold on tails with copper underplate. No plating on edges. MILITARY: contacts are beryllium copper with 50 micro-inches of gold finish. Available with solder tab, dip solder. All utilize bifurcated contacts permitting two flexing surfaces instead of one for positive contact. Bifurcated contacts are especially recommended for added contact reliability where vibration or printed circuit board irregularities would otherwise cause trouble. **U/L Recognized**

ELECTRICAL SPECIFICATIONS—Voltage Rating (AC RMS, adj. terminals): 830 (Sea Level); 300 (3.4 Hg, 50,000 feet); 200 (1.3 Hg, 70,000 feet). Current: 5.0 Amps. Contact Resistance: .005 Ohms at Rated Current. Insulation Resistance: 5000 Megohms.

ENVIRONMENTAL SPECIFICATIONS—Per MIL-C-21097 and MIL-STD-202. Shock: 3 blows of 50G. Temperature Cycling: 5 continuous cycles, Test Condition B; Beryllium copper, –65°C to 125°C; Phosphor bronze, –65°C to 105°C. Salt Spray: 48 hrs., Condition B. Vibration: Condition B. Humidity: Condition B.

SINGLE READOUT WITH .128 MOUNTING HOLE

SOLDER EYELET

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F952	50- 6A-20	6	2.29	1.86	1.61
29F953	50-10A-20	10	3.10	2.55	2.16
29F954	50-12A-20	12	3.53	3.01	2.45
29F955	50-15A-20	15	4.14	3.37	2.90
29F956	50-18A-20	18	4.73	3.88	3.30
29F957	50-22A-20	22	5.55	4.57	3.90
29F978	50-25A-20	25	6.61	5.39	4.63

5/32" DIP SOLDER

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
28F1151	50- 6B-10	6	2.29	1.86	1.65
28F1152	50-10B-10	10	3.10	2.55	2.16
28F1153	50-15B-10	15	4.14	3.37	2.90
28F1154	50-18B-10	18	4.73	3.88	3.30
28F1155	50-22B-10	22	5.55	4.57	3.90
28F1156	50-25B-10	25	6.61	5.39	4.63

15/64" EXTENDED DIP

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F1420	50- 6S-10	6	2.29	1.86	1.65
29F1421	50-10S-10	10	3.10	2.55	2.16
29F1422	50-12S-10	12	3.53	3.01	2.45
29F1423	50-15S-10	15	4.14	3.37	2.90
29F1424	50-18S-10	18	4.73	3.88	3.30
29F1425	50-22S-10	22	5.55	4.57	3.90
29F1426	50-25S-10	25	6.61	5.39	4.63

DOUBLE READOUT WITH .128 MOUNTING HOLE & .200 SPACING BETWEEN ROWS

SOLDER EYELET

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F958	50-12A-30	6	2.29	1.86	1.61
29F959	50-20A-30	10	3.10	2.55	2.16
29F960	50-24A-30	12	3.53	3.01	2.45
29F961	50-30A-30	15	4.14	3.37	2.90
29F962	50-36A-30	18	4.73	3.88	3.30
29F963	50-44A-30	22	5.55	4.57	3.90
29F979	50-50A-30	25	6.59	5.39	4.63

5/32" DIP SOLDER

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F964	50-12B-10	6	2.29	1.86	1.61
29F965	50-20B-10	10	3.10	2.55	2.16
29F966	50-24B-10	12	3.53	3.01	2.45
29F967	50-30B-10	15	4.14	3.37	2.90
29F968	50-36B-10	18	4.73	3.88	3.30
29F969	50-44B-10	22	5.55	4.57	3.90
45F915	50-50B-10	25	6.59	5.39	4.63

15/64" EXTENDED DIP

Stock No.	Type	Con. Pos.	1-24	25-49	50-99
29F1427	50-12S-20	6	2.29	1.86	1.61
29F1428	50-20S-20	10	3.10	2.55	2.16
29F1429	50-24S-20	12	3.53	3.01	2.45
29F1430	50-30S-20	15	4.14	3.37	2.90
29F1431	50-36S-20	18	4.73	3.88	3.30
29F1432	50-44S-20	22	5.55	4.57	3.90
29F1433	50-50S-20	25	7.63	6.24	5.33

10

DIP SOLDER WITH .140" BETWEEN ROWS

PLAIN MOUNTING HOLES

Stock No.	Type	Contact Positions	Contacts	1-24	25-49	50-99	100-249
29F1339	50-20S-30-2	10	20	3.10	2.55	2.16	1.82
29F1340	50-24S-30-2	12	24	3.53	3.01	2.45	2.03
29F1341	50-30S-30-2	15	30	4.14	3.37	2.90	2.41
29F1342	50-36S-30-2	18	36	4.73	3.88	3.30	2.74
29F1343	50-44S-30-2	22	44	5.55	4.57	3.90	3.21
29F1344	50-50S-30-2	25	50	6.59	5.39	4.63	3.83

WITHOUT MOUNTING EARS

Stock No.	Type	Contact Positions	Contacts	1-24	25-49	50-99	100-249
29F1345	50-12S-30-1	6	12	2.29	1.86	1.61	1.31
29F1346	50-20S-30-1	10	20	3.10	2.55	2.16	1.82
29F1301	50-30S-30-1	15	30	4.14	3.37	2.90	2.41
29F1303	50-44S-30-1	22	44	5.55	4.57	3.90	3.21

MILITARY TYPE PER MIL-C-21097 WITH SOLDER EYELET CONTACTS SINGLE READOUT

PLAIN MOUNTING HOLE

Stk. No.	Type	Military No.	Each
28F1112	50-6A-20M-1	M21097/21-001	4.05
28F1113	50-10A-20M-1	M21097/21-037	6.00
28F1114	50-15A-20M-1	M21097/21-073	8.42
28F1115	50-18A-20M-1	M21097/21-109	9.90
28F1116	50-22A-20M-1	M21097/21-145	11.85

MOLDED-IN BUSHINGS

Stk. No.	Type	Military No.	Each
45F916	50-6A-20-MB-1	M21097/21-004	6.04
45F917	50-10A-20-MB-1	M21097/21-040	9.20
45F918	50-15A-20-MB-1	M21097/21-076	11.52
45F919	50-18A-20-MB-1	M21097/21-112	12.87

FLOATING BUSHINGS

Stk. No	Type	Military No.	Each
45F921	50-6A-20-MFB-1	M21097/21-007	4.92
45F922	50-10A-20-MFB-1	M21097/21-043	6.86
45F923	50-15A-20-MFB-1	M21097/21-079	9.86
45F924	50-18A-20-MFB-2	M21097/21-115	10.75
45F924	50-22A-20-MFB-1	M21097/21-151	12.66

DOUBLE READOUT .200 SPACING BETWEEN ROWS

PLAIN MOUNTING HOLE

Stk. No.	Type	Military No.	Each
28F1117	50-12A-30M	M21097/21-019	3.86
28F1118	50-20A-30M-1	M21097/21-055	5.67
28F1119	50-30A-30M-1	M21097/21-091	7.93
28F1120	50-36A-30M-1	M21097/21-127	9.32
28F1121	50-44A-30M-1	M21097/21-163	11.14

MOLDED-IN BUSHINGS

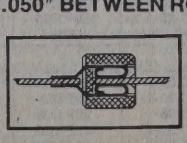
Stk. No.	Type	Military No.	Each
45F926	50-12A-30MB	M21097/1-022	7.17
45F927	50-20A-30-MB-1	M21097/21-058	8.86
45F928	50-30A-30-MB-1	M21097/21-094	11.03
45F929	50-36A-30-MB-1	M21097/21-130	12.29
45F930	50-44A-30-MB-1	M21097/21-166	14.00

FLOATING BUSHINGS

Stk. No.	Type	Military No.	Each
45F931	50-12A-30-MFB-1	M21097/21-025	4.73
45F932	50-20A-30-MFB	M21097/21-061	6.53
45F933	50-30A-30-MFB-1	M21097/21-097	8.79
45F934	50-36A-30-MFB-1	M21097/21-133	10.17
45F935	50-44A-30-MFB-1	M21097/21-169	11.95

CARD EXTENDER WITH .050" BETWEEN ROWS

Stock No.	Type	Contact Positions	1-24	25-49	50-99	100-249
29F1413	50-12S-30	6	2.97	2.43	2.05	1.76
29F1414	50-20S-30	10	3.64	3.07	2.69	2.50
29F1415	50-24S-30	12	4.27	3.51	3.01	2.55
29F1416	50-30S-30	15	5.31	4.39	3.77	3.12
29F1417	50-36S-30	18	5.92	4.96	4.25	3.59
29F1418	50-44S-30	22	6.99	5.83	5.03	4.21
29F1419	50-50S-30	25	8.22	6.81	5.89	4.96

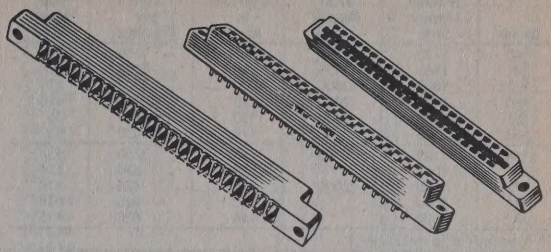


A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Printed Circuit Edge Connectors

CARDCON CONNECTORS WITH DIP SOLDER TERMINATIONS

Ideal for applications involving vibration or board irregularities. Bifurcated semi-bellows contacts for added contact reliability. Available in 6, 10, 12, 15, 18, 22, 24, and 25 contact sizes, with or without mounting ears. Accepts single or double sided, 1/16" thick PC boards, 0.156" center spacing, with either 0.200" spacing between rows, or 0.140" spacing between rows. Insulator: 94-VO rated, glass filled blue polyester. Contacts: 20 µ in. gold plate, on 50 µ in. copper on allow 260 spring brass.



WITH MOUNTING EARS .156" x .200"

Stk. No.	Type	Contacts	1-24	25-49	50-99	100-249
29F1750	50-12SN-1	6	1.44	1.17	.99	.81
29F1751	50-20SN-1	10	2.08	1.68	1.43	1.17
29F1752	50-24SN-1	12	2.29	1.86	1.57	1.29
29F1753	50-30SN-1	15	2.66	2.34	1.98	1.63
29F1754	50-36SN-1	18	2.96	2.42	2.05	1.69
29F1755	50-44SN-1	22	3.30	2.69	2.29	1.89
29F1756	50-48SN-1	24	3.72	3.02	2.56	2.10
29F1757	50-50SN-1	25	3.77	3.08	2.61	2.15

WITH MOUNTING EARS .156" x .140"

Stk. No.	Type	Contacts	1-24	25-49	50-99	100-249
29F1758	50-12SN-2	6	1.44	1.17	.99	.81
29F1759	50-20SN-2	10	2.08	1.68	1.43	1.17
29F1760	50-24SN-2	12	2.29	1.86	1.57	1.29
29F1761	50-30SN-2	15	2.66	2.34	1.98	1.63
29F1762	50-36SN-2	18	2.96	2.42	2.05	1.69
29F1763	50-44SN-2	22	3.30	2.69	2.29	1.89
29F1764	50-48SN-2	24	3.72	3.02	2.56	2.10
29F1765	50-50SN-2	25	3.77	3.08	2.61	2.15

WITHOUT MOUNTING EARS .156" x .200"

Stk. No.	Type	Contacts	1-24	25-49	50-99	100-249
29F1766	50-12SN-3	6	1.44	1.17	.99	.81
29F1767	50-20SN-3	10	2.08	1.68	1.43	1.17
29F1768	50-24SN-3	12	2.29	1.86	1.57	1.29
29F1769	50-30SN-3	15	2.66	2.34	1.98	1.63
29F1770	50-36SN-3	18	2.96	2.42	2.05	1.69
29F1771	50-44SN-3	22	3.30	2.69	2.29	1.89
29F1772	50-48SN-3	24	3.72	3.02	2.56	2.10
29F1773	50-50SN-3	25	3.77	3.08	2.61	2.15

WITH MOUNTING EARS DIP SOLDER

Stk. No.	Type	Contacts	1-24	25-49	50-99	100-249
81F1023	50-6SN-5	6	1.44	1.17	.99	.81
81F1024	50-10SN-5	10	2.08	1.68	1.43	1.17
81F1025	50-12SN-5	12	2.29	1.86	1.57	1.29
81F1026	50-15SN-5	15	2.66	2.34	1.98	1.63
81F1027	50-18SN-5	18	2.96	2.42	2.05	1.69
81F1028	50-22SN-5	22	3.30	2.69	2.29	1.89
81F1029	50-24SN-5	24	3.72	3.02	2.56	2.10
81F1030	50-25SN-5	25	3.77	3.08	2.61	2.15

WITH MOUNTING EARS SOLDER EYELET

Stk. No.	Type	Contacts	1-24	25-49	50-99	100-249
81F1031	50-6SN-7	6	1.44	1.17	.99	.81
81F1032	50-10SN-7	10	2.08	1.68	1.43	1.17
81F1033	50-12SN-7	12	2.29	1.86	1.57	1.29
81F1034	50-15SN-7	15	2.66	2.34	1.98	1.63
81F1035	50-18SN-7	18	2.96	2.42	2.05	1.69
81F1036	50-22SN-7	22	3.30	2.69	2.29	1.89
81F1037	50-24SN-7	24	3.72	3.02	2.56	2.10
81F1038	50-25SN-7	25	3.77	3.08	2.61	2.15

Sold only in multiples of 10.

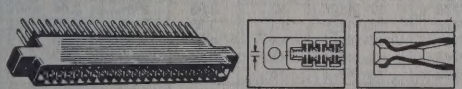
WITH MOUNTING EARS SOLDER EYELET

Stk. No.	Type	Contacts	1-24	25-49	50-99	100-249
81F1039	50-12SN-9	12	1.44	1.17	.99	.81
81F1040	50-20SN-9	20	2.08	1.68	1.43	1.17
81F1041	50-24SN-9	24	2.29	1.86	1.57	1.29
81F1042	50-30SN-9	30	2.66	2.34	1.98	1.63
81F1043	50-36SN-9	36	2.96	2.42	2.05	1.69
81F1044	50-44SN-9	44	3.30	2.69	2.29	1.89
81F1045	50-48SN-9	48	3.72	3.02	2.56	2.10
81F1046	50-50SN-9	50	3.77	3.08	2.61	2.15

Sold only in multiples of 10.

WIRE WRAP PC CONNECTORS .031 x .062, .156 CENTERS

Bifurcated cantilever. Accepts 1/16" thick single or double sided boards. Shorting protection, 3 amps. 900 VAC RMS. 1200 VDC.



.550" Tail Length

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
29F1305	50-20E10-1	10/20	5.34	4.40	3.80	3.16
29F1308	50-30E10-1	15/30	5.86	4.89	4.27	3.63
29F1311	50-36E10-1	18/36	6.62	5.51	4.85	4.12
29F1314	50-44E10-1	22/44	7.95	6.69	5.79	4.94
29F1317	50-50E10-1	25/50	8.45	7.10	6.22	5.33
29F1320	50-60E10-1	30/60	9.41	7.94	6.96	6.00

1.051" Tail Length

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
29F1307	50-20G10-1	10/20	5.47	4.53	3.93	3.29
29F1310	50-30G10-1	15/30	6.05	5.08	4.46	3.82
29F1313	50-36G10-1	18/36	6.84	5.73	5.07	4.34
29F1316	50-44G10-1	22/44	8.21	6.95	6.05	5.20
29F1319	50-50G10-1	25/50	8.75	7.40	6.52	5.63
29F1322	50-60G10-1	30/60	9.77	8.30	7.32	6.36

Note: Polarizing keys are not furnished with connectors.

.755" Tail Length

Stk. No.	Type	No. of Contacts	1-24	25-49	50-99	100-249
29F1306	50-20F10-1	10/20	5.39	4.45	3.85	3.21
29F1309	50-30F10-1	15/30	5.94	4.97	4.35	3.72
29F1312	50-36F10-1	18/36	6.71	5.60	4.94	4.21
29F1315	50-44F10-1	22/44	8.05	6.79	5.89	5.04
29F1318	50-50F10-1	25/50	8.56	7.21	6.33	5.44
29F1321	50-60F10-1	30/60	9.57	8.10	7.12	6.16

EDGE CONNECTOR ACCESSORIES

Card Guide, Green, Type 50-GP-1
Blue, Type 50-GP-1B

29F1398. Net	.55	.45	.38	.31

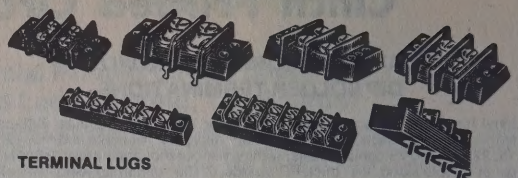
POLARIZING KEYS

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
29F986	50-PK	Tykon in contact type	.34	.27	.26	.24
29F1157	50-PK-1	In-Contact Type, .156 ctr.	.14	.12	.10	.08
29F1158	50-PK-2	Between-Contact Type .156 ctr.	.12	.10	.09	.08
57F3275	50-PK-3	.100 Ctr. Series	.14	.12	.10	.08
45F906	50-PK-2M	Between-Contact MIL Type	.12	.10	.09	.08
29F1783	50-PK-4	Thermoplastic polyester 94V-O	.12	.10	.09	.08

Cinch Connectors TRW

Connector Division
TRW Electronic Components Group

Barriers



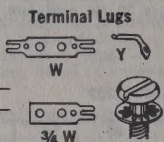
TERMINAL LUGS

ELECTRICAL SPECIFICATIONS

Series	Max. Volts RMS Without Marker Strip	Max. Volts RMS With Marker Strip	Max. Current In Amps	Max. Watts per Terminal	Wire Size Max. Solid
140	1100	2000	15	3750	#16
141	1100	2400	20	5000	#14
142	1600	2600	30	7500	#10
150	1700	2600	40	12,500	#10
151	1800	3400	50	17,500	#8
152	2100	3800	70	54,000	#6
164	1100	2000	15	3750	#14
171	1000	*	10	625	#18
172	1000	2000	10	625	#18
173	1000	*	15	625	#16
174	1000	*	15	625	#16

*No marker strip available.

Dimensions	Type 140	Type 141	Type 142	Type 150	Type 171	Type 172
Dim. x W x H	7/8"x13/32"	1 1/8"x1/2"	1 5/16"x5/8"	1 13/16"x3/4"	13/32"x5/16"	5/8"x5/16"
Terminal Centers	3/8"	7/16"	9/16"	11/16"	1/4"	1/4"
Mounting Centers	5/16"	27/64"	1/2"	5/8"		1/4"
Mtg. Hole Dia.	.160"	.175"/.185"	.209"	.160"	.125"	.125"
Screw Size	#5-40	#6-32	#8-32	#10-32	#2-56	#2-56



3/4 W terminals are for solder attachment of wires on one side of terminal block, W terminals both sides, and Y terminals underneath. Standard terminal block with binder head or SEMS screws can be used for wire or special terminal attachment.
U/L Recognized except 173 Series. Insert an "E" to part number to get SEMS screws.

MATERIALS:
Insulator: molded phenolic
Eyelets: brass screws: nickel plated steel
Terminals: hot solder-dipped brass

Series 140. Accommodates up to #16 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
28F700	2-140	2	.53	.48	.42	.34
28F701	3-140	3	.59	.52	.47	.39
28F702	4-140	4	.79	.59	.53	.48
28F703	5-140	5	.94	.78	.63	.55
28F704	6-140	6	1.09	.88	.78	.59
28F705	7-140	7	1.26	.99	.87	.71
28F706	8-140	8	1.41	1.15	.97	.79
28F707	9-140	9	1.59	1.27	1.02	.87
28F708	10-140	10	1.70	1.40	1.21	.94
28F709	11-140	11	1.81	1.49	1.27	.99
28F710	12-140	12	2.06	1.63	1.36	1.09
28F869	13-140	13	2.17	1.73	1.49	1.22
28F870	14-140	14	2.33	1.87	1.60	1.28
28F871	15-140	15	2.46	2.03	1.67	1.35
28F872	16-140	16	2.63	2.11	1.76	1.42
28F873	17-140	17	2.80	2.21	1.87	1.56
28F874	18-140	18	2.93	2.36	2.01	1.60
28F875	19-140	19	3.09	2.44	2.08	1.67
28F876	20-140	20	3.23	2.58	2.18	1.73
28F877	21-140	21	3.41	2.77	2.29	1.79
29F1000	22-140	22	3.48	2.81	2.39	1.95
29F1001	23-140	23	3.65	2.94	2.46	2.03
29F1002	24-140	24	3.89	3.11	2.63	2.10
29F1003	25-140	25	4.06	3.27	2.71	2.18

Series 140-Y. Accommodates up to #16 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
29F749	2-140-Y	2	.66	.53	.50	.42
29F750	3-140-Y	3	.82	.66	.55	.52
29F751	4-140-Y	4	1.06	.88	.78	.58
29F752	5-140-Y	5	1.29	1.03	.90	.75
29F753	6-140-Y	6	1.60	1.28	1.06	.88
29F754	7-140-Y	7	1.73	1.41	1.22	.94
29F755	8-140-Y	8	2.00	1.60	1.35	1.06
29F756	9-140-Y	9	2.19	1.74	1.50	1.24
29F757	10-140-Y	10	2.41	2.00	1.64	1.34
29F758	11-140-Y	11	2.63	2.11	1.76	1.42
29F759	12-140-Y	12	2.86	2.29	1.98	1.59
29F760	13-140-Y	13	3.09	2.46	2.10	1.67
29F761	14-140-Y	14	3.32	2.68	2.24	1.77
29F762	15-140-Y	15	3.56	2.85	2.39	1.95
29F763	16-140-Y	16	3.73	2.99	2.52	2.06
29F764	17-140-Y	17	3.96	3.16	2.70	2.17
29F765	18-140-Y	18	4.21	3.40	2.82	2.28
29F766	19-140-Y	19	4.39	3.56	2.95	2.39
29F767	20-140-Y	20	4.63	3.71	3.10	2.46
29F768	21-140-Y	21	4.87	3.92	3.28	2.63
29F1004	22-140-Y	22	5.04	4.07	3.44	2.79
29F1005	23-140-Y	23	5.29	4.26	3.58	2.86
29F1006	24-140-Y	24	5.58	4.51	3.73	2.99
29F1007	25-140-Y	25	5.84	4.67	3.89	3.11

Series 140-3/4W. Accommodates up to #16 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
45F750	2-140-3/4W	2	.66	.53	.50	.42
45F751	3-140-3/4W	3	.82	.66	.55	.52
45F752	4-140-3/4W	4	1.13	.90	.79	.63
45F753	5-140-3/4W	5	1.36	1.09	.94	.81
45F754	6-140-3/4W	6	1.60	1.28	1.06	.88
45F755	7-140-3/4W	7	1.79	1.49	1.26	.98
45F756	8-140-3/4W	8	2.08	1.67	1.41	1.15
45F757	9-140-3/4W	9	2.29	1.81	1.59	1.27
45F758	10-140-3/4W	10	2.52	2.06	1.70	1.40
45F759	11-140-3/4W	11	2.79	2.21	1.87	1.49
45F760	12-140-3/4W	12	2.97	2.40	2.06	1.63

Series 141. Accommodates up to #14 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
28F711	2-141	2	.58	.50	.44	.36
28F712	3-141	3	.79	.59	.53	.47
28F713	4-141	4	.99	.83	.71	.56
28F714	5-141	5	1.26	.97	.90	.75
28F715	6-141	6	1.36	1.09	.94	.79
28F716	7-141	7	1.61	1.28	1.09	.88
28F717	8-141	8	1.76	1.42	1.24	.98
28F718	9-141	9	2.00	1.60	1.35	1.06
28F719	10-141	10	2.18	1.74	1.49	1.41
28F720	11-141	11	2.36	1.88	1.63	1.29
28F721	12-141	12	2.53	2.07	1.70	1.40
28F878	13-141	13	2.79	2.19	1.81	1.50
28F879	14-141	14	2.94	2.36	2.01	1.61
28F880	15-141	15	3.11	2.50	2.11	1.68
28F881	16-141	16	3.32	2.68	2.24	1.77
28F882	17-141	17	3.53	2.82	2.39	1.95
28F883	18-141	18	3.71	2.97	2.50	2.03
28F884	19-141	19	3.92	3.12	2.67	2.11
28F885	20-141	20	4.12	3.30	2.80	2.11

Series 141-Y. Accommodates up to #14 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
29F769	2-141-Y	2	.82	.63	.53	.51
29F770	3-141-Y	3	1.09	.88	.78	.58
29F771	4-141-Y	4	1.41	1.15	.97	.79
29F772	5-141-Y	5	1.68	1.36	1.14	.91
29F773	6-141-Y	6	1.95	1.59	1.34	1.02
29F774	7-141-Y	7	2.28	1.79	1.57	1.26
29F775	8-141-Y	8	2.52	2.06	1.70	1.40
29F776	9-141-Y	9	2.81	2.24	1.88	1.56
29F777	10-141-Y	10	3.10	2.46	2.10	1.68
29F778	11-141-Y	11	3.41	2.77	2.29	1.79
29F779	12-141-Y	12	3.68	2.94	2.44	2.01
29F780	13-141-Y	13	3.96	3.16	2.70	2.17
29F781	14-141-Y	14	4.27	3.45	2.90	2.31
29F782	15-141-Y	15	4.54	3.65	3.07	2.44
29F783	16-141-Y	16	4.87	3.92	3.28	2.63
29F784	17-141-Y	17	5.15	4.16	3.48	2.81
29F785	18-141-Y	18	5.48	4.36	3.68	2.94
29F786	19-141-Y	19	5.82	4.64	3.87	3.10
29F787	20-141-Y	20	6.07	4.87	4.07	3.28

Series 141-3/4W. Accommodates up to #14 solid wire.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-249
28F850	2-141-3/4W	2	.82	.63	.53	.51
45F761	3-141-3/4W	3	1.13	.90	.79	.59
45F762	4-141-3/4W	4	1.44	1.21	.98	.82
45F764	6-141-3/4W	6	2.06	1.63	1.36	1.09
45F765	7-141-3/4W	7	2.36	1.86	1.61	1.29
45F766	8-141-3/4W	8	2.68	2.12	1.77	1.48
45F767	9-141-3/4W	9	2.94	2.36	2.01	1.61
45F768	10-141-3/4W	10	3.28	2.63	2.19	1.76
45F769	11-141-3/4W	11	3.56	2.86	2.40	1.95
45F770	12-141-3/4W	12	3.86	3.09	2.58	2.10
45F772	14-141-3/4W	14	4.48	3.60	2.97	2.40
45F773	15-141-3/4W	15	4.73	3.79	3.16	2.53
45F774	16-141-3/4W	16	4.87	3.92	3.61	2.77
45F775	17-141-3/4W	17	5.30	4.28	3.60	2.90
45F776	18-141-3/4W	18	5.64	4.52	3.79	3.07
45F777	19-141-3/4W	19	5.93	4.76	4.00	3.23
45F778	20-141-3/4W	20	6.22	5.03	4.21	3.40

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Cinch Connectors

Connector Division
TRW Electronic Components Group

Barriers

540, 541, 542 SERIES

Bottoms are closed so that insulating strips are not required. Knockouts are molded into the base so that Y terminals can be accommodated. A top-mounted marker strip can be furnished.

Series	540	541	542
Size W x H	1⅛	1⅜	1⅝
Terminal Centers	⅜	7/16	9/16
Mounting Centers	5/16	27/64	½
Mtg. Hole Dia.	.160	.180	.209
Screw Size	5-40	6-32	8-32

Series 540. Creepage distance: ½". 2300Vrms/15A.

Stk. No.	Type	Terms.	1-24	25-49	50-99	100-249
28F1000	2-540	2	1.21	.94	.83	.66
28F1001	3-540	3	1.60	1.28	1.06	.88
28F1002	4-540	4	1.95	1.57	1.29	1.03
28F1003	5-540	5	2.03	1.61	1.36	1.09
28F1004	6-540	6	2.70	2.17	1.81	1.49
28F1005	7-540	7	2.44	2.07	1.70	1.40
28F1006	8-540	8	2.82	2.28	1.95	1.57
28F1008	10-540	10	3.40	2.71	2.28	1.79
28F1009	11-540	11	3.65	2.93	2.44	2.01
28F1010	12-540	12	3.92	3.12	2.67	2.11
28F1011	13-540	13	4.21	3.40	2.82	2.28
28F1012	14-540	14	4.48	3.60	2.99	2.41
28F1013	15-540	15	4.73	3.79	3.16	2.53
28F1014	16-540	16	5.02	4.05	3.40	2.71
28F1016	18-540	18	5.57	4.48	3.73	2.97
28F1018	20-540	20	6.11	4.91	4.12	3.30

Series 541. Creepage distance: ⅝". 2800Vrms/20A.

28F1020	2-541	2	1.42	1.21	.98	.82
28F1021	3-541	3	1.70	1.40	1.20	.94
28F1022	4-541	4	2.03	1.61	1.36	1.09
28F1023	5-541	5	2.28	1.79	1.57	1.26
28F1024	6-541	6	2.70	2.17	1.81	1.49
28F1025	7-541	7	2.98	2.31	1.98	1.59
28F1026	8-541	8	3.12	2.52	2.11	1.68
28F1028	10-541	10	3.69	2.95	2.46	2.03
28F1029	11-541	11	3.95	3.16	2.68	2.12
28F1030	12-541	12	4.33	3.47	2.90	2.31
28F1031	13-541	13	4.54	3.65	3.07	2.44
28F1032	14-541	14	4.86	3.87	3.25	2.63
28F1033	15-541	15	5.12	4.12	3.45	2.79
28F1034	16-541	16	5.37	4.31	3.61	2.92
28F1036	18-541	18	5.93	4.76	4.00	3.23
28F1038	20-541	20	6.52	5.24	4.36	3.53

Series 542. Creepage distance: ¾". 4000Vrms/30A.

28F1039	2-542	2	1.57	1.26	1.02	.87
28F1040	3-542	3	1.88	1.57	1.29	1.01
28F1041	4-542	4	2.28	1.79	1.57	1.26
28F1042	5-542	5	2.63	2.11	1.76	1.42
28F1043	6-542	6	2.97	2.40	2.06	1.63
28F1044	7-542	7	3.40	2.71	2.28	1.79
28F1045	8-542	8	3.73	2.97	2.50	2.06
28F1046	9-542	9	4.09	3.28	2.79	2.21
28F1047	10-542	10	4.48	3.60	2.97	2.40
28F1048	11-542	11	4.86	3.87	3.25	2.63
28F1049	12-542	12	5.22	4.18	3.48	2.81

Printed Circuit Barrier Terminal Blocks. Terminal blocks have molded-in terminals that cannot break loose when terminal screw (#5/40 Binder Head) is tightened. Designed for flow solder termination to the pc board conductor paths. Single row barrier.

FOR ⅛" P.C. BOARDS

Stock No.	Type	No. of Terminals	1-24	25-49	50-99	100-249
29F1389	2-176-3	2	1.68	1.35	1.14	.94
29F1390	3-176-3	3	1.91	1.56	1.28	1.03
29F1391	4-176-3	4	2.12	1.73	1.48	1.20
29F1392	5-176-3	5	2.33	1.87	1.59	1.27
29F1393	6-176-3	6	2.55	2.07	1.74	1.41
29F1394	7-176-3	7	2.78	2.21	1.86	1.50
29F1395	8-176-3	8	2.97	2.40	2.03	1.63
29F1396	9-176-3	9	3.24	2.58	2.18	1.76
29F1397	10-176-3	10	3.48	2.81	2.36	1.88

FOR 1/16" P.C. BOARDS

Stock No.	Type	No. of Terminals	1-24	25-49	50-99	100-249
29F1380	2-176-2	2	1.68	1.35	1.14	.94
29F1381	3-176-2	3	1.91	1.56	1.28	1.03
29F1382	4-176-2	4	2.12	1.73	1.48	1.20
29F1383	5-176-2	5	2.33	1.87	1.59	1.27
29F1384	6-176-2	6	2.55	2.07	1.74	1.41
29F1385	7-176-2	7	2.78	2.21	1.86	1.50
29F1386	8-176-2	8	2.97	2.40	2.03	1.63
29F1387	9-176-2	9	3.24	2.58	2.18	1.76
29F1388	10-176-2	10	3.48	2.81	2.36	1.88

See Page 422 For Marker Strips And Accessories.

Series 142. Accommodates up to #10 solid wire.

Stock No.	Type No.	Cont.	1-24	25-49	50-99	100-249
28F722	2-142	2	.71	.55	.50	.42
28F723	3-142	3	.91	.75	.59	.52
28F724	4-142	4	1.22	.97	.83	.66
28F725	5-142	5	1.42	1.15	.97	.82
28F726	6-142	6	1.67	1.35	1.15	.91
28F727	7-142	7	1.95	1.57	1.29	1.02
28F728	8-142	8	2.17	1.73	1.48	1.21
28F729	9-142	9	2.39	1.95	1.61	1.29
28F730	10-142	10	2.67	2.12	1.76	1.42
28F731	11-142	11	2.90	2.31	1.98	1.57
28F732	12-142	12	3.11	2.50	2.11	1.67
28F886	13-142	13	3.40	2.71	2.28	1.79
28F887	14-142	14	3.61	2.92	2.42	2.00
28F888	15-142	15	3.87	3.10	2.58	2.10
28F889	16-142	16	4.12	3.30	2.80	2.21
28F890	17-142	17	4.34	3.49	2.93	2.36

Series 142-Y. Accommodates up to #10 solid wire.

29F788	2-142-Y	2	.94	.79	.63	.55
29F789	3-142-Y	3	1.28	1.02	.88	.68
29F790	4-142-Y	4	1.68	1.36	1.15	.91
29F791	5-142-Y	5	2.06	1.63	1.40	1.13
29F792	6-142-Y	6	2.41	1.98	1.63	1.34
29F793	7-142-Y	7	2.80	2.21	1.87	1.56
29F794	8-142-Y	8	3.11	2.50	2.11	1.67
29F795	9-142-Y	9	3.48	2.81	2.33	1.87
29F796	10-142-Y	10	3.87	3.10	2.58	2.10
29F797	11-142-Y	11	4.21	3.41	2.85	2.28
29F798	12-142-Y	12	4.56	3.68	3.09	2.44

Series 164. Accommodates up to #14 solid wire.

Stock No.	Type No.	Contacts	1-24	25-49	50-99	100-249
28F840	2-164	2	.58	.50	.44	.36
28F841	3-164	3	.75	.56	.51	.44
28F842	4-164	4	.91	.78	.63	.52
28F843	5-164	5	1.09	.90	.79	.59
28F844	6-164	6	1.29	1.01	.88	.75
28F845	7-164	7	1.48	1.21	.98	.83
28F846	8-164	8	1.63	1.34	1.13	.90
28F847	9-164	9	1.73	1.44	1.22	.97
28F848	10-164	10	2.01	1.61	1.35	1.06
28F849	11-164	11	2.17	1.73	1.48	1.21
28F891	12-164	12	2.33	1.87	1.60	1.28
28F892	13-164	13	2.50	2.06	1.68	1.36
28F893	14-164	14	2.71	2.18	1.79	1.49
28F894	15-164	15	2.92	2.31	1.98	1.59
28F895	16-164	16	3.09	2.44	2.08	1.67
28F896	17-164	17	3.23	2.58	2.18	1.73
28F897	18-164	18	3.44	2.79	2.31	1.81
28F898	19-164	19	3.60	2.90	2.41	1.98
28F899	20-164	20	3.76	3.05	2.53	2.07
28F900	21-164	21	3.95	3.16	2.68	2.12

Series 150. Accommodates up to #10 solid wire.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
29F731	2-150	2	2.08	1.67	1.38	1.10
29F732	3-150	3	3.05	2.45	2.04	1.64
29F733	4-150	4	3.83	3.07	2.59	2.06
29F734	5-150	5	4.67	3.76	3.14	2.50
29F735	6-150	6	5.59	4.48	3.76	3.01
29F736	7-150	7	6.44	5.16	4.32	3.45
29F737	8-150	8	7.39	5.92	4.92	3.95
29F739	10-150	10	9.05	7.24	6.04	4.84

Series 171. Accommodates up to 2 each #18 solid wire.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F901	2-171	2	.59	.52	.47	.36
28F902	3-171	3	.79	.59	.53	.47
28F903	4-171	4	.91	.78	.63	.52
28F904	5-171	5	1.06	.88	.78	.58
28F905	6-171	6	1.26	.98	.86	.71
28F906	7-171	7	1.36	1.09	.91	.78
28F907	8-171	8	1.49	1.24	.99	.83

Series 172. Accommodates up to #18 solid wire.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F909	2-172	2	1.09	.88	.78	.59
28F910	3-172	3	1.36	1.09	.94	.79
28F911	4-172	4	1.64	1.35	1.13	.90
28F912	5-172	5	1.95	1.57	1.29	1.02
28F913	6-172	6	2.19	1.74	1.50	1.24
28F914	7-172	7	2.46	2.03	1.67	1.35
28F915	8-172	8	2.79	2.19	1.81	1.50
28F916	9-172	9	2.99	2.41	2.07	1.64
28F917	10-172	10	3.30	2.68	2.21	2.08
28F919	12-172	12	3.86	3.09	2.58	2.10
28F921	14-172	14	4.39	3.53	2.94	2.39

Cinch Connectors TRW

Connector Division
TRW Electronic Components Group

Strips 140 thru 150 are 1/32" thick flame retardant material for bottom mount. 540 strips are 1/16" thick bakelite for top mount and have same mounting holes as barrier blocks. Shpg. wt., 2 oz.

MARKER STRIPS FOR SERIES 140

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
29F804	MS- 2-140	2	.32	.24	.22	.20
29F805	MS- 3-140	3				
29F806	MS- 4-140	4				
29F807	MS- 5-140	5				
29F808	MS- 6-140	6				
29F809	MS- 7-140	7	.36	.28	.24	.22
29F810	MS- 8-140	8				
29F811	MS- 9-140	9				
29F812	MS-10-140	10	.40	.32	.26	.24
29F813	MS-11-140	11				
29F814	MS-12-140	12				
29F815	MS-13-140	13	.44	.36	.32	.26
29F816	MS-14-140	14				
29F817	MS-15-140	15				
29F818	MS-16-140	16	.50	.40	.34	.28
29F819	MS-17-140	17				
29F820	MS-18-140	18				
29F821	MS-19-140	19	.54	.44	.38	.32
29F822	MS-20-140	20				
29F823	MS-21-140	21				

MARKER STRIPS FOR SERIES 141

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
29F824	MS- 2-141	2	.32	.24	.22	.20
29F825	MS- 3-141	3				
29F826	MS- 4-141	4				
29F827	MS- 5-141	5	.36	.28	.24	.22
29F828	MS- 6-141	6				
29F829	MS- 7-141	7				
29F830	MS- 8-141	8	.40	.32	.26	.24
29F831	MS- 9-141	9				
29F832	MS-10-141	10				
29F833	MS-11-141	11	.44	.36	.32	.26
29F834	MS-12-141	12				
29F835	MS-13-141	13	.50	.40	.34	.28
29F836	MS-14-141	14				
29F837	MS-15-141	15	.54	.44	.38	.32
29F838	MS-16-141	16				
29F839	MS-17-141	17	.61	.48	.40	.34
29F840	MS-18-141	18				
29F842	MS-20-141	20	.63	.52	.42	.36

MARKER STRIPS FOR SERIES 150

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
45F881	MS- 2-150	2	.40	.32	.26	.24
45F882	MS- 3-150	3				
45F883	MS- 4-150	4	.44	.36	.32	.26
45F885	MS- 6-150	6				
45F886	MS- 7-150	7	.50	.40	.34	.28
45F887	MS- 8-150	8				
45F888	MS- 9-150	9	.54	.44	.38	.32
45F889	MS-10-150	10	.61	.48	.40	.34

SERIES 160 FANNING STRIPS

Fits 140 Series Barrier Blocks. Brass, cadmium plated .032" terminals are mounted on 3/32" phenolic. 1/2" wide and on 3/8" centers. Wt., 3 oz. Mounting hole on left.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F750	2-160-L	2	.90	.75	.67	.57
28F751	3-160-L	3	1.10	.90	.76	.67
28F752	4-160-L	4	1.33	1.10	.91	.76
28F753	5-160-L	5	1.51	1.30	1.10	.86
28F754	6-160-L	6	1.77	1.45	1.20	.91
28F755	7-160-L	7	1.98	1.62	1.33	1.10
28F756	8-160-L	8	2.17	1.77	1.47	1.21
28F757	9-160-L	9	2.53	1.98	1.71	1.33
28F758	10-160-L	10	2.74	2.24	1.87	1.47
28F759	11-160-L	11	3.03	2.38	2.06	1.65
28F760	12-160-L	12	3.36	2.65	2.29	1.85
29F1250	20-160-L	20	5.10	4.09	3.47	2.74

Mounting hole on right.

28F800	2-160-R	2	.90	.75	.67	.57
28F801	3-160-R	3	1.10	.90	.76	.67
28F802	4-160-R	4	1.33	1.10	.91	.76
28F803	5-160-R	5	1.51	1.30	1.10	.86
28F804	6-160-R	6	1.77	1.45	1.20	.91
28F805	7-160-R	7	1.98	1.62	1.33	1.10
28F806	8-160-R	8	2.17	1.77	1.47	1.21
28F807	9-160-R	9	2.53	1.98	1.71	1.33
28F808	10-160-R	10	2.74	2.24	1.87	1.47
28F809	11-160-R	11	3.03	2.38	2.06	1.65
28F810	12-160-R	12	3.36	2.65	2.29	1.85
29F1270	20-160-R	20	5.10	4.09	3.47	2.74

MARKER STRIPS FOR SERIES 140-Y

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
29F1251	MS- 2-140-Y	2	.36	.28	.24	.22
29F1252	MS- 3-140-Y	3				
29F1253	MS- 4-140-Y	4				
29F1254	MS- 5-140-Y	5	.40	.32	.26	.24
29F1255	MS- 6-140-Y	6				
29F1256	MS- 7-140-Y	7				
29F1257	MS- 8-140-Y	8				
29F1258	MS- 9-140-Y	9				
29F1259	MS-10-140-Y	10	.44	.36	.32	.26
29F1260	MS-11-140-Y	11				
29F1261	MS-12-140-Y	12				
29F1262	MS-13-140-Y	13	.50	.40	.34	.28
29F1263	MS-14-140-Y	14				
29F1264	MS-15-140-Y	15				
29F1265	MS-16-140-Y	16	.54	.44	.38	.32
29F1266	MS-17-140-Y	17				
29F1267	MS-18-140-Y	18				
29F1268	MS-19-140-Y	19	.61	.48	.40	.34
29F1269	MS-20-140-Y	20				

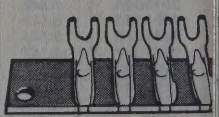
MARKER STRIPS FOR SERIES 142

29F843	MS- 2-142	2	.32	.24	.22	.20
29F844	MS- 3-142	3	.32	.24	.22	.20
29F845	MS- 4-142	4	.36	.29	.24	.22
29F846	MS- 5-142	5	.36	.28	.24	.22
29F847	MS- 6-142	6	.36	.28	.24	.22
29F848	MS- 7-142	7	.40	.32	.26	.24
29F849	MS- 8-142	8	.40	.32	.26	.24
29F850	MS- 9-142	9	.44	.36	.32	.26
29F851	MS-10-142	10	.50	.40	.34	.28
29F852	MS-11-142	11	.50	.40	.34	.28
29F853	MS-12-142	12	.54	.44	.38	.32
29F854	MS-13-142	13	.54	.44	.38	.32
29F855	MS-14-142	14	.61	.48	.40	.34
29F856	MS-15-142	15	.61	.48	.40	.34
29F857	MS-16-142	16	.68	.54	.48	.38
29F858	MS-17-142	17	.74	.58	.50	.40

MARKER STRIPS FOR SERIES 540

45F890	MSX- 2-540	2	.40	.32	.26	.24
45F891	MSX- 3-540	3				
45F892	MSX- 4-540	4				
45F893	MSX- 5-540	5				
45F894	MSX- 6-540	6				
45F895	MSX- 7-540	7				
45F896	MSX- 8-540	8				
45F897	MSX- 9-540	9				
45F898	MSX-10-540	10				
45F899	MSX-11-540	11	.44	.36	.32	.26
45F900	MSX-12-540	12				
45F901	MSX-14-540	14				
45F902	MSX-16-540	16				
45F903	MSX-18-540	18	.50	.40	.34	.28

SERIES 161 FANNING STRIPS



Series 161. Fit Series 141 Barrier Blocks. Brass, cadmium plated .032" terminals are mounted on 3/32" phenolic, 1/2" wide and on 7/16" ctrs. Ave. Shpg. wt. 3 oz. Mounted holes on left.

Stock No.	Type	Cont.	1-24	25-49	50-99	100-249
28F761	2-161-L	2	.95	.83	.69	.59
28F762	3-161-L	3	1.21	.95	.83	.69
28F763	4-161-L	4	1.33	1.10	.91	.76
28F764	5-161-L	5	1.62	1.32	1.16	.90
28F765	6-161-L	6	1.85	1.47	1.30	.95
28F766	7-161-L	7	2.08	1.71	1.46	1.16
28F767	8-161-L	8	2.29	1.85	1.51	1.32
28F768	9-161-L	9	2.53	1.98	1.71	1.33
28F769	10-161-L	10	2.79	2.29	1.88	1.51
28F770	11-161-L	11	3.16	2.58	2.17	1.77
28F771	12-161-L	12	3.47	2.75	2.34	1.87

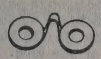
SERIES 162 FANNING STRIPS

28F772	2-162-L	2	1.10	.90	.76	.67
28F773	3-162-L	3	1.30	1.06	.86	.75
28F774	4-162-L	4	1.51	1.30	1.10	.86
28F775	5-162-L	5	1.77	1.45	1.20	.91
28F776	6-162-L	6	1.98	1.77	1.47	1.21
28F777	7-162-L	7	2.04	1.77	1.47	1.21
28F778	8-162-L	8	2.53	1.98	1.71	1.33
28F779	9-162-L	9	2.63	2.10	1.77	1.46
28F780	10-162-L	10	2.97	2.34	1.98	1.62
28F781	11-162-L	11	3.23	2.62	2.24	1.82
28F782	12-162-L	12	3.65	2.97	2.53	1.98

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

JUMPERS FOR BARRIER BLOCKS

140J-1


95-B
141-J

141J-1

142J-1

142J-2

540-J
541-J
542-J

Stk. No.	Type	For Use With	1-24	25-49	50-99	100-249
28F833	140J-1	140	.30	.27	.23	.19
28F790	141-J	141	.30	.27	.23	.19
45F779	141J-1	141	.40	.30	.27	.23
28F789	95B	142	.59	.44	.40	.39
28F742	142J-1	142/542	.40	.30	.27	.23
28F743	142J-2	142/542	.30	.27	.23	.18
28F744	540J	540	.97	.91	.76	.65
28F745	541J	541	1.21	.95	.79	.69
28F746	542J	542	1.26	1.00	.91	.72

QUICK-CLAMP TERMINALS

Simplifies engaging of wires to barrier blocks. Set includes two mating clamps and one screw.

Stk. No.	Type	For Use With	1-24	25-49	50-99	100-249
28F740	QC-1	141/541	.44	.33	.31	.30
28F741	QC-2	142/542				

SOLDER TERMINALS FOR BARRIER BLOCKS

Stk. No.	Type	For Use With	1-24	25-49	50-99	100-249
28F791	¾ W-140	140/540	.40	.35	.38	.31
28F797	W-140	140/540	.40	.35	.38	.31
28F794	Y-140	140/540	.47	.38	.40	.35
28F792	¾ W-141	141/541	.40	.35	.38	.31
28F798	W-141	141/541	.40	.35	.38	.31
28F795	Y-141	141/541	.47	.38	.40	.35
28F793	¾ W-142	142/542	.47	.38	.40	.35
28F799	W-142	142/542	.47	.38	.40	.35
28F796	Y-142	142/542	.47	.38	.40	.35
45F781	W-151	151	1.03	.71	.83	.63
45F782	W-152	152	1.92	1.26	1.54	.99

CABLE CLAMPS

Stk. No.	Type	Inner Dia.	1-24	25-49	50-99	100-249
45F783	CC-161-4	¼"	1.06	.85	.70	.65
28F784	CC-161-6	⅜"	1.25	1.06	.91	.70
45F784	CC-161-8	½"	1.53	1.21	1.06	.91
45F785	CC-161-10	⅝"	1.70	1.37	1.21	1.03

LUG TYPE TERMINAL STRIPS

Cadmium Plated steel lugs on ⅜" centers with 140 mtg. holes (Insulation .063 XPC Chocolate UL94-HB) 1/16" thick and ⅜" wide. Shpg. wt., 1 oz.

Stk. No.	Type No.	Description	Mtg. Ctr.	1-24	25-49	50-99	100-249
28F650	51	1 lug	....	.32	.28	.22	.18
29F567	51A	2 lugs; 1 Gnd.	....	.32	.28	.22	.18
29F568	51B	1 lug	....	.32	.28	.22	.18
29F569	51C	2 lugs; 1 Gnd.	....	.32	.28	.22	.18
29F570	51F	1 lug	....	.39	.33	.30	.29
28F651	52	2 lugs	....	.37	.31	.25	.19
29F574	52A	3 lugs; 1 Gnd.	....	.38	.32	.27	.20
29F575	52B	2 lugs	....	.37	.31	.25	.19
29F576	52C	3 lugs; 1 Gnd.	....	.38	.32	.26	.20
28F652	53	3 lugs	1½"	.39	.33	.30	.29
29F582	53E	3 lugs	....	.35	.30	.27	.21
29F583	53F	4 lugs; 1 Gnd.	....	.35	.30	.27	.21
28F653	54	4 lugs	1⅞"	.44	.38	.35	.26
29F585	54A	6 lugs; 2 Gnd.	1⅞"	.44	.39	.35	.27
29F586	54B	4 lugs	....	.39	.33	.30	.29
29F587	54C	5 lugs; 1 Gnd.	....	.40	.33	.30	.24
28F654	55	5 lugs	2¼"	.46	.40	.36	.28
29F588	55A	7 lugs; 2 Gnd.	2¼"	.46	.40	.37	.28
29F590	55C	7 lugs; 2 Gnd.	1½"	.46	.40	.37	.28
28F655	56	6 lugs	2⅝"	.47	.41	.37	.29
29F591	56A	8 lugs; 2 Gnd.	2⅝"	.48	.41	.38	.29
29F593	56C	8 lugs; 2 Gnd.	1⅞"	.48	.41	.38	.29

SCREW TYPE TERMINAL STRIPS

Ideal for breadboard layouts. Cadmium-plated brass term. 136" dia. mtg. holes. 1-6 lug strips 1/16" Insulator .063 XPC chocolate UL 94 HB. Cadmium. Plated brass screws are captive to prevent removal. Terminals spaced on 7/16" centers.

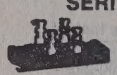
Stk. No.	Type	Term.	Mtg. Ctr.	1-24	25-49	50-99	100-249
29F551	17-1	1	⅞"	.36	.31	.28	.24
29F552	17-2	2	15/16"	.39	.36	.31	.28
29F553	17-3	3	1¾"	.47	.39	.36	.31
29F554	17-4	4	2 3/16"	.62	.51	.43	.39
29F555	17-5	5	2⅝"	.72	.57	.49	.46
29F556	17-6	6	3½"	.87	.72	.61	.53
29F557	17-7	7	3½"	1.07	.84	.72	.61
29F558	17-8	8	3 5/16"	1.21	1.03	.85	.68
29F559	17-9	9	4⅛"	1.51	1.14	.91	.75
29F560	17-10	10	4 13/16"	1.75	1.36	1.12	.92

JONES SERIES 2000 TERMINALS

Insulator .063 XPC chocolate UL 94 HB. Cadmium steel brackets. Terminals are made of .019" tinned brass on 5/16" centers. Wt., 3 oz.

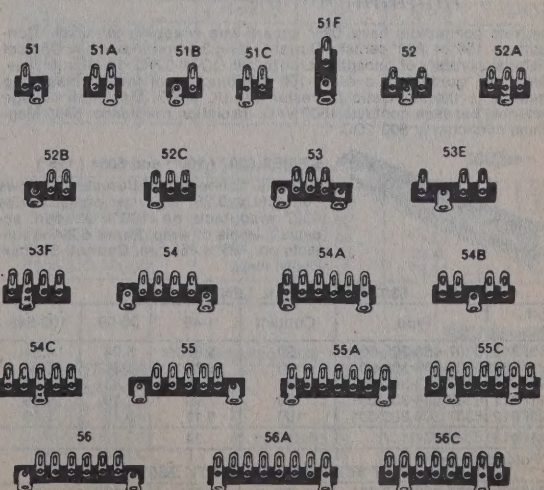
Stk. No.	Type	Term.	1-24	25-49	50-99	100-249
28F680	2002	2	.41	.40	.36	.31
28F681	2003	3	.46	.41	.40	.36
28F682	2004	4	.47	.46	.41	.40
28F683	2005	5	.47	.46	.41	.40
28F684	2006	6	.53	.47	.43	.41
28F685	2007	7	.53	.47	.43	.41
28F686	2008	8	.61	.52	.46	.43
28F687	2009	9	.68	.53	.47	.46
28F688	2010	10	.68	.53	.47	.46
28F689	2011	11	.72	.57	.53	.47
28F690	2012	12	.72	.57	.53	.47
28F691	2013	13	.77	.69	.57	.52

SERIES 170 TERMINAL BLOCKS



.031" brass tin plated Solder Term. Black molded phenolic. Size: 5/8" W. x ¼" H. Mtg. on ⅜" ctrs.

Stk. No.	Type	Contact	1-24	25-49	50-99	100-249
29F740	2-170	2	.90	.75	.69	.61
29F741	3-170	3	1.19	.96	.81	.72
29F742	4-170	4	1.39	1.15	.90	.75
29F743	5-170	5	1.51	1.28	1.07	.82
29F744	6-170	6	1.74	1.37	1.18	.93
29F745	7-170	7	1.93	1.51	1.30	1.07
29F746	8-170	8	1.96	1.63	1.37	1.17
29F747	9-170	9	2.29	1.89	1.51	1.28
29F748	10-170	10	2.51	1.96	1.67	1.39



CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

PC Card Edge Connectors

SERIES 6007 (.156") CONNECTORS*

- .128" dia. mounting holes
- 1/16" Board (Thickness)
- .156" × .200"

MIL-C-21097(QPL) approved. Ribbon-type contacts with Bifurcated nose. For .062" PC card. Rated 5 Amps. Contact material: Phosphor Bronze per QQ-B-750, Composition A. Insulator: Diallyl phthalate, glass filled. Withdrawal force: 2-16 oz. per contact pair. Insulation resistance: 25,000 Megohms, minimum. Breakdown voltage: 2000 Volts RMS at sea level. 10 microinches gold over 30-100 microinches nickel plating.

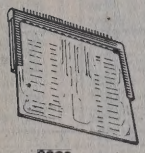
*Order by Elco Part Number

DUAL READOUT

Type	Contacts	Style	1-49	50-99	100-249
6007-012-450-012	12		2.36	2.10	1.89
6007-020-450-012	20		2.93	2.60	2.34
6007-024-450-012	24		3.11	2.76	2.48
6007-030-450-012	30	Wire-hole:	3.62	3.22	2.90
6007-036-450-012	36	227" lg.	4.07	3.62	3.26
6007-044-450-012	44		4.57	4.06	3.65
6007-056-450-012	56		5.49	4.88	4.39
6007-072-450-012	72		6.62	5.88	5.29
6007-086-450-012	86		7.63	6.78	6.10
6007-012-451-012	12		2.36	2.10	1.89
6007-020-451-012	20		2.93	2.60	2.34
6007-024-451-012	24		3.11	2.76	2.48
6007-030-451-012	30	P.C.	3.62	3.22	2.90
6007-036-451-012	36	tab:	4.07	3.62	3.26
6007-044-451-012	44	202" lg.	4.57	4.06	3.65
6007-056-451-012	56		5.49	4.88	4.39
6007-072-451-012	72		6.62	5.88	5.29
6007-086-451-012	86		7.63	6.78	6.10

SINGLE READOUT

6007-006-940-012	6		2.21	1.96	1.76
6007-010-940-012	10		2.63	2.34	2.11
6007-012-940-012	12	Wire	2.88	2.56	2.30
6007-015-940-012	15	hole	3.22	2.86	2.57
6007-018-940-012	18	special:	3.56	3.16	2.84
6007-022-940-012	22	227" lg.	4.01	3.56	3.20
6007-028-940-012	28		4.73	4.20	3.78
6007-036-940-012	36		5.60	4.98	4.48
6007-043-940-012	43		6.46	5.74	5.17
60-6007-4828	14				
6007-006-938-012	6		2.21	1.96	1.76
6007-010-938-012	10		2.63	2.34	2.11
6007-012-938-012	12	P.C.	2.88	2.56	2.30
6007-015-938-012	15	tab	3.22	2.86	2.57
6007-018-938-012	18	special:	3.56	3.16	2.84
6007-022-938-012	22	215" lg.	4.01	3.56	3.20
6007-028-938-012	28		4.73	4.20	3.78
6007-036-938-012	36		5.60	4.98	4.48
6007-043-938-012	43		6.46	5.74	5.17
60-6007-3314	14				



6022

SERIES 6022 AND 6024 (.156") CONNECTORS*

Extended card guide facilitates PC card insertion, minimizes effects of vibration. For 1/16" PC card. #4-40 threaded insert. Current rating: 5 amps max. Contact Material: Phosphor bronze per QQ-B-750, Composition A. Contact Plating: 10-20 μinches gold plate over 30-150 μinches nickel plate. Insulator: glass filled thermoplastic polyester.

*Order by Elco Part Number

6022 Series: 22 Contact—Single Readout (No. Side Instal.)

Type	Contact Style	1-49	50-99	100-249
6022-022-938-002	P.C.	5.58	4.96	4.46
6022-022-940-002	Sold. Eye.	5.58	4.96	4.46

6022 Series: 22 Contact—Single Readout (Alpha Side Instal.)

Type	Contact Style	1-49	50-99	100-249
6022-022-938-003	P.C.	5.58	4.96	4.46
6022-022-940-003	Sold. Eye.	5.58	4.96	4.46

6022 Series: 44 Contact—Dual Readout

6022-044-450-001	Sold. Eye.	6.17	5.48	4.93
6022-044-451-001	P.C.	6.17	5.48	4.93

6024 Series: 18 Contact-Single Readout (No. Side Instal.)

6024-018-938-002	P.C.	6.12	5.44	4.90
6024-018-940-002	Sold. Eye.	6.12	5.44	4.90

6024 Series: 36 Contact Dual Readout

6024-036-450-001	Sold. Eye.	6.59	5.86	5.27
6024-036-451-001	P.C.	6.59	5.86	5.27

SERIES 6337 (.156") CARD/EDGE CONNECTOR

- Contacts Accept 3 Levels Wrapping Wire
- Dual Readout
- Bifurcated Bellow Contacts
- For 1/16" Printed Circuit Cards

Discrete connectors have .025" square wire wrapping terminals. Contacts on .156" × .200" centers. Current rating 3 Amps. maximum. Contact material consists of phosphor bronze per QQ-W-321D. 10 microinches, minimum, gold plate over 30-100 microinches of nickel. Insulating material is thermoplastic polyester per UL 94VO. Maximum voltage potential between contacts 1500 VAC. Insulation resistance: 5000 Megohms minimum at 500 VDC.

Stk. No.	Type	Contact	1-49	50-99	100-249
21F001	6337-020-671-001	20	2.77	2.46	2.21
21F002	6337-030-671-001	30	3.60	3.20	2.88
21F003	6337-044-671-001	44	4.64	4.12	3.71
21F004	6337-050-671-001	50	5.18	4.60	4.14
21F005	6337-056-671-001	56	5.78	5.14	4.63
21F006	6337-072-671-001	72	7.00	6.22	5.60
21F007	6337-086-671-001	86	8.03	7.14	6.43
21F008*	60-6007-4828	Between	.14		

*Polarizing Key

SERIES 6307 (.100") and 6064 (.125")

Discrete connectors Bifurcated bellows contacts w/0.25" sq. w.w. posts. Series 6307 w/contacts on .100"×.20" cen. accepts 3 levels of wrap. Series 6064 w/contacts on .125"×.25" cen. Current: 3A max. Diallyl insul.

6307 SERIES (TAIL LENGTH .645")

Stk. No.	Type	Contact	1-49	50-99	100-249
69F342	6307-050-309-001	50	5.67	5.04	4.54
21F009	6307-060-309-001	60	6.30	5.60	5.04
21F010	6307-072-309-001	72	6.35	5.64	5.08
21F011	6307-086-309-001	86	7.99	7.10	6.39
21F012	6307-100-309-001	100	9.11	8.10	7.29
21F013*	60-6307-3117	Between	.14		

*Polarizing Key

6307 SERIES (TAIL LENGTH .550")

69F372	6307-050-472-001	50	5.72	5.08	4.57
69F373	6307-060-472-001	60	6.35	5.64	5.08
69F374	6307-086-472-001	86	8.06	7.16	6.44

6064 SERIES (TAIL LENGTH .685")

21F014	6064-056-060-001	56	6.32	5.62	5.06
21F015	6064-072-060-001	72	7-43	6.60	5.94
21F016	6064-080-060-001	80	7.99	7.10	6.39
21F017	6064-086-060-001	86	8.44	7.50	6.75
21F018	6064-100-060-001	100	9.36	8.32	7.49

6064 SERIES (TAIL LENGTH .230")

21F019	6064-056-475-001	56	6.32	5.62	5.06
21F020	6064-072-475-001	72	7.43	6.60	5.94
21F021	6064-080-475-001	80	7.99	7.10	6.39
21F022	6064-086-475-001	86	8.44	7.50	6.75
21F023	6064-100-475-001	100	9.36	8.32	7.49
21F024*	60-6064-3317	Between	.14		

*Polarizing Key

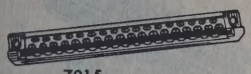
6064 SERIES (TAIL LENGTH .580")

69F367	6064-056-061-001	56	6.32	5.62	5.06
69F369	6064-072-061-001	72	7.43	6.60	5.94
69F370	6064-080-061-001	80	7.99	7.10	6.39
69F371	6064-086-061-001	86	8.44	7.50	6.75
69F341	6064-100-061-001	100	9.36	8.32	7.49

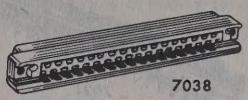
PC Varion™ Connectors

Elco Corporation
a Gulf + Western manufacturing company

SERIES 7015 and 7038 .100″ CONNECTORS



7015



7038

7015 (mates with 7000, 7021, 7022 Series) 7038 (mates with 7023 Series) Varilok™ contacts are insertable and removable. Series 7015 has contacts that lock in position by spring lances. Series 7038 has guide sockets for easy mating and correct alignment. Open-ended card slot; no notching needed. Current rating: 8.5 amps.

7015 SERIES

60 8017 05 13. Wire hole contact.

Type	# Contact	1-49	50-99	100-249
7015-017-217-001	17	7.50	6.75	5.44
7015-023-217-001	23	8.70	7.83	6.31
7015-029-217-001	29	9.88	8.89	7.16
7015-035-217-001	35	11.54	10.39	8.37
7015-041-217-001	41	12.66	11.39	9.18
7015-047-217-001	47	14.18	12.76	10.28
7015-059-217-001	59	17.34	15.61	12.57

60 8017 06 33. Solderless contact, .024″×.026×.580″

7015-017-296-001	17	7.50	6.75	5.44
7015-023-296-001	23	8.70	7.83	6.31
7015-029-296-001	29	9.88	8.89	7.16
7015-035-296-001	35	11.54	10.39	8.37
7015-041-296-001	41	12.66	11.39	9.18
7015-047-296-001	47	14.18	12.76	10.28
7015-059-296-001	59	17.34	15.61	12.57

Connector less contacts (*)

7015-017-000-001	17	3.32	2.99	2.41
7015-023-000-001	23	3.46	3.11	2.51
7015-029-000-001	29	3.62	3.26	2.62
7015-035-000-001	35	4.06	3.65	2.94
7015-041-000-001	41	4.18	3.76	3.03
7015-047-000-001	47	4.46	4.01	3.23
7015-059-000-001	59	5.30	4.77	3.84

(*) Order crimp contacts separately:
60-8017-0313 (loose) Net Each 0.11
60-8017-0323 (1800/reel) Net Each 0.12

7038 SERIES

60 8017 05 13; Wire hole contact

Type	# Contact	1-49	50-99	100-249
7038-017-217-001	17	7.50	6.75	5.44
7038-023-217-001	23	8.70	7.83	6.31
7038-029-217-001	29	9.88	8.89	7.16
7038-035-217-001	35	11.54	10.39	8.37
7038-041-217-001	41	12.66	11.39	9.18
7038-047-217-001	47	14.18	12.76	10.28

60 8017 06 33. Solderless contact 024″×.026″×.580″

7038-017-296-001	17	7.50	6.75	5.44
7038-023-296-001	23	8.70	7.83	6.31
7038-029-296-001	29	9.88	8.89	7.16
7038-035-296-001	35	11.54	10.39	8.37
7038-041-296-001	41	12.66	11.39	9.18
7038-047-296-001	47	14.18	12.76	10.28

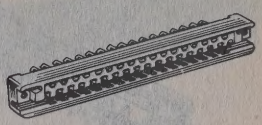
Connector less contacts (*)

7038-017-000-001	17	3.32	2.99	2.41
7038-023-000-001	23	3.46	3.11	2.51
7038-029-000-001	29	3.62	3.26	2.62
7038-035-000-001	35	4.06	3.65	2.94
7038-041-000-001	41	4.18	3.76	3.03
7038-047-000-001	47	4.46	4.01	3.23

(*) Order crimp contacts separately:
60-8017-0313 (loose) Net Each 0.11
60-8017-0323 (1800/reel) Net Each 0.12

SERIES 7024 .100″ CONNECTORS

Guide Sockets Facilitate Mating, Ensure Correct Alignment



Guide Sockets Facilitate Mating, Ensure Correct Alignment (mates with 7023 Series) Open-ended card slot; use with PC card of any width. Wide range of contact terminations. MIL-C-21097 Qualified Products List (QPL)-approved. Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate over 30-100 microinches nickel plate. Insulator material: diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, Type SDGF. Military specifications: MIL-C-21097, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (Para. 3.5.5), MIL-STD-454.

.098″ base taper tab; wire hole

Type	# Contact	1-49	50-99	100-249
7024-017-163-001	17	8.58	7.72	6.22
7024-023-163-001	23	9.76	8.78	7.08
7024-029-163-001	29	11.02	9.92	7.99
7024-035-163-001	35	12.46	11.21	9.03
7024-041-163-001	41	13.78	12.40	9.99

PC termination for 1/8″ card

7024-017-141-001	17	8.58	7.72	6.22
7024-023-141-001	23	9.76	8.78	7.08
7024-029-141-001	29	11.02	9.92	7.99
7024-035-141-001	35	12.46	11.21	9.03
7024-041-141-001	41	13.78	12.40	9.99

Type 60-5006-3414 (polarizing key for 1/16″ board) Net 0.14

SERIES 7008 .100″ CONNECTORS

(mates with 7000, 7021, 7022 series)

7008

Series 7008 is available with card guides, for 1/16″ card. Current rating: 10 amps. Contact and insulator material: same as Series 7024 above. Mil. spec.: MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (BuWeps) par 3.5.5.

.098″ base taper tab; wire hole

Type	# Contact	1-49	50-99	100-249
7008-017-163-001	17	8.58	7.72	6.22
7008-023-163-001	23	9.76	8.78	7.08
7008-029-163-001	29	11.02	9.92	7.99
7008-035-163-001	35	12.46	11.21	9.03
7008-041-163-001	41	13.78	12.40	9.99
7008-047-163-001	47	15.36	13.82	11.14

PC termination for 1/8″ card

7008-017-141-001	17	8.58	7.72	6.22
7008-023-141-001	23	9.76	8.78	7.08
7008-029-141-001	29	11.02	9.92	7.99
7008-035-141-001	35	12.46	11.21	9.03
7008-041-141-001	41	13.78	12.40	9.99
7008-047-141-001	47	15.36	13.82	11.14

Wire wrapping (.026″×.062″×.600″)

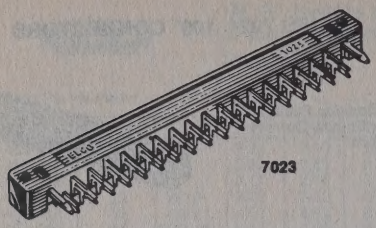
7008-017-156-001	17	8.58	7.72	6.22
7008-023-156-001	23	9.76	8.78	7.08
7008-029-156-001	29	11.02	9.92	7.99
7008-035-156-001	35	12.46	11.21	9.03
7008-041-156-001	41	13.78	12.40	9.99
7008-047-156-001	47	15.36	13.82	11.14

Type 60-5006-3414 (polarized key) Net 0.14

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

PC Varicon™ Connectors

SERIES 7023 .100" CONNECTORS



Mates with 7024 and 7038 series. MIL-C-21097 Qualified Products List (QPL)-approved. Guide pins facilitate mating, ensure correct alignment. Insulator maintains exact spacing between contacts; insulator rigidity reduces PC card warp. Reduces cost of card punching operation (fewer holes are needed) and of contact staking operation (one operation instead of two). Reduces assembly time (no plastic strip to remove). For 1/16" PC card, as indicated. Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate over 30-150 microinches nickel plate. Insulator material: diallyl phthalate, glass-filled, flame resistant, per MIL-M-14F, type SDGF. Military specifications: MIL-C-21097, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (Par 3.5.5.), MIL-STD-454.

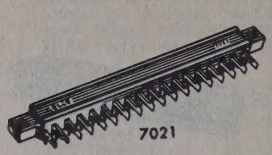
Stk. No.	Type	# Cont	1-49	50-99	100-249
21F080	7023-017-000-001	17	6.46	5.81	4.68
21F081	7023-023-000-001	23	7.44	6.70	5.39
21F082	7023-029-000-001	29	8.56	7.70	6.21
69F358	7023-035-000-001	35	9.62	8.66	6.97
21F083	7023-041-000-001	41	10.72	9.65	7.77
21F084	7023-047-000-001	47	11.76	10.58	8.53

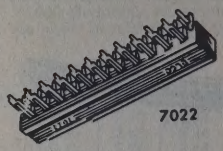
Per MIL-C-21097C

Stk. No.	Type	# Cont	1-49	50-99	100-249
21F085	7023-017-000-110	17	11.64	10.48	8.44
21F086	7023-023-000-110	23	13.12	11.81	9.51
21F087	7023-029-000-110	29	14.78	13.30	10.72
21F088	7023-035-000-110	35	16.44	14.80	11.92
21F089	7023-041-000-110	41	18.08	16.27	13.11

10

SERIES 7021 AND 7022 .100" CONNECTORS





Type 7021 mates with series 7000 receptacles without card guides; 7022 mates with series 7000 receptacles with guides. Insulator maintains exact spacing between contacts; rigidity reduces PC card wrap. Reduces cost of card punching operation (fewer holes are needed), and contact staking operation (one operation instead of two). Reduces assembly time (no plastic strip to remove) Current rating: 10 amps. Contact material and plating: phosphor bronze per QQ-B-750, Composition A; 10-20 microinches gold plate over 30-150 microinches nickel plate. Insulator: diallyl phthalate, glass-filled, flame resistant per MIL-M-14F, type SDGF. Mil spec.: MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (BuWeps) par. 3.5.5.

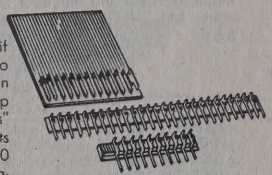
7021 Series

Stk. No.	Type	# Cont	1-49	50-99	100-249
21F091	7021-017-000-001	17	5.04	4.54	3.65
21F092	7021-023-000-001	23	6.14	5.53	4.45
21F093	7021-029-000-001	29	7.32	6.59	5.31
21F094	7021-035-000-001	35	8.32	7.49	6.03
21F095	7021-041-000-001	41	9.20	8.28	6.67
21F096	7021-047-000-001	47	10.44	9.40	7.57

7022 Series

Stk. No.	Type	# Cont	1-49	50-99	100-249
21F097	7022-017-000-001	17	5.04	4.54	3.65
21F098	7022-023-000-001	23	6.14	5.53	4.45
21F099	7022-029-000-001	29	7.32	6.59	5.31
69F357	7022-035-000-001	35	8.32	7.49	6.03
21F101	7022-041-000-001	41	9.20	8.28	6.67
21F102	7022-047-000-001	47	10.44	9.40	7.57

02 SERIES CONTACT STRIPS ON .200" CENTERS MATES WITH 5000 SERIES RECEPTACLES



Contacts can be staked (and soldered, if desired) directly to PC card. Requires no insulator. Contacts are supplied on disposable plastic strips. Staking and strip removing equipment is available. For 1/16" PC card. MIL-C-21097 Qualified Products List (QPL)-approved. Current rating: 10 amps. Contact material and plating: Phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate, over 30-150 microinches nickel plate. Military spec.: MIL-C-21097, MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-STD-454, MIL-E-19600 (BuWeps) par. 3.5.5.

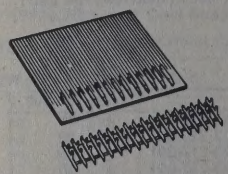
Standard strip supplied with max. 60 contacts:

Type	
02-060-013-5200	6.24

We will cut these strips into any number of contacts, please contact your local (Newark) sales office for a price quote.

013 — For 1/16" thick card. Type 60 5001 19 13 contacts spaced .200", with wire hole (maximum of 60 contacts per strip)

02 SERIES CONTACT STRIPS ON .100" CENTERS MATES WITH 7000 SERIES RECEPTACLES



Consists of contacts which can be staked and soldered to PC card; no other insulator needed. Contacts are supplied imbedded in vinyl strips, correctly spaced and ready for insertion and staking into PC card. Complete set of plug contacts supplied on two disposable plastic strips, one for upper-tier contacts and the other for lower-tier contacts. For 1/16" PC card. Current rating: 10 amps. Contact material and plating; phosphor bronze per QQ-B-750, Composition A; 10 microinches gold plate over 30-150 microinches nickel plate. Military specifications: MIL-E-5400, MIL-E-8189, MIL-T-21200, MIL-E-19600 (BuWeps), par. 3.5.5. **Upper-tier and lower-tier contacts on separate strips.**

Standard strip supplied with max. 60 contacts:

Type	
02-060-147-5200	6.24
02-060-135-5200	6.24
02-060-137-5200	6.24

We will cut these strips into any number of contacts, please contact your local (Newark) sales office for a price quote.

147 — For 1/16" thick card. Lower tier contacts, type 60 7001 15 13

135 — For 1/16" thick card. Lower tier contacts with wire hole, type 60 7001 04 13

137 — For 1/16" thick card. Upper tier contacts with wire hole, type 60 7001 05 13

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

METAL TO METAL VG CONNECTOR SYSTEM

G+W Elco Corporation
a Gulf + Western manufacturing company

High density connections with small envelope suitable for mounting to single or double sided printed circuit boards. Conforms to VG Spec. 95324; Din Spec. 0041612 and IE C recommendation 488 (Co)48.

Technical Data of Series 8257/8267

- Basic grid: .100 square
- Contact positions: 3 × 16, 2 × 32 and 3 × 32
- Current rating: 3 amperes max.
- Contact resistance: 10 milliohms max.
- Insulator material: Polyester Thermoplastic (GF).
- Contact material: Phos. Bronze per QQ-B-750 Comp. A
- Contact post dimension: .024 × .024
- Contact plating: Gold over nickel
- Push out force of post in insulator: 7.5 lbs.

P/N: 00-8257-096-000-123

P/N: 00-8257-096-648-123

Ordering Code Series 8257 Standard VG DIN

Code No.: SERIES 8257 064 649 1 1 3

No. of Contact positions
048=48 Contact position (3×16)
064=64 Contact position (2×32)
096=96 Contact position (3×32)

Contact Code
000=Plug (all variations)
648=Wrap post; Solder hook; right angle for receptacle 64 pos.
649=P.C.-terminal tips are tin dipped. (Receptacle)
999=Wrap post; right angle for receptacle 48 and 96 pos.

VARIATION
1=Std. wire wrapping or P. C. (Plug and Receptacle)
2=Solder hook (Plug and Receptacle).
3=Plug, P.C. terminals.
4=Plug, wrapping post for 3 wraps
5=Plug, right angle for 2 wraps
6=Plug, first and last Contact long in row "a"
7=Receptacle, right angle terminals.

Plating
2=Gold over Nickel

CONTACT LOADING:
For 64 pos. insulator
1=Row a fully loaded
2=Row a + b fully loaded
3=Row b fully loaded
4=Row a + b, all pos. with even numbers
5=Row a + b, all pos. with uneven numbers
For 48 and 96 pos. insulator:
1=Row a fully loaded
2=Row a + b fully loaded
3=Row a + b + c fully loaded
4=Row a + c fully loaded
5=Row b + c full loaded
6=Row a + b, all even numbers
7=Row a + b, all uneven numbers
8=Row a + c, all even numbers
9=Row a + c, all uneven numbers

Stock No.	Type	1-49	50-99	100-249
69F379	8257-048-000-123	4.39	3.95	3.19
69F380	8257-048-000-124	3.38	3.04	2.45
69F381	8257-048-000-523	5.06	4.55	3.67
69F382	8257-048-648-123	6.56	5.90	4.76
69F383	8257-048-648-124	4.67	4.20	3.39
69F384	8257-048-649-124	4.67	4.20	3.39
69F385	8257-068-000-122	5.59	5.03	4.06
69F386	8257-064-648-122	8.44	7.60	6.13
69F387	8257-064-649-122	8.46	7.62	6.15
69F388	8257-096-000-123	8.07	7.27	5.96
69F389	8257-096-000-124	5.84	5.26	4.24

8267 Ordering Code Inverted VG Connectors

8267 096 000 1 2 3

CODE NO.
SERIES

NO OF CONTACT POSITION
096 96 Contact position (3 × 32)

CONTACT CODE
000 Receptacle (all variations)
680 Wrap post (solder hook)
649 P C for plug (terminal tips are tin dipped)
999 WW right angle for plug (and P C Right angle)

VARIATION
1 Std wire wrapping for receptacle or P C straight and right angle terminal for plug
2 Solder hook (Plug and Receptacle)
3 Receptacle P C terminal
4 Plug wrapping post for 3 wraps
5 Plug right angle for 2 wraps
6 Receptacle, first and last contacts long in row A
7 Receptacle, right angle terminals
8 Receptacle, press-fit with mounting flange

PLATING
Gold over Nickel

CONTACT LOADING
For 96 Positions insulator

1 ROW	A+B+C	All position with even numbers
2 ROW	A+B	Fully loaded
3 ROW	A+B+C	Fully loaded
4 ROW	A+C	Fully loaded
5 ROW	B+C	Fully loaded
6 ROW	A+B	All even numbers
7 ROW	A+B	All uneven numbers
8 ROW	A+C	All even numbers
9 ROW	A+C	All uneven numbers
0 ROW	A+B+C	All position with uneven numbers

Stock No.	Type	1-49	50-99	100-249
69F390	8257-096-000-523	8.46	7.62	6.15
69F391	8257-096-648-123	11.96	10.76	9.68
69F392	8257-096-648-124	8.53	7.68	6.20
69F393	8257-096-649-123	11.96	10.76	8.68
69F394	8257-096-649-124	8.53	7.68	6.20
69F375	8267-096-000-123	10.12	9.11	7.35
69F376	8267-096-000-124	7.50	6.75	5.44
69F377	8267-096-000-323	8.58	7.72	6.23
69F378	8267-096-000-324	6.83	6.15	4.96
69F395	8267-096-999-123	17.04	15.34	12.37
69F396	8267-096-999-124	13.69	12.32	9.94

SERIES 8026

Economical subminiature high-density connectors. Mini-Valok crimp/removable contacts available loose or on reels. Keyed, shrouded insulator. Jackscrews facilitate mating, lock connectors together. Current rating: 5 amps. Contacts: phosphor bronze per QQ-B-750, Comp. A; 10 microinches gold plate over 30-100 microinches nickel. Insulator: .100" spacing, diallyl phtalate, glass-filled; .125" spacing, polycarbonate. Cover: metal.

NUMBER OF CONTACTS

.100" Spacing: **075, 117 and 65**
.125" Spacing: **055** or **079**

CONTACT CODE

Order separately by part no.:
000-60 8261 0323. Crimp (3000 reel)
000-60 8216 0313. Crimp (loose)
491-60 8216 0413 Wrappable (.025 sq.)

SIZES 55, 75, 79 AND 117 MALE INSULATOR (Exposed Contacts)

Sizes 55 and 79 available only with female.
(*)Cover, small clamp (†) cover, Large clamp

Variation W/O Cover	Code *	Code †	Cable Entry	Actuating Screw	Fixed Nut	Polarizing Hdwe.
701	.....	.....	No	Yes	No	Yes
702	.....	.....	No	Yes	No	No
703	.....	.....	No	No	Yes	Yes
704	.....	.....	No	No	Yes	No
733	.....	.....	No	No	No	Yes
734	.....	.....	No	No	No	No
.....	705	713	Top	Yes	No	Yes
.....	706	714	Side	Yes	No	Yes
.....	707	715	Top	Yes	No	No
.....	708	716	Side	Yes	No	No
.....	709	717	Top	No	Yes	Yes
.....	710	718	Side	No	Yes	Yes
.....	711	719	Top	No	Yes	No
.....	712	720	Side	No	Yes	No
.....	735	739	Top	No	No	Yes
.....	736	740	Side	No	No	Yes
.....	737	741	Top	No	No	No
.....	738	742	Side	No	No	No

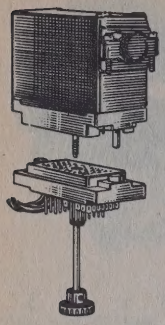
FEMALE (Recessed Contacts)

801	.....	.....	No	No	Yes	Yes
802	.....	.....	No	No	Yes	No
803	.....	.....	No	Yes	No	Yes
804	.....	.....	No	Yes	No	No
833	.....	.....	No	No	No	Yes
834	.....	.....	No	No	No	No
.....	805	813	Top	No	Yes	Yes
.....	806	814	Side	No	Yes	Yes
.....	807	815	Top	No	Yes	No
.....	808	816	Side	No	Yes	No
.....	809	817	Top	Yes	No	Yes
.....	810	818	Side	Yes	No	Yes
.....	811	819	Top	Yes	No	No
.....	812	820	Side	Yes	No	No
.....	835	839	Top	No	No	Yes
.....	836	840	Side	No	No	Yes
.....	837	841	Top	No	No	No
.....	838	842	Side	No	No	No

This series is also available as actuating nut unit. Contact your local NEWARK sales office for information.

Rack-and-Panel Connectors

SERIES 8017 RECTANGULAR WITH .150″ OFFSET GRID



- **75, 100 or 130 Contacts**
- **Crimp, Solder/Taper Tab, Solderless Wrap and Taper Tab Terminations**
- **Removable VARILOK™ Contacts**

Rectangular rack-and-panel connectors with .150″ offset grid, available with 75, 100 or 130 contacts. Polarizing hardware can be set to any of six positions at the factory; can also be reset by the user (36 possible polarizing position combinations per pair). Guide pins and sockets ensure correct alignment when mating. Optional cover, with top or side cable entrance and clamp. Available with or without actuating screw or nut. U.L. approved. Insertable/removable VARILOK™ contacts. Choice of terminations: .078″ taper tab (216), solder/.098″ wire hole (217), solderless wrap tail in choice of three sizes (218, 750 and 296), or crimp (to be ordered separately). Current rating: 8.5 amps maximum. Contact material: phosphor bronze per QQ-B-750, Composition A. Contact plating: 10-20 microinches gold plate over 30-150 microinches nickel plate. Cover material and finish: Steel with black wrinkle finish. Clamp material and finish: Zinc (fixed clamp) or steel (movable clamp) with black wrinkle finish. To Order, complete the 15-digit assembly as shown at right.

ORDERING CODE

Complete a 13-digit assembly number for each mating part, plug and receptacle:

8017 — XXX — XXX — XXX

NUMBER OF CONTACTS
75 (**075**), 100 (**100**), 130 (**130**)

CONTACT CODE

For factory installed contacts, use 3 digit code no. For loose contacts, use code 000 and order separately by part no. All contact are with standard gold plate unless otherwise specified (crimp contacts can only be ordered separately).

504—60 8017 06 63—Solderless PC Tail, .024″ x .026″ x .170″
217—60 8017 05 13—Solder/.098″ wire hole
218—60 8017 06 13—Solderless wrap, .024x.050x.567″
750—60 8017 06 23—Solderless wrap, .024x.050x.760″
296—60 8017 06 33—Solderless wrap, .024x.026x.580″
To be ordered separately:
000—60 8017 03 13—Crimp (loose)
000—60 8017 03 23—Crimp (1800 reel)
339—Standard Gold Plate
343—Heavy Gold Plate

VARIATION CODE

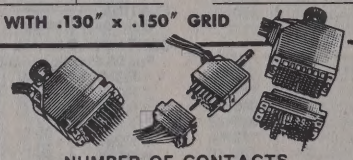
Description	Code	Cover and Cable Entry	Actuating Screw	Fixed Screw
PLUG	001	None	Yes	No
	002	None	No	Yes
	003	Top	Yes	No
	004	Side	Yes	No
	005	Top	No	Yes
	006	Side	No	Yes

Description	Code	Cover and Cable Entry	Fixed Nut	Actuating Nut
RECEPTACLE	007	None	Yes	No
	008	None	No	Yes
	009	Top	Yes	No
	010	Side	Yes	No
	011	Top	No	Yes
	012	Side	No	Yes

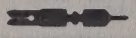
SERIES 8016 WITH .130″ x .150″ GRID

10

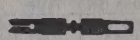
Insertable removable Varilok™ contacts. Guide pins and sockets ensure correct alignment. Polarizing hardware can be reset by user (36 possible positions per pair). Optional cover with top or side cable entry and clamp. Current rating: 8.5 amps max. Contact material: phosphor bronze per QQ-B-750, Comp. A; 10 microinches gold plate over 30-100 microinches nickel. Insulator: diallyl phthalate, glass-filled, flame resistant per MIL-M-14F, type SDGF; or polycarbonate thermoplastic. †Must be ordered separately. Cover: metal.



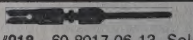
NUMBER OF CONTACTS
020, 038, 056, 090, or **120.**



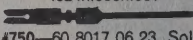
504—60 8017 0663 .024″x.026″x.170″



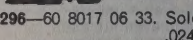
#217—60 8017 05 13 Solder/.098″ tab



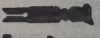
#218—60 8017 06 13. Solderless wrap tail, .024x.050x.567″



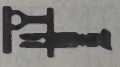
#750—60 8017 06 23. Solderless wrap tail, .024x.050x.760″



296—60 8017 06 33. Solderless wrap tail, .024x.026x.580″



†**000**—60 8017 03 13 Crimp (loose)



†**000**—60 8017 03 23 Crimp (1800 reel)

20 CONTACTS

Type Connector	Variation Code: Polycarbonate	Variation Code: Diallyl	Cover & Cable Entrance	Actuating Screw	Locking Nut
Plug	001	701	None	Yes	No
	002	703	None	No	Yes
	903	803	Top*	Yes	No
	904	804	Side*	Yes	No
	905	805	Top*	No	Yes
	906	806	Side*	No	Yes
Receptacle	007	707	None	No	Yes
	008	708	None	Yes	No
	909	809	Top*	Yes	No
	910	810	Side*	Yes	No
	911	811	Top*	No	Yes
	912	812	Side*	No	Yes
Plug	013	713	None	No	No
	914	814	Top*	No	No
	915	815	Side*	No	No
Receptacle	016	716	None	No	No
	911	818	Top*	No	No
	918	818	Side*	No	No

*Use cover only with crimp contacts.

HOW TO ORDER 8016 AND 8026 SERIES

The complete connector part number consists of product series 8016 plus codes for no. of contacts, contact code and variation.

8016 Series — **056** No. of Contacts — **217** Contact Code — **001** Variation

Example: (using above) 8016 series plug connector with 56 contacts using a solder tab contact that has a standard polycarbonate insulator with an actuating screw.

90 OR 120 CONTACTS

Type Conn.	Variation Code: Polycarbonate Std.	Variation Code: Polycarbonate X-Large	Variation Code: Diallyl Std.	Variation Code: Diallyl X-Large	Cover & Cable Entrance	Actuating Screw	Locking Nut
Plug	001	.....	701	.....	None	Yes	No
	002	.....	702	.....	None	No	Yes
	903	931	803	831	Top	Yes	No
	904	932	804	822	Side	Yes	No
	905	933	805	833	Top	No	Yes
	906	934	806	834	Side	No	Yes
Rec.	007	.....	707	.....	None	No	Yes
	008	.....	708	.....	None	Yes	No
	909	935	809	835	Top	Yes	No
	910	936	810	836	Side	Yes	No
	911	937	811	837	Top	No	Yes
	912	938	812	838	Side	No	Yes

38 OR 56 CONTACTS

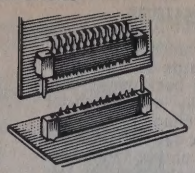
Type Conn.	Variation Code: Polycarbonate Std.	Polycarbonate Large	Polycarbonate X-Lge.	Diallyl Std.	Diallyl Large	Diallyl X-Lge.	Cover & Cable Entrance	Actuating Screw	Locking Nut
Plug	001	.....	.....	701	.....	.....	None	Yes	No
	002	.....	.....	702	.....	.....	None	No	Yes
	903	919	931	803	819	831	Top	Yes	No
	904	920	932	804	820	832	Side	Yes	No
	905	921	933	805	821	833	Top	No	Yes
	906	922	934	806	Side	834	Side	No	Yes
Rec.	007	.....	.....	707	.....	.....	None	No	Yes
	008	.....	.....	708	.....	.....	None	Yes	No
	909	923	935	809	823	835	Top	Yes	No
	910	924	936	810	824	836	Side	Yes	No
	911	925	937	811	825	837	Top	No	Yes
	912	926	938	812	826	838	Side	No	Yes

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Connectors and Sockets

GW Elco Corporation
a Gulf + Western manufacturing company

SERIES 8129 .100″ CONNECTORS



For parallel or perpendicular PC card mounting. Guide pins facilitate mating. Current rating: 5 amps. Contact and insulator material: Phosphor bronze per QQ-B-750, composition A. 10 microinches gold plating over 30 microinches nickel plating. Insulator material: glass-filled diallyl phthalate, flame resistance per MIL-M-14F, type SDGF.

NUMBER OF CONTACTS

6 (006), 9 (009), 12(012) or 15 (015).

CONTACT CODE

Use with Variant 001 or 005
610—contact type 60 8106 02 43

Use with Variant 002 or 006
603—contact type 60 8101 02 23

Use with Variant 003 or 007
603—contact type 60 8101 02 23
605—contact type 60 8101 04 13
610—contact type 60 8106 02 43

Use with Variant 004 or 008
605—contact type 60 8101 04 13
610—contact type 60 8106 02 43

VARIATION CODE

WITHOUT KEYING

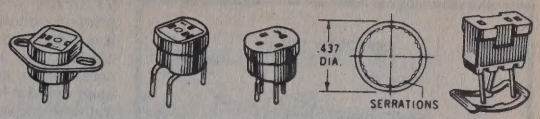
001—with side mounting brackets for recessed or flush mounting to edge of PC card (contact tails are formed)
002—with upright mounting brackets
003—without mounting brackets
004—with side mounting brackets for recessed or flush mounting to edge of PC card (contact tails not formed)

HOW TO ORDER

00 — 8129 — XXX — XXX — XXX

Series	No. of Contacts	Contact Code	Variation Code

TRANSISTOR SOCKETS (3 AND 4-PIN)



3301/3303/3304 3305 3307/3308 0799 Mtg. Ring

Stock No.	Type No.	Pins	Insulator	Contacts	Mounting Type	1-99	100-249
69F300	05 3301	4	MICA	BCSPGF	Flat Saddle	1.71	1.23
69F301	05 3303	4	MICA	BCSPGF	PC Solder	1.18	.95
69F302	05 3304	4	MICA	BCSPGF	Mtg. Ring†	1.18	.95
69F303	05 3305	4	MICA	BCSPGF	PC Solder	.87	.70
69F304	05 3307	4	MICA	BCSPGF	Mtg. Ring†	1.18	.95
69F305	05 3308	4	DPA	BCSPGF	PC Solder	1.18	.95
69F306	05 0799	3*	MICA	BCSPGFTD	Retainer†	1.71	1.23
	65 0004	7105 Retainer for 05 0799, 05 0803				.09	.08
	65 0004	7202 Mounting Ring (BRCP)				.14	.13

*In-line sockets. †Order mtg. ring or retainer separately.

TERMINOLOGY

To simplify the tables, the following symbols are used todescribe part materials and platings:

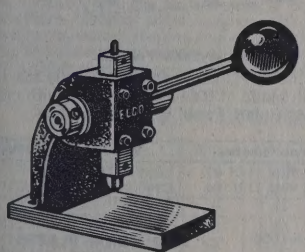
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
BC	Beryllium Copper	MICA	Mica Filled Phenolic
BR	Brass	PH	Phosphor Bronze
CP	Cadmium Plating	SP	Silver Plating
DAP	Diallyl Phthalate	TLP	Tin-Lead Plating
GP	Gold Flash		

Example: PHSPTD—Phosphor bronze, silver plated, tin dipped

Connector Installation Tools

10

HAND STAKER



- ¼″ Ton Capacity
- Stakes most currently available contacts.

MODEL NO. 06 1856 01. Designed for use as a multi-purpose laboratory tool. Will stake most contacts presently available. ¼″ ton capacity, working surface: 2″ x 2⅛″, Ram dimensions: ½″ x ½″ x 2½″.

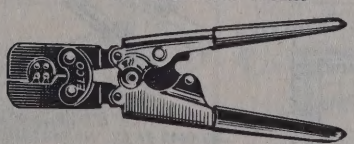
69F309. NET 126.00

CONTACT EXTRACTION TOOLS

Designed to extract contacts from their insulator quickly and easily, without damage to either contacts or insulator.

Stock No.	Type	For	1-up
69F310	06 1877 04	Varilak Con.	14.10
69F311	06 7699 01	Mini-Varilok Con. (8026)	14.10
69F312	06 7770 01	Mini-Varilok Con. (8221, 8223, 8229)	14.10

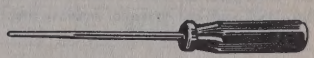
CONTACT CRIMPING PLIERS



Designed for hand crimping of contacts; well suited for maintenance, model shop and small scale production purposes. Independently adjustable for conductor and insulator.

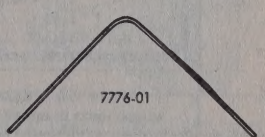
Stock No.	Type	Contact Capability	1-Up
69F314	06 7852 01	#60 8017 03 13	59.95
69F315	06-7858-01	#60 8216 03 13	59.95

CONTACT INSERTION TOOLS



7638-01

1742-04



7776-01

Solder and wire wrap insertion tools, except VARILOK & MINI-VARILOK, insert contacts directly into insulator.

Stock No.	Model	1-Up
69F316	06-7638-01	29.93
69F317	06-7776-01	4.38
69F318	06-1742-04	7.10
69F319	06-7698-01	12.11

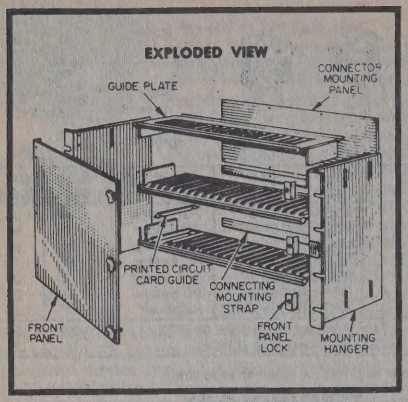
INSTALLATION EQUIPMENT

Stock No.	Description	
69F320	06 1989 02—for series 8016 and 8026	21.65
69F321	06 1773 03—for series 8017 and 8018	26.63

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Varipak™ PC Card Enclosures & Access.

SERIES 9016 VARIPAK PC CARD ENCLOSURES



VARIPAK II is an enclosure for printed circuit cards and connectors. Mounted on back panel, connectors are easily accessible for cross wiring and check-out. Can be used in large logic storage cabinets, pull-out drawers, and as framework for small inst. panels. Made of Aluminum it consists of mounting hangers, Guide Plates: will support up to—

82 card guides—19" Single Varipak
164 card guides—19" Double Varipak
107 card guides—24" Single Varipak
214 card guides—24" Double Varipak

Printed circuit card guides, Connector mounting straps, Connector mounting panels, Front panels, and Identification marker strips. 64 standard models in 19" and 24" width units. *Vertical distance between mounting holes.

ORDERING CODE

03—9016—XX—XX—XX

ASSEMBLY NUMBER

Assembly Code Number Single Unit		Nom. P.C. Card Width	Dimension "A" Single Unit	Dimension "A" Double Unit	Dimension "B" Single Unit	Dimension "B" Double Unit	"C"	"D"	"*" For Double Unit	"*" For Double Unit
19.00	24.00									
02	52	4.500	5.218	10.468	2.250	2.250	4.000	5.500	7.500	3.000
06	56	4.500	5.218	10.468	2.250	2.250	5.500	8.500	7.500	3.000
10	60	4.500	5.218	10.468	2.250	2.250	7.000	8.500	7.500	3.000
14	64	4.500	5.218	10.468	2.250	2.250	8.000	11.00	7.500	3.000

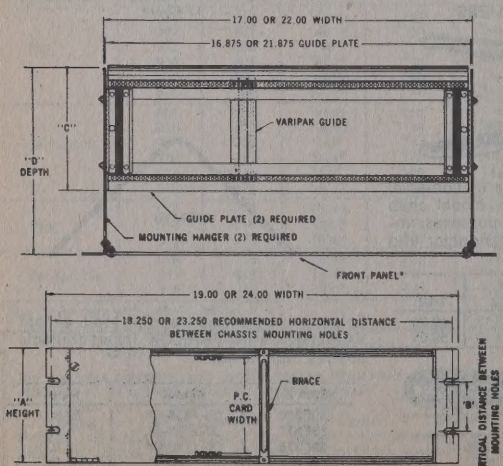
CONNECTOR MOUNTING

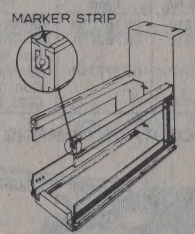
00—No Connector mounting parts
01—Blank Connector Panel
02—Blank Connector mounting straps
03—Connector mounting straps with 82 or 107 (.128" dia.) holes on .200" centers
04—Blank panel and blank connector mounting straps (for double tier models only).
05—Blank panel and connector mounting straps with 82 or 107 holes on .200" centers (for double tier models only)

ACCESSORIES

00—None
01—Marker strip
02—Front door panel
03—Marker strip and front door panel
04—Reinforcement bar
05—Reinforcement bar and front door panel

OVERALL DIMENSIONS

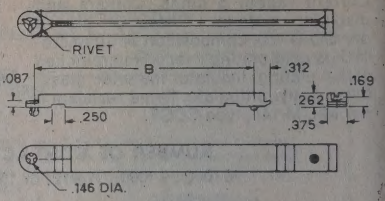




I.D. MARKER STRIP—63 9016 24 02. White matte surface to print PC rack positions. Made of extruded flexible polyvinyl. 16¾" long.

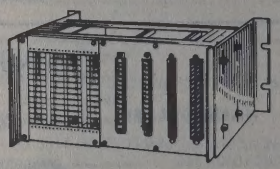
REINFORCEMENT BAR—63 9016 75 04. Provides additional support for heavy PC cards. Extruded aluminum, 16¾" long. Clear chromate finish; other finishes available. Slides into leading edge (front) of guide plate. Provision for ID labels.

P.C. CARD GUIDES



For use with Varipak enclosures. Aligns card with connector; holds card in place. Rugged polycarbonate rated 280-300° F. Wide beveled lead-in edge for easy card alignment. Guides are easily assembled and removed, without damaging either the guide or the enclosure. Guide float allows for tolerance accumulation between guide and connector.

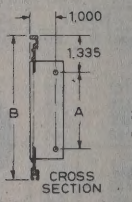
Part Number	Nom. Card Thick.	For Assembly No.	B
33 9016 12 01 01	1/16	02	2.651
33 9016 12 01 02	3/32	52	
33 9016 12 01 04	1/16	06	4.151
33 9016 12 01 07	1/16	10	5.651
33 9016 12 01 10	1/16	14	6.651



MOUNTING PANELS

For mounting PC connectors of various sizes in one unit. Made of 6061-T4 aluminum with clear chromate finish. Panel is shipped blank.

Part Number	Will Fit Assemblies
63 9016 11 01 02	02, 06, 10, 14
63 9016 11 01 06	52, 56, 60, 64



END GUIDE PLATES

Supports card guides, connector mounting straps or panels. Extruded 6023-T6 aluminum; clear chromate finish. 82 card guide mounting holes on .200" centers. Complete unit requires two end guide plates (double-tier unit also needs center guide plate).

Part Number	For Assembly No.	A	B	Rack Width
33 9016 13 01 01	02	1.5	4.0	
33 9016 13 01 02	06	3.0	5.5	
33 9016 13 01 03	10	4.5	7.0	
33 9016 13 01 04	14	5.5	8.0	19.00
33 9016 13 01 11	52	1.5	4.0	
33 9016 13 01 12	56	3.0	5.5	
33 9016 13 01 13	60	4.5	7.0	
33 9016 13 01 14	64	5.5	8.0	24.00

All dimensions are in inches.

MOUNTING STRAPS

63 9016 23 01 01—End strap without connector mounting holes; available in six sizes
63 9016 50 01—End strap with 82 mounting holes

WIBA® Terminal Strips

ELECTROVERT INC.

GENERAL SPECIFICATIONS

Terminal strips have fully enclosed metal parts. Connections are corrosion resistant with screw terminals designed with a nickel plated phosphor bronze wire guard to prevent wire conductor damage. CSA approved/UL recognized E60678.

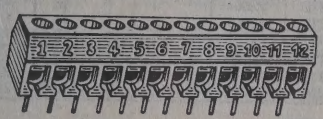
PRINTED CIRCUIT TERMINAL STRIPS

Terminal strips are delivered with markings. Standard marking for 5mm spacing is 1 to 24. Pressure screws are captive and secure against self-loosening. Rated at 300V, 14AWG, max. 15 Amp. Break resistant polyamid insulating body. Continuous service temperature: 100°C. Conductors enter at 45°.

5MM CONTACT SPACING

Stock No.	Type	Length (mm)	Poles	1–999	1000–4999	5000–Up
28F1820	25-135-0253	10	2	.63	.60	.58
28F1821	25-135-0353	15	3	.82	.78	.74
28F1822	25-135-0453	20	4	1.02	.97	.93
28F1823	25-135-0553	25	5	1.24	1.18	1.12
28F1824	25-135-0653	30	6	1.46	1.39	1.33
28F1825	25-135-0853	40	8	1.94	1.83	1.75
28F1826	25-135-0953	45	9	2.16	2.05	1.96
28F1827	25-135-1053	50	10	2.38	2.25	2.15
28F1828	25-135-1253	60	12	2.83	2.68	2.56
28F1829	25-135-1353	65	13	3.06	2.90	2.76
28F1830	25-135-1453	70	14	3.28	3.12	2.97
28F1831	25-135-1553	75	15	3.53	3.35	3.19
28F1832	25-135-1653	80	16	3.75	3.57	3.40
28F1833	25-135-1853	90	18	4.23	4.02	3.82
28F1834	25-135-2053	100	20	4.68	4.45	4.23

Series 8281

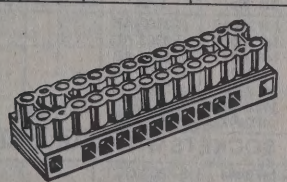


Fully enclosed, compact strips molded of polyamid for PC board or panel connections. Terminal poles numbered consecutively. Silver plated brass pressure connectors; terminal screws are nickel plated brass; Soldering pins hot tip tinned electrolytic copper. For 5.08 mm (.200") spacing. Available in 5 & 10 mm. Other sizes 1-24 poles available on request.

300V NO. 14 AWG. MAX. 15 AMP.

Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2400	25-104-0453	4	.82	.78	.74
31F2401	25-104-0653	6	1.14	1.09	1.02
31F2402	25-104-0853	8	1.45	1.38	1.32
31F2403	25-104-1053	10	1.79	1.71	1.61
31F2404	25-104-1253	12	2.12	2.01	1.91
31F2405	25-104-1653	16	2.78	2.64	2.50
31F2406	25-104-2453	24	3.63	3.45	3.27

COMPACT TERMINAL STRIP



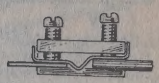
A very compact strip for applications where space is critical. Molded of flame retardant polypropylene with nickel plated brass connectors. Poles are consecutively numbered. Length of largest unit, 20 pole is only 4¾" long.

300V NO. 12 AWG MAX. 25 AMP.

Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2437	29-401-0453	4	1.04	.99	.94
31F2438	29-401-0653	6	1.36	1.30	1.22
31F2439	29-401-0853	8	1.79	1.67	1.59
31F2440	29-401-1253	12	2.45	2.34	2.22
31F2441	29-401-1653	16	3.15	3.00	2.85
31F2442	29-401-2053	20	3.85	3.66	3.47

Call or Write Newark for Complete Electrovert Catalog.

FLEXIBLE TERMINAL STRIP



Polyamid strip. Flexible. Easily cut to any number of poles. Nickel plated brass connectors.

6 EDS 300V NO. 16 AWG MAX. 10 AMP.

Stock No.	Type	Poles	1-999	1000-4999	5000 & Up
31F2407	21-311-0253	2	.21	.20	.19
31F2408	21-311-0353	3	.30	.29	.27
31F2409	21-311-0453	4	.42	.40	.38
31F2410	21-311-0553	5	.52	.50	.48
31F2411	21-311-0653	6	.62	.59	.56
31F2412	21-311-0753	7	.73	.70	.67
31F2413	21-311-0853	8	.83	.79	.75
31F2414	21-311-0953	9	.93	.89	.84
31F2416	21-311-1253	12	1.22	1.16	1.11

10 EDS 300V NO. 12 AWG MAX. 20 AMP.

31F2417	21-331-5253	2	.39	.37	.35
31F2418	21-331-5353	3	.56	.54	.51
31F2419	21-331-5453	4	.74	.71	.67
31F2420	21-331-5553	5	.91	.87	.82
31F2421	21-331-5653	6	1.10	1.03	.98
31F2422	21-331-5753	7	1.26	1.20	1.14
31F2423	21-331-5853	8	1.44	1.37	1.30
31F2424	21-331-5953	9	1.61	1.53	1.45
31F2426	21-331-6253	12	2.10	2.00	1.89

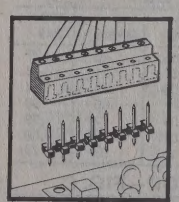
TERMINAL STRIP SPACERS FOR ABOVE

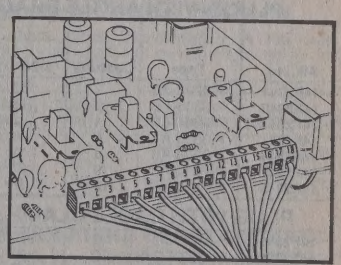
Flexible terminal strip spacers for bottom mount. Increase rating to 600V. These 12-pole spacers are easy to cut to accommodate any size strip.

31F2300	07-470-1280	6 EDS	.46
31F2301	07-471-1280	10 EDS	.49

PLUG-IN TERMINAL STRIPS FOR PRINTED CIRCUITS

Provides for quick connect or disconnect of wired terminal strip from a P.C. board by means of an interconnecting pin strip. Wires connect directly to the numbered screw connectors of the terminal strip which connects to the pin strip. Screw connectors have captive wire guards to accommodate wires up to 16 AWG. Normal current: 10A nominal voltage: 300V. Insulating body: Orange Lexan 94N. Continuous use at 110C (230F). Contact sizing: 5mm.





Stk. No.	Type	Poles	1-999	1000-4999	5000-Up
12F1040	25-600-0353	3	.74	.71	.67
12F1041	25-600-0853	8	1.76	1.66	1.58
12F1042	25-600-1053	10	2.10	2.00	1.91
12F1043	25-600-1253	12	2.52	2.40	2.27
12F1044	25-600-1853	18	3.36	3.20	3.04

PIN STRIP

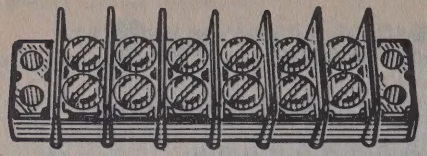
The pin strip insulating material holding the pins is molded of macrolan (polycarbonate) and can easily be cut with a knife to the required number of poles. Strips are in 60-pin lengths.

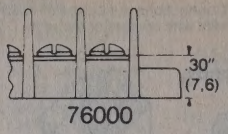
12F1039 Type 05-594-8400 Pin Strip for use with Items Above..... **3.34**

10

BEAU Double Row Barrier Strips from Vernitron

THERMOPLASTIC





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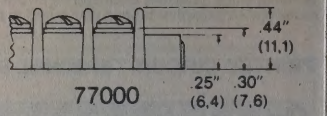


77000

Insulator: Black thermoplastic glass filled. UL flame retardant rating .94V-O. Recommended wire size: 14 AWG. Terminal screws: No. 6-32 x ¼" binding head screws; steel, cadmium plated. Terminal Centers: ⅜" (9.5 mm). UL recognized for general industrial use at 150V rms and for commercial equipment at 250V rms. UL current rating: 20 A. 76000 Series: Withstand 10500V RMS. CSA certified 300V @ 20 A. Size: ⅞ x ⅝. 77000 Series: Withstand 7500V RMS. CSA certified 150V @ 20 A. Size: ⅞ x 7/16. 78000 Series: Withstand 7500V RMS. CSA certified rating 300V @ 20A.

76000 SERIES — HIGH BARRIER

Stk. No.	Type	Terms.	Lgth.	5-24	25-49	50-99	100-249
14F2600	76002	2	1.41"	.45	.36	.30	.24
14F2601	76004	4	2.16"	.61	.49	.41	.32
14F2602	76005	5	2.53"	.79	.63	.52	.42
14F2603	76006	6	2.91"	.92	.74	.61	.49
14F2604	76008	8	3.66"	1.15	.92	.77	.61
14F2605	76010	10	4.41"	1.38	1.11	.92	.74
14F2606	76012	12	5.16"	1.57	1.26	1.05	.84
14F2608	76014	14	5.91"	1.86	1.49	1.24	.99
14F2609	76016	16	6.66"	2.09	1.67	1.39	1.11
14F2610	76018	18	7.41"	2.30	1.84	1.54	1.23
14F2611	76020	20	8.16"	2.59	2.07	1.72	1.38
14F2612	76022	22	8.91"	2.74	2.20	1.83	1.47
14F2613	76024	24	9.66"	3.05	2.44	2.04	1.63
14F2614	76030	30	11.91"	3.77	3.02	2.51	2.09

77000 SERIES — LOW BARRIER

Stk. No.	Type	Terms.	Lgth.	5-24	25-49	50-99	100-249
14F2615	77002	2	1.41"	.45	.36	.30	.24
14F2616	77004	4	2.16"	.61	.49	.41	.32
14F2617	77005	5	2.53"	.79	.63	.52	.42
14F2618	77006	6	2.91"	.92	.74	.61	.49
14F2619	77008	8	3.66"	1.15	.92	.77	.61
14F2620	77010	10	4.41"	1.38	1.11	.92	.74
14F2621	77012	12	5.16"	1.57	1.26	1.05	.84
14F2623	77014	14	5.91"	1.86	1.49	1.24	.99
14F2624	77016	16	6.66"	2.09	1.67	1.39	1.11
14F2625	77018	18	7.41"	2.30	1.84	1.54	1.23
14F2626	77020	20	8.16"	2.59	2.07	1.72	1.38
14F2627	77022	22	8.91"	2.74	2.20	1.83	1.47
14F2628	77024	24	9.66"	3.05	2.44	2.04	1.63
14F2629	77030	30	11.91"	3.77	3.02	2.51	2.01

78000 SERIES — 7/16" CENTERS

Stk. No.	Type	Terms.	Lgth.	5-24	25-49	50-99	100-249
14F2630	78002	2	1.63"	.45	.36	.30	.24
14F2631	78004	4	2.50"	.80	.64	.53	.43
14F2632	78005	5	2.94"	.89	.72	.60	.48
14F2633	78006	6	3.38"	1.05	.84	.70	.56
14F2634	78008	8	4.25"	1.34	1.07	.89	.72
14F2635	78010	10	5.13"	1.62	1.29	1.08	.86
14F2636	78012	12	6.00"	1.94	1.56	1.30	1.04
14F2637	78014	14	6.88"	2.26	1.81	1.51	1.21
14F2639	78016	16	7.75"	2.51	2.02	1.67	1.34
14F2640	78018	18	9.06"	2.76	2.21	1.84	1.47
14F2641	78020	20	9.50"	3.00	2.40	2.00	1.60
14F2642	78022	22	10.38"	3.34	2.68	2.23	1.78
14F2643	78024	24	11.25"	3.61	2.89	2.41	1.93

22000 SERIES — 9/16" CENTERS — PHENOLIC

Closed back. UL Rated: 30 A. Wire: 12 AWG. Screw size: 8-32. CSA certified 300V @ 30 A. Withstand 9000V RMS.

Stk. No.	Type	Terminals	5-24	25-49	50-99	100-249
14F2310	22002	2	.65	.52	.44	.35
14F2311	22003	3	.97	.78	.65	.52
14F2312	22004	4	1.16	.93	.78	.62
14F2313	22005	5	1.46	1.17	.97	.78
14F2314	22006	6	1.68	1.35	1.12	.90
14F2316	22008	8	2.00	1.61	1.34	1.07
14F2318	22010	10	2.59	2.07	1.73	1.38
14F2320	22012	12	3.13	2.51	2.09	1.67

10

SERIES 3300

UL-CSA approved. Individual contacts rated 10A, 750V rms. Body-molded phenolic. Male contacts: Cadmium plated brass. Female contacts: Cadmium plated phos. bronze. Backshell: Molded black polypropylene—contacts polarized.

FIG. A

FIG. B

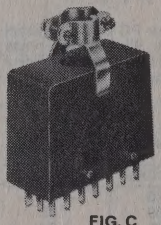


FIG. C

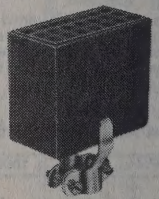


FIG. D

FIG. E

FIG. F

PLUGS WITH ANGLE BRACKETS—FIG. A

Stk. No.	Type	Contacts	Each 5-24	25-49	50-99	100-249
14F2341	P-3302-AB	2	.69	.55	.46	.37
14F2342	P-3303-AB	3	.76	.61	.51	.41
14F2343	P-3304-AB	4	.82	.66	.55	.44
14F2344	P-3306-AB	6	.94	.75	.63	.50
14F2346	P-3308-AB	8	1.11	.89	.74	.59
14F2347	P-3310-AB	10	1.27	1.01	.85	.68
14F2348	P-3312-AB	12	1.38	1.10	.92	.74

SOCKETS WITH ANGLE BRACKETS—FIG. B

Stk. No.	Type	Contacts	Each 5-24	25-49	50-99	100-249
14F2400	S-3302-AB	2	.80	.64	.53	.43
14F2401	S-3303-AB	3	.83	.67	.56	.44
14F2402	S-3304-AB	4	.87	.70	.58	.46
14F2403	S-3306-AB	6	1.05	.84	.70	.56
14F2405	S-3308-AB	8	1.27	1.01	.85	.68
14F2406	S-3310-AB	10	1.51	1.21	1.01	.81
14F2407	S-3312-AB	12	1.64	1.31	1.09	.87

PLUG WITH CABLE CLAMP AT TOP—FIG. C

14F2385	P-3302-CCT	2	1.27	1.02	.85	.68
14F2386	P-3303-CCT	3	1.37	1.10	.91	.73
14F2387	P-3304-CCT	4	1.44	1.15	.96	.77
14F2388	P-3306-CCT	6	1.58	1.27	1.05	.85
14F2390	P-3308-CCT	8	1.74	1.40	1.16	.93
14F2391	P-3310-CCT	10	1.91	1.53	1.28	1.02
14F2392	P-3312-CCT	12	2.06	1.65	1.37	1.10

SOCKETS WITH CABLE CLAMP AT TOP—FIG. D

14F2444	S-3302-CCT	2	1.32	1.06	.88	.71
14F2445	S-3303-CCT	3	1.39	1.12	.93	.74
14F2446	S-3304-CCT	4	1.47	1.17	.98	.78
14F2447	S-3306-CCT	6	1.67	1.34	1.12	.89
14F2449	S-3308-CCT	8	1.86	1.49	1.24	.99
14F2450	S-3310-CCT	10	2.12	1.70	1.42	1.13
14F2451	S-3312-CCT	12	2.41	1.93	1.61	1.28

PLUGS WITH CABLE CLAMP AT TOP, LATCH—FIG. E

14F2460	P-3302-CCT-L	2	1.52	1.22	1.03	.81
14F2461	P-3303-CCT-L	3	1.62	1.30	1.08	.87
14F2462	P-3304-CCT-L	4	1.73	1.38	1.15	.92
14F2463	P-3306-CCT-L	6	1.90	1.52	1.27	1.01
14F2465	P-3308-CCT-L	8	2.06	1.65	1.37	1.10
14F2466	P-3310-CCT-L	10	2.24	1.79	1.49	1.20
14F2467	P-3312-CCT-L	12	2.36	1.89	1.57	1.26

SOCKETS WITH CABLE CLAMP AT TOP, LATCH—FIG. F

14F2527	S-3302-CCT-L	2	1.70	1.36	1.13	.91
14F2528	S-3303-CCT-L	3	1.90	1.52	1.27	1.02
14F2529	S-3304-CCT-L	4	1.74	1.39	1.16	.93
14F2530	S-3306-CCT-L	6	2.02	1.62	1.35	1.08
14F2532	S-3308-CCT-L	8	2.09	1.68	1.40	1.12
14F2533	S-3310-CCT-L	10	2.56	2.05	1.71	1.37
14F2534	S-3312-CCT-L	12	2.67	2.14	1.78	1.42

HI-D JAX® PHONE JACKS: E.

Smaller, more compact phone jacks, mate with std. ¼" phone plugs. Molded box body protects integral silver-plated, nickel silver springs. Low contact resistance and electrical leakage with little capacity between the springs. Mount on ⅝" centers in single ⅜" hole in panels up to 5/32" thick, depth behind panel 1 3/32". (*)"N" prefix feature a threaded nylon bushing to provide complete insulation of jack sleeve from mtg. panel. **Type M-112B** is designed and adjusted to mate with telephone and MIL-std. plugs. **Type 114B** switches out speakers when connecting stereo headphones. Dual N.C. switch contacts open both stereo circuits independently when a 3-cond. plug is inserted.

TWO CONDUCTOR TYPES

Stk. No.	Type	Schem. No.	Mating Plug	1-9	10-24	25-99	100-249
39F656	111	I	250	.92	.69	.64	.52
39F642	N-111*	I	250	1.08	.81	.75	.61
39F657	112A	III	250	.96	.72	.66	.54
39F643	N-112A*	III	250	1.16	.87	.80	.66
39F644	113	V	250	1.60	1.20	1.10	.90
39F645	113D	VI	250	1.60	1.20	1.10	.90

THREE CONDUCTOR TYPES

Stk. No.	Type	Schem. No.	Mating Plug	1-9	10-24	25-99	100-249
39F658	112B	IV	267	1.00	.75	.69	.57
39F646	M-112B	IV	482	1.60	1.20	1.10	.90
39F659	113B	VII	267	1.28	.96	.88	.72
39F660	113F	XXVIII	267	1.28	.96	.88	.72
39F661	114B	XII	267	1.40	1.05	.97	.79
39F647	N-114B*	XII	267	1.64	1.23	1.13	.93

"TINI-D JAX" MINIATURE PHONE JACK: F.

Small, completely enclosed, molded phone jack. Mate with "Tini-Plug". Has threaded bushing for conventional mtg. Tip spring terminals that "snap-in" P.C. boards. Mount on ⅜" centers, in ¼" dia. hole in panels up to ⅛" thick. Depth behind panel 7/16".

Stk. No.	Type	Schem. No.	No. Cond.	1-9	10-24	25-99	100-249
39F648	142A	III	2	1.12	.84	.77	.63

"EXTENSION JAX" CABLE EXTENSION JACKS

Standard ¼", 2- and 3-conductor extension phone jacks with solder lugs or screw type terminals. Size 1 1/16" O.D., 2 5/32" long; 121 and 131 ½" O.D., 2½" long.

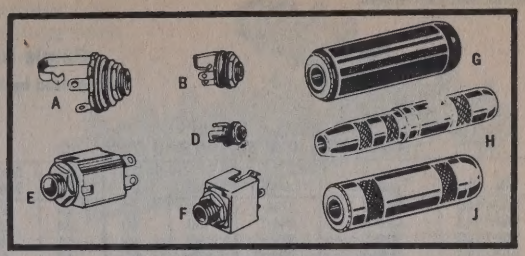
Stock No.	Type	Fig.	No. Cond.	Term.	Handle	1-9	10-24	25-99	100-249
39F670	80	G	2	Screw	Black	2.40	1.80	1.65	1.35
39F671	88	G	2	Solder	Black	2.40	1.80	1.65	1.35
39F672	120	J	2	Screw	Shield	3.04	2.28	2.09	1.71
39F247	121	H	2	Solder	Shield	3.12	2.34	2.15	1.76
39F673	128	G	2	Solder	Shield	2.68	2.01	1.84	1.51
39F649	131	H	3	Solder	Shield	3.92	2.94	2.70	2.21
22F269	830	G	3	Screw	Black	3.32	2.49	2.28	1.87
39F757	1230	J	3	Screw	Shield	3.80	2.85	2.61	2.14

"THICK-PANEL JAX" PHONE JACK: L.

Phone jacks with long bushing. Mount in single 15/32" dia. hole in panels up to 1¼" thick. Solder lug terminals. Extra shielding virtually eliminates audio hum.

Stock No.	Type	No. Cond.	Mates With	1-9	10-24	25-99	100-249
39F651	151	2	240, 245, 250, 255, 270, 280	2.84	2.13	1.95	1.60
39F652	152B	3	260, 267, 269, 297	3.12	2.34	2.15	1.76

®Registered tradename of Switchcraft, Inc.



LITTEL-JAX® PHONE JACKS: A.

Quality phone jacks that mate with standard ¼" phone plugs. Notched insulating washers mechanically interlock springs and solder lugs. "V" bend in tip spring firmly "holds" mating plug. Minimum space requirements. Economical. Mounts in single ⅜" hole panels up to 5/32" thick except L-11 and L-12A in panels up to ¼" thick. **C-11** and **C-12B** have locating pins (non-turn devices). **S-11** similar to **11** except .210" I.D. sleeve. **C11, C-12B,** and **C-12A** per JAN-J-641. **14B** switches out speakers when connecting stereo headphones.

JACK COVERS: K.

Handy, rugged, spring-load phone jack covers. Covers jack openings when phone plug is removed. Protects against dust and moisture. Use with standard ⅜"-threaded bushing type jacks.

Stock No.	Type	Color	1-9	10-24	25-49	50-99
39F650	515	Black	3.24	2.43	2.23	1.82

TWO CONDUCTOR TYPES

Stock No.	Type	Schem. No.	Mating Plug	Mil-Type	1-9	10-24	25-49	50-99
39F782	11	I	250	....	.92	.69	.64	.52
39F662	C-11	I	440	JJ-034	1.32	.99	.91	.75
39F653	L-11	I	250	....	1.00	.75	.69	.57
39F663	S-11	I	S-250	....	.96	.72	.66	.54
39F783	12A	III	250	....	.96	.72	.66	.54
39F664	C-12A	III	440	JJ-089	1.68	1.26	1.16	.95
39F654	L-12A	III	250	....	1.08	.81	.75	.61
39F655	13	V	250	....	1.80	1.35	1.24	1.01
39F691	13A	VI	250	....	1.80	1.35	1.24	1.01
39F699	13E	IX	250	....	1.80	1.35	1.24	1.01

THREE CONDUCTOR TYPES

39F665	12B	IV	267	....	1.08	.81	.75	.61
39F667	C-12B	IV	480, 484	JJ-033	1.64	1.23	1.13	.93
39F576	L-12B	IV	267	....	1.48	1.11	1.02	.84
39F666	S-12B	IV	480, 484	....	1.48	1.11	1.02	.84
39F668	13B	VII	267	....	1.60	1.20	1.10	.90
39F669	S-13B	VII	480, 484	....	2.04	1.53	1.40	1.15
39F577	14B	XII	267	....	2.12	1.59	1.46	1.19

"TINI-JAX" MINIATURE PHONE JACKS: B.

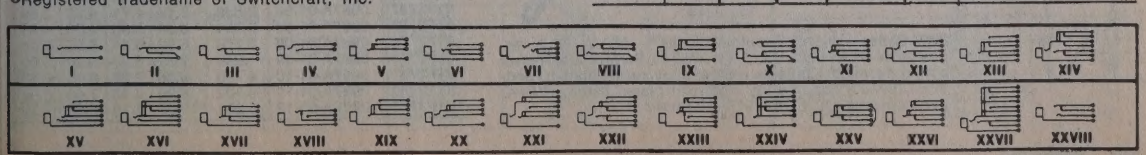
Miniature 2-conductor phone jacks, approximately ⅓ the size of the Littel-Jax jack, otherwise similar in construction. Mount in ¼" dia. hole; panel up to ⅛" thick.

Stock No.	Type	Schem. No.	Mating Plug	1-9	10-24	25-49	50-99
39F744	41	I	750	.76	.57	.53	.43
39F745	42A	III	750	.88	.66	.61	.50
39F689	43A	VI	750	1.28	.96	.88	.72

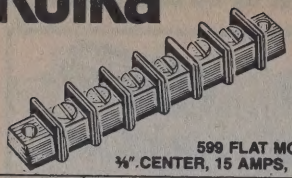
MICRO-JAX® SUB MINIATURE PHONE JACK: D.

Precision manufactured jack for miniaturized applications. Single closed circuit. Internally keyed nylon insulation interlocks springs and solder lugs to eliminate shorts. Fits .190" dia. hole in panels to 3/32" thick. Only 1/25 the size of standard phone jacks.

Stock No.	Type	Schem. No.	No. Cond.	Mating Plug	1-9	10-24	25-49	50-99
39F578	TR-2A	III	2	850, 880	1.08	.81	.75	.61



Kulka Terminal Boards



Single Row Thermoset

Recognized by UL and certified by CSA

599 FLAT MOUNT
⅜".CENTER, 15 AMPS, #14 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1140	599-2	1 13/32"	.36	.29	.24	.21
65F1142	599-4	2 5/32"	.50	.40	.33	.29
65F1143	599-5	2 17/32"	.62	.49	.41	.36
65F1144	599-6	2 29/32"	.71	.57	.48	.41
65F1146	599-8	3 21/32"	.93	.74	.62	.54
65F1147	599-10	4 13/32"	1.14	.91	.76	.66
65F1148	599-12	5 5/32"	1.31	1.05	.87	.76
65F1149	599-14	5 29/32"	1.57	1.25	1.05	.91
65F1150	599-16	6 21/32"	1.79	1.43	1.19	1.04
65F1151	599-20	8 5/32"	2.19	1.75	1.46	1.27

599-2020 PRINTED CIRCUIT MOUNT
⅜" CENTER, 15 AMPS, #14 AWG WIRE

55F5443	599-2020-4	2 5/32"	1.86	1.48	1.24	1.08
55F5444	599-2020-6	2 29/32"	2.76	2.20	1.84	1.60
55F5445	599-2020-8	3 21/32"	3.69	2.95	2.46	2.14
55F5446	599-2020-10	4 13/32"	4.62	3.69	3.08	2.68
55F5447	599-2020-12	5 5/32"	5.52	4.41	3.69	3.20
55F5448	599-2020-16	6 21/32"	7.33	5.85	4.90	4.25
55F5449	599-2020-18	7 13/32"	8.26	6.59	5.52	4.79
55F5450	599-2020-20	8 5/32"	9.14	7.30	6.11	5.30

599-2004 FEED-THRU MOUNT
⅜" CENTER, 15 AMPS, #14 AWG WIRE

65F1153	599-2004-4	2 5/32"	1.86	1.48	1.24	1.08
65F1154	599-2004-6	2 29/32"	2.76	2.20	1.84	1.60
65F1155	599-2004-8	3 21/32"	3.69	2.95	2.46	2.14
65F1156	599-2004-10	4 13/32"	4.62	3.69	3.08	2.68
65F1157	599-2004-12	5 5/32"	5.52	4.41	3.69	3.20
65F1158	599-2004-16	6 21/32"	7.33	5.85	4.90	4.25
65F1159	599-2004-20	8 5/32"	9.14	7.30	6.11	5.30

699 FLAT MOUNT
7/16" CENTER, 20 AMPS, #14 AWG WIRE

Stk. No.	Type	Terminals	1-99	100-249	250-499	500-999
65F1287	699-2	2	.36	.29	.24	.21
65F1288	699-4	4	.62	.49	.41	.36
65F1289	699-6	6	.90	.72	.60	.52
65F1290	699-8	8	1.17	.93	.78	.68
65F1291	699-10	10	1.45	1.16	.97	.84
65F1292	699-12	12	1.64	1.31	1.10	.95
65F1293	699-14	14	1.95	1.56	1.30	1.13
65F1294	699-16	16	2.21	1.77	1.48	1.28
65F1295	699-18	18	2.43	1.94	1.62	1.41
65F1296	699-20	20	2.74	2.19	1.83	1.59

699-2120 PRINTED CIRCUIT MOUNT
7/16" CENTER, 20 AMPS, #14 AWG WIRE

65F1305	699-2120-4	4	2.24	1.79	1.49	1.30
65F1306	699-2120-6	6	3.31	2.64	2.21	1.92
65F1307	699-2120-8	8	4.38	3.50	2.93	2.54
65F1308	699-2120-10	10	5.45	4.35	3.64	3.16
65F1309	699-2120-12	12	6.55	5.23	4.37	3.80
65F1310	699-2120-16	16	8.71	6.95	5.82	5.05
65F1311	699-2120-18	18	9.76	7.79	6.52	5.66
65F1312	699-2120-20	20	10.85	8.66	7.25	6.29

699-2104 FEED-THRU MOUNT
7/16" CENTER, 20 AMPS, #14 AWG WIRE

65F1297	699-2104-4	4	2.00	1.60	1.34	1.16
65F1298	699-2104-6	6	2.95	2.36	1.97	1.71
65F1299	699-2104-8	8	3.88	3.10	2.59	2.25
65F1300	699-2104-10	10	4.88	3.86	3.23	2.80
65F1301	699-2104-12	12	5.76	4.60	3.85	3.34
65F1302	699-2104-16	16	7.71	6.18	5.15	4.47
65F1303	699-2104-18	18	8.66	6.92	5.79	5.02
65F1304	699-2104-20	20	9.59	7.66	6.41	5.56

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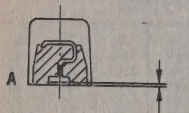
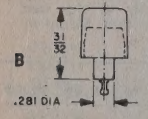
SINGLE ROW, THERMOPLASTIC: 94 V-O RECOGNIZED BY UL AND CERTIFIED BY CSA



.010MIN. LIVE METAL TO MOUNTING SURFACE

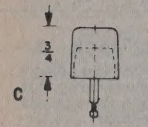
A 4797A PRINTED CIRCUIT MOUNT
⅜" CENTER, 20 AMPS, #16 AWG WIRE

Stk. No.	Type No.	Length	1-24	25-49	50-99	100-249
55F5469	4797A-2	1 3/16"	.43	.34	.29	.25
55F5470	4797A-4	1 9/16"	.76	.61	.51	.44
55F5471	4797A-6	2 5/16"	1.07	.86	.72	.62
55F5472	4797A-7	2 11/16"	1.24	.99	.83	.72
55F5473	4797A-8	3 1/16"	1.45	1.16	.97	.84
55F5474	4797A-9	3 7/16"	1.59	1.27	1.07	.92
55F5475	4797A-10	3 13/16"	1.76	1.41	1.18	1.02
55F5476	4797A-12	4 9/16"	2.07	1.65	1.38	1.20



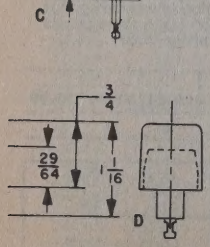
B 3797A INSULATED FEED-THRU MOUNT
⅜" CENTER, 20 AMPS, #16 AWG WIRE

55F5485	3797A-2	1 3/16"	.60	.48	.40	.35
55F5486	3797A-4	1 9/16"	.95	.76	.64	.55
55F5487	3797A-6	2 5/16"	1.31	1.05	.87	.76
55F5488	3797A-7	2 11/16"	1.48	1.18	.99	.86
55F5489	3797A-8	3 1/16"	1.62	1.29	1.08	.94
55F5490	3797A-9	3 7/16"	1.81	1.44	1.21	1.05
55F5491	3797A-10	3 13/16"	2.00	1.60	1.34	1.16
55F5492	3797A-12	4 9/16"	2.33	1.86	1.56	1.35



C 4697 PRINTED CIRCUIT MOUNT
7/16" CENTER, 20 AMPS, # AWG WIRE

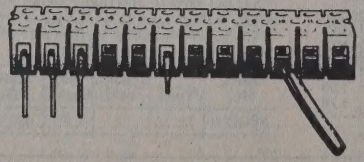
Stk. No.	Type No.	Length	24	49	99	249
55F5477	4697-2	31/32"	.48	.38	.32	.28
55F5478	4697-4	1 27/32"	.83	.67	.56	.48
55F5479	4697-6	2 23/32"	1.24	.99	.83	.72
55F5480	4697-7	3 1/32"	1.40	1.12	.94	.81
55F5481	4697-8	3 15/32"	1.59	1.27	1.07	.92
55F5482	4697-9	4 1/32"	1.79	1.43	1.19	1.04
55F5483	4697-10	4 15/32"	1.98	1.58	1.32	1.15
55F5484	4697-12	5 11/32"	2.33	1.86	1.56	1.35



D 3897A INSULATED FEED-THRU MOUNT
7/16" CENTER, 20 AMPS, #14 AWG WIRE

55F5493	3897A-2	31/32"	.81	.65	.54	.47
55F5494	3897A-4	1 27/32"	1.31	1.05	.87	.76
55F5495	3897A-5	2 23/32"	1.83	1.46	1.22	1.06
55F5496	3897A-7	3 1/32"	2.09	1.67	1.40	1.21
55F5497	3897A-8	3 15/32"	2.36	1.88	1.57	1.37
55F5498	3897A-9	4 1/32"	2.59	2.07	1.73	1.50
55F5499	3897A-10	4 15/32"	2.86	2.28	1.91	1.66
55F5500	3897A-12	5 11/32"	3.38	2.70	2.26	1.96

0987 SERIES—HI-VOLTAGE LOW-PROFILE TERMINAL BLOCKS



0987 Series—Hi-Lo™-Terminal Blocks™.—600 V—50 A. Accommodates wire sizes through AWG #8. Screws: steel nickel plated; Terminal Contacts: copper alloy, nickel plated; Feed-thru Contacts: copper alloy, electro tin plated. Made of 94V-O thermoplastic. UL, CSA & VDE Approved.

FLAT MOUNT

Stock No.	Type	Length	1-24	25-49	50-99	100-200
81F3733	0987A-01-02	.944	1.74	1.60	1.45	1.31
81F3734	0987A-01-03	1.416	2.58	2.37	2.15	1.95
81F3735	0987A-01-04	1.888	3.44	3.15	2.86	2.60
81F3736	0987A-01-05	2.360	4.31	3.99	3.59	3.26
81F3737	0987A-01-06	2.832	5.14	4.71	4.28	3.89
81F3738	0987A-01-07	3.304	5.84	5.35	4.86	4.43
81F3739	0987A-01-08	3.776	6.66	6.11	5.55	5.05
81F3740	0987A-01-09	4.248	7.52	6.89	6.26	5.69
81F3741	0987A-01-10	4.720	8.36	7.66	6.96	6.33
81F3742	0987A-01-11	5.182	9.20	8.43	7.66	6.96
81F3743	0987A-01-12	5.664	10.02	9.19	8.35	7.59

Terminal Boards

Kulka

DOUBLE ROW-THERMOSET
UL RECOGNIZED AND CSA CERTIFIED

OPEN BACK BOARDS

410 SERIES
1/4" CENTER, 5 AMPS, #18 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1120	410-6	2"	1.38	1.10	.92	.80
65F1121	410-8	2 1/4"	1.76	1.41	1.12	1.18
65F1122	410-10	3"	2.14	1.71	1.43	1.24
65F1123	410-12	3 1/2"	2.48	1.98	1.65	1.44
65F1124	410-14	4"	2.86	2.28	1.91	1.66
65F1125	410-16	4 1/4"	3.24	2.58	2.16	1.88
65F1126	410-18	5"	3.57	2.85	2.39	2.07
65F1127	410-20	5 1/2"	3.90	3.12	2.61	2.26
65F1128	410-22	5 3/4"	4.33	3.46	2.89	2.51

600 SERIES
3/8" CENTER, 15 AMPS, #14 AWG WIRE

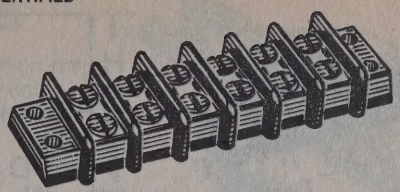
Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1160	600-2	1 13/32"	.33	.27	.22	.19
65F1161	600-3	1 25/32"	.48	.38	.32	.28
65F1162	600-4	2 5/32"	.60	.48	.40	.35
65F1163	600-5	2 17/32"	.74	.59	.49	.43
65F1164	600-6	3 29/32"	.86	.68	.57	.50
65F1165	600-7	3 9/32"	.98	.78	.65	.57
65F1166	600-8	3 21/32"	1.14	.91	.76	.66
65F1167	600-10	4 13/32"	1.40	1.12	.94	.81
65F1168	600-12	5 5/32"	1.64	1.31	1.10	.95
65F1169	600-14	5 29/32"	1.95	1.56	1.30	1.13
65F1170	600-16	6 21/32"	2.19	1.75	1.46	1.27
65F1171	600-18	7 13/32"	2.43	1.94	1.62	1.41
65F1172	600-20	8 5/32"	2.74	2.19	1.83	1.59
65F1173	600-22	8 29/32"	2.98	2.38	1.99	1.73

601 SERIES
7/16" CENTER, 20 AMPS, #14 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1184	601-2	1 5/8"	.40	.32	.27	.23
65F1185	601-3	2 1/16"	.57	.46	.38	.33
65F1186	601-4	2 1/2"	.71	.57	.48	.41
65F1187	601-5	2 15/16"	.88	.70	.59	.51
65F1188	601-6	3 1/8"	1.05	.84	.70	.61
65F1189	601-7	3 13/16"	1.21	.97	.81	.70
65F1190	601-8	4 1/4"	1.38	1.10	.92	.80
65F1191	601-10	5 1/8"	1.67	1.33	1.11	.97
65F1192	601-12	6"	2.00	1.60	1.34	1.16
65F1193	601-16	7 3/4"	2.02	2.09	1.75	1.52
65F1194	601-18	8 5/8"	2.93	2.34	1.96	1.70
65F1195	601-20	9 1/2"	3.26	2.60	2.18	1.89

602 SERIES
9/16" CENTER, 30 AMPS, #12 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1207	602-2	2 3/32"	.57	.46	.38	.33
65F1208	602-4	3 7/32"	1.05	.84	.70	.61
65F1209	602-6	4 11/32"	1.48	1.18	.99	.86
65F1210	602-8	5 15/32"	1.88	1.50	1.26	1.09
65F1211	602-10	6 19/32"	2.36	1.88	1.57	1.37
65F1212	602-12	7 23/32"	2.78	2.22	1.86	1.61
65F1213	602-14	8 27/32"	3.26	2.60	2.18	1.89
65F1214	602-16	9 31/32"	3.67	2.93	2.45	2.13
65F1215	602-18	11 3/32"	4.12	3.29	2.75	2.39
65F1216	602-20	12 7/32"	4.57	3.65	3.05	2.65



603 SERIES (OPEN BACK)
11/16" CENTER, 50 AMPS, #6 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1227	603-2	2 1/2"	1.31	1.05	.87	.76
65F1228	603-4	3 7/8"	2.40	1.92	1.61	1.39
65F1229	603-6	5 1/4"	3.50	2.79	2.34	2.03
65F1230	603-8	6 5/8"	4.59	3.67	3.07	2.66
65F1231	603-10	8"	5.69	4.54	3.80	3.30

670 SERIES (CLOSED BACK)
3/8" CENTER, 15 AMPS, #14 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1232	670-2	1 13/32"	.36	.29	.24	.21
65F1233	670-4	2 5/32"	.62	.49	.41	.36
65F1234	670-6	2 29/32"	.93	.74	.62	.54
65F1235	670-8	3 21/32"	1.21	.97	.81	.70
65F1236	670-10	4 13/32"	1.50	1.20	1.00	.87
65F1237	670-12	5 5/32"	1.79	1.43	1.19	1.04
65F1238	670-14	5 29/32"	2.07	1.65	1.38	1.20
65F1239	670-16	6 21/32"	2.36	1.88	1.57	1.37
65F1240	670-18	7 13/32"	2.67	2.13	1.78	1.55
65F1241	670-20	8 5/32"	2.93	2.34	1.96	1.70
65F1242	670-22	8 29/32"	3.24	2.58	2.16	1.88

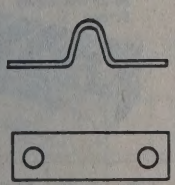
671 SERIES (CLOSED BACK)
7/16" CENTER, 20 AMPS, #14 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1251	671-2	1 5/8"	.40	.32	.27	.23
65F1252	671-4	2 1/2"	.71	.57	.48	.41
65F1253	671-6	3 3/8"	1.07	.86	.72	.62
65F1254	671-8	4 1/4"	1.38	1.10	.92	.80
65F1255	671-10	5 1/8"	1.71	1.37	1.14	.99
65F1256	671-12	6"	2.05	1.63	1.37	1.19
65F1257	671-14	6 7/8"	2.36	1.88	1.57	1.37
65F1258	671-16	7 3/4"	2.71	2.17	1.81	1.57
65F1259	671-18	8 5/8"	3.02	2.41	2.02	1.75
65F1260	671-20	9 1/2"	3.36	2.68	2.24	1.95

672 SERIES (CLOSED BACK)
9/16" CENTER, 30 AMPS, #14 AWG WIRE

Stk. No.	Type No.	Length	1-99	100-249	250-499	500-999
65F1269	672-2	2 3/32"	.67	.53	.45	.39
65F1270	672-4	3 7/32"	1.12	.89	.75	.65
65F1271	672-6	4 11/32"	1.62	1.29	1.08	.94
65F1272	672-8	5 15/32"	2.12	1.69	1.42	1.23
65F1273	672-10	6 19/32"	2.59	2.07	1.73	1.50
65F1274	672-12	7 23/32"	3.09	2.47	2.07	1.79
65F1275	672-14	8 27/32"	3.59	2.87	2.40	2.08
65F1276	672-16	9 31/32"	4.07	3.25	2.72	2.36
65F1277	672-18	11 3/32"	4.57	3.65	3.05	2.65
65F1278	672-20	12 7/32"	5.07	4.05	3.39	2.94

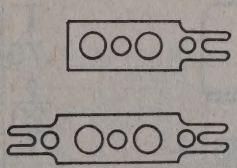
JUMPERS



J TYPE JUMPERS

Stk. No.	Type	Each Net
65F1313	602J	.03
65F1314	601J	.03
65F1315	600J	.02
65F1316	410J	.02

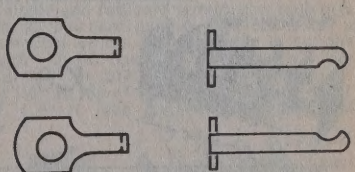
SOLDER TERMINALS



ST&¾SOLDER TERMINALS

Stk. No.	Type	Each Net
65F1317	600ST	.03
65F1318	600-¾ST	.03
65F1319	601ST	.05
65F1320	601-¾ST	.04
65F1321	602ST	.06
65F1322	602-¾ST	.06

SOLDER TERMINAL LUGS



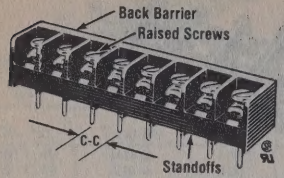
Y&Z SOLDER TERMINAL LUGS

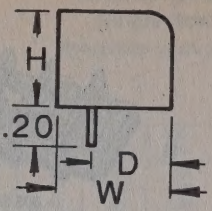
Stk. No.	Type	Each Net
65F1323	599Z	.02
65F1324	600Y	.02
65F1325	699Z	.04
65F1326	601Y	.04
65F1327	602Y	.06

10

RDI Reed Devices — BARRIER TERMINAL BLOCKS FOR PCB'S

BREAK RESISTANT





- Black Barrier safeguards components from field wiring, stops shorting of adjacent wires.
- Wire-clamping plate screws secures 2 different gauge wires without wire lugs.
- Stand offs allow cleaning flux from top side of pcb.
- Screws in wire-ready raised position.
- UL grade (94V-0) polypropylene.

3PCV .250"C—C H=.50", W=.55" 5 AMPS, 150 V.

Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
29F316	3PCV-04	1.07	1.22	1.10	1.04	.92
29F317	3PCV-05	1.32	1.53	1.38	1.30	1.15
29F318	3PCV-06	1.57	1.83	1.65	1.56	1.38
29F319	3PCV-07	1.82	2.14	1.93	1.82	1.61
29F320	3PCV-08	2.07	2.44	2.20	2.08	1.83
29F321	3PCV-09	2.32	2.75	2.47	2.34	2.06
29F322	3PCV-10	2.57	3.05	2.75	2.60	2.29

4PCV .325"C—C H=.50", W=.60" 15 AMPS, 150 V.

Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
29F2600	4PCV-04	1.38	1.06	.96	.91	.80
29F2601	4PCV-05	1.71	1.33	1.20	1.13	1.00
29F2602	4PCV-06	2.03	1.59	1.44	1.36	1.20
57F900	4PCV-07	2.36	1.86	1.67	1.58	1.40
29F603	4PCV-08	2.68	2.12	1.91	1.81	1.59
29F604	4PCV-09	3.01	2.39	2.15	2.03	1.79
29F605	4PCV-10	3.33	2.65	2.39	2.26	1.99

6PCV .375"C—C H=.60", W=.70" 20 AMPS, 300 V.

Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
29F2607	6PCV-02	.83	.49	.45	.42	.37
29F2608	6PCV-03	1.21	.74	.67	.63	.56
29F2609	6PCV-04	1.58	.98	.89	.84	.74
29F2610	6PCV-05	1.96	1.23	1.11	1.05	.92
29F2611	6PCV-06	2.33	1.47	1.33	1.25	1.11
29F3901	6PCV-07	2.71	1.72	1.55	1.46	1.29
29F2612	6PCV-08	3.08	1.96	1.77	1.67	1.47
29F2613	6PCV-09	3.46	2.21	1.99	1.88	1.66
29F2614	6PCV-10	3.83	2.45	2.21	2.09	1.84
57F3902	6PCV-11	4.21	2.70	2.43	2.29	2.03
29F2615	6PCV-12	4.58	2.94	2.65	2.50	2.21
57F3903	6PCV-13	4.96	3.19	2.87	2.71	2.39
29F2616	6PCV-14	5.33	3.43	3.09	2.92	2.58
57F3904	6PCV-15	5.71	3.68	3.31	3.13	2.76
29F2617	6PCV-16	6.08	3.92	3.53	3.34	2.94
57F3905	6PCV-17	6.46	4.17	3.75	3.54	3.13
29F2618	6PCV-18	6.83	4.41	3.97	3.75	3.31

8PCV .4375"C—C H=.70", W=.80" 25 AMPS, 300 V.

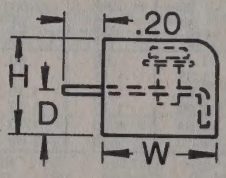
Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
57F3959	8PCV-02	.95	.57	.52	.49	.43
29F2633	8PCV-03	1.38	.86	.77	.73	.65
29F2634	8PCV-04	1.82	1.14	1.03	.97	.86
29F2635	8PCV-05	2.26	1.43	1.29	1.22	1.07
29F2636	8PCV-06	2.70	1.71	1.54	1.46	1.29
57F3960	8PCV-07	3.13	2.00	1.80	1.70	1.50
57F3961	8PCV-08	3.57	2.28	2.06	1.94	1.71
57F3962	8PCV-09	4.01	2.57	2.31	2.18	1.93
57F3963	8PCV-10	4.45	2.85	2.57	2.43	2.14

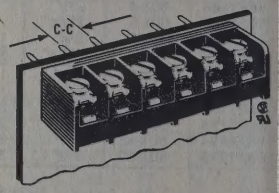
10

RIGHT ANGLE BLOCKS/FOR DIRECT INSERTION INTO PCB'S—NO EXTRA MOUNTING REQUIRED.

3PCR .250"C—C H= 50", W=.55", D=.23" 5 AMPS, 150 V.

Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
81F3754	3PCR-02	.57	.65	.59	.56	.49
81F3755	3PCR-03	.82	.98	.88	.83	.74
81F3756	3PCR-04	1.07	1.30	1.17	1.11	.98
81F3757	3PCR-05	1.32	1.63	1.47	1.39	1.22
81F3758	3PCR-06	1.57	1.95	1.76	1.66	1.47
81F3759	3PCR-07	1.82	2.28	2.05	1.94	1.71
81F3760	3PCR-08	2.07	2.60	2.34	2.21	1.95
81F3761	3PCR-09	2.32	2.93	2.64	2.49	2.20
81F3762	3PCR-10	2.57	3.25	2.93	2.77	2.44





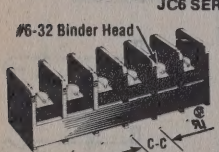
4PCR .325"C—C H=.50", W=.60", D=.23" 15 AMPS, 150 V.

Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
81F3763	4PCR-02	.73	.57	.52	.49	.43
81F3764	4PCR-03	1.06	.86	.77	.73	.65
81F3765	4PCR-04	1.38	1.14	1.03	.97	.86
81F3766	4PCR-05	1.71	1.43	1.29	1.22	1.07
81F3767	4PCR-06	2.03	1.71	1.54	1.46	1.29
81F3768	4PCR-07	2.36	2.00	1.80	1.70	1.50
81F3769	4PCR-08	2.68	2.28	2.06	1.94	1.71
81F3770	4PCR-09	3.01	2.57	2.31	2.18	1.93
81F3771	4PCR-10	3.33	2.85	2.57	2.43	2.14

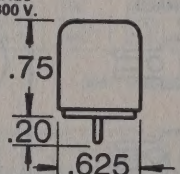
6PCR .375"C—C H=.60", W=.70", D=.27" 20 AMPS, 300 V.

Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
57F3914	6PCR-02	.83	.55	.50	.47	.42
29F2621	6PCR-03	1.21	.83	.75	.71	.62
29F2622	6PCR-04	1.58	1.10	.99	.94	.83
29F2623	6PCR-05	1.96	1.38	1.24	1.17	1.04
29F2624	6PCR-06	2.33	1.65	1.49	1.41	1.24
57F3915	6PCR-07	2.71	1.93	1.74	1.64	1.45
29F2625	6PCR-08	3.08	2.20	1.98	1.87	1.65
57F3916	6PCR-09	3.46	2.48	2.23	2.11	1.86
29F2626	6PCR-10	3.83	2.75	2.48	2.34	2.07
57F3920	6PCR-14	5.33	3.85	3.47	3.28	2.89

CENTERLINE TERMINALS
JC6 SERIES 20 AMPS, 300 V.

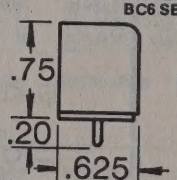


JC6

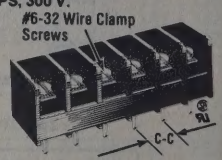


Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
81F3772	JC6-P102-02	.81	.39	.36	.34	.30
81F3773	JC6-P102-03	1.19	.59	.53	.50	.44
81F3774	JC6-P102-04	1.56	.78	.71	.67	.59
81F3775	JC6-P102-05	1.94	.98	.88	.83	.74
81F3776	JC6-P102-06	2.31	1.17	1.06	1.00	.88
81F3777	JC6-P102-07	2.69	1.37	1.23	1.17	1.03
81F3778	JC6-P102-08	3.06	1.56	1.41	1.33	1.17
81F3779	JC6-P102-09	3.44	1.76	1.58	1.50	1.32
81F3780	JC6-P102-10	3.81	1.95	1.76	1.66	1.47

BACK BARRIER—CENTERLINE TERMINALS
BC6 SERIES 20 AMPS, 300 V.



BC6

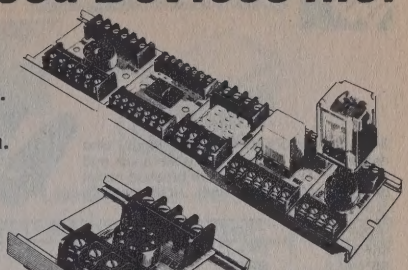


Stock Number	RDI Type	Length (inches)	1-29	30-49	50-99	100
81F3781	BC6-P104-02	.81	.49	.45	.42	.37
81F3782	BC6-P104-03	1.19	.74	.67	.63	.56
81F3783	BC6-P104-04	1.56	.98	.89	.84	.74
81F3784	BC6-P104-05	1.94	1.23	1.11	1.05	.92
81F3785	BC6-P104-06	2.31	1.47	1.33	1.25	1.11
81F3786	BC6-P104-07	2.69	1.72	1.55	1.46	1.29
81F3787	BC6-P104-08	3.06	1.96	1.77	1.67	1.47
81F3788	BC6-P104-09	3.44	2.21	1.99	1.88	1.66
81F3789	BC6-P104-10	3.81	2.45	2.21	2.09	1.84

SNAPTRACK™ Relay Sockets

- Save 30% installation time.
- Save 50% wiring time.
- Coil indication lamp option.

Snaptrack™ is a PVC non-conductive track up to 48" long which mounts quickly. There are 50 different sockets which will fit one track size. Sockets have break resistant barrier terminal strips. Screws have captive wire clamps as standard and are in raised position when shipped to reduce wiring time. Sockets assemblies fit into any position along track.



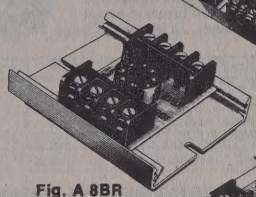


Fig. A 8BR

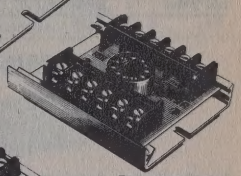


Fig. B 11BR

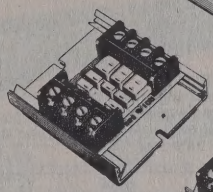


Fig. C 8BS

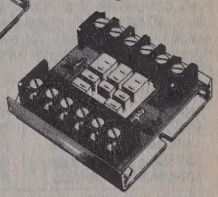


Fig. D 11BS

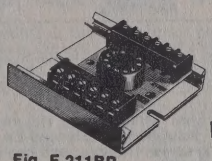


Fig. F 211BR

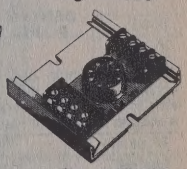


Fig. G 218BR

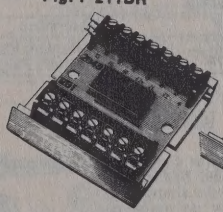


Fig. H 204BS

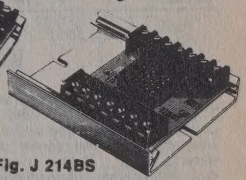


Fig. J 214BS

STANDARD SIZE—#8-32 Terminal Screws—For TK2 SNAPTRACK™

Stk. No.	Cat. No.	Fig.	Description	Length (Inch)	Prices Each 1-9	10-24	25-49	50-99
29F1200	8BR	A	8 pin Octal	2	3.90	3.55	3.15	2.75
29F1201	8BR1	A	8 pin Octal w/Lamp	2	5.15	4.65	4.15	3.65
29F1202	11BR	B	11 pin Round	3	6.00	5.40	4.80	4.20
29F1203	11BR1	B	11 pin Round w/Lamp	3	7.25	6.55	5.80	5.10
29F1204	8BS	C	8 pin KUP style	2	5.80	5.25	4.65	4.10
29F1205	11BS	D	11 pin KUP style	3	7.00	6.30	5.60	4.90
29F1206	11BS1	D	11 pin KUP Type w/Lamp	3	8.25	7.45	6.60	5.80

MINIATURE SIZE—#4-40 Screws—For TK2 SNAPTRACK™

29F1273	208BR	A	8 pin Octal	2	4.30	3.90	3.45	3.05
29F271	208BR1	A	8 pin Octal w/Lamp	2	5.25	4.75	4.20	3.70
29F1274	211BR	F	11 pin Round	2½	6.00	5.40	4.80	4.20
29F1275	211BR1	F	11 pin Round w/Lamp	2½	7.25	6.55	5.80	5.10
29F1272	218BR	G	8 pin Octal—Slim Width	1.5	4.10	3.70	3.30	2.90
29F274	204BS	H	Miniature Style—4 PDT	2.5	7.90	7.15	6.35	5.55
29F276	206BS	H	Miniature—6 PDT	3¼	14.00	12.60	11.20	9.80
29F1276	211BS	D	11 pin KUP style	2½	6.70	6.05	5.40	4.70
29F1277	211BS1	D	11 pin KUP w/Lamp	2½	7.95	7.20	6.40	5.60

COMPACT SIZE—#4-40 Terminal Screws—For 2TK2 SNAPTRACK™

29F281	318BR	G	8 pin Round	1.5	4.20	3.80	3.40	2.95
29F282	311BR	F	11 pin Round	2⅛	6.60	5.95	5.30	4.65
29F283	312BS	J	KHP Style 2 N.O. 2 SPDT	2⅛	6.80	6.15	5.45	4.80
29F284	314BS	J	KHP Style, 4 Pole	2.5	7.40	6.70	5.95	5.20

STANDARD SIZE—#6-32 Screws—For 2TK2 SNAPTRACK™

81F3744	708BR	A	8 pin Octal	2.0	5.38	4.88	4.32	3.82
81F3745	711BR	B	11 pin Round	2.9	8.50	7.69	6.82	6.00

SUBMINIATURE—#3-48 Screws—For 8TK2 SNAPTRACK™

81F3746	802BS	H	2PDT R10 Type	2.0	10.13	9.13	8.13	7.13
81F3747	804BS	H	4PDT R10 Type	2.25	8.80	7.95	7.05	6.20
81F3748	806BS	H	6PDT R10 Type	3.0	14.00	12.60	11.20	9.80
81F3749	814BS	J	4PDT KHP Type	2⅛	8.80	7.95	7.05	6.20

SNAPTRACK™ MOUNTING TRACK—Fig. L

For 3" Wide Sockets		For 2¾" Wide Sockets		For 2¼" Wide Sockets		Lgth. In.	Price Net, Each
Stock No.	Type No.	Stock No.	Type No.	Stock No.	Type No.		
29F1213	TK2-6	29F287	2TK2-6	81F3750	8TK2-6	6	.58
29F1214	TK2-12	29F288	2TK2-12	81F3751	8TK12-12	12	.95
29F1215	TK2-24	29F289	2TK2-24	81F3752	8TK2-24	24	1.78
29F1216	TK2-48	29F290	2TK2-48	81F3753	8TK2-48	48	3.30

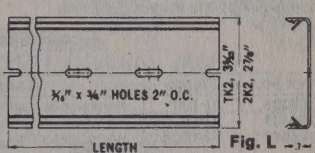


Fig. L

P.C. BOARD EDGE CONNECTOR ASSEMBLY/KLUGE BOARD—Fig. M

Stk. No.	Cat. No.	No. of Pins Out	Edge Connector Style	Prices Each 1-9	10-24	25-49	50-99
29F291	22PCB	22	Elco 6022	18.50	16.65	14.80	12.95
29F292	22PC	22	Amphenol 143	19.50	17.55	15.60	13.65
29F293	44PCB	44	Elco 6022	27.50	24.75	22.00	19.25

Solve single and two card termination problems. Converts 22 pin card guided edge connector to screw terminal wiring. Also available is optional 22-pin pcb "Kluge" board for prototyping circuits. Holes drilled for DIP devices. Terminal size: 5" W. x 1¼" H. top of terminal block. PCB size*: 4.5" W. x 5" H max. suggested. (Guide depth 2½".)

FIG. P SM 8

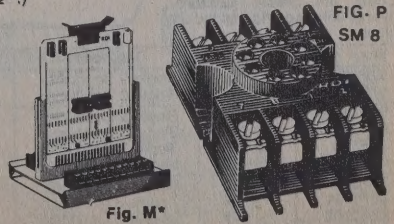
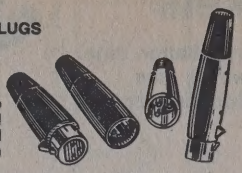


Fig. M*

MOLDED STYLE—for mounting style relays—Fig. P.—Fits 2TK SNAPTRACK™

Stk. No.	Cat. No.	Fig	Description	Length (Inch)	Prices Each 1-9	10-24	25-49	50-99
29F295	SM8	P	8 pin Octal-Wire Clamps	1⅝"	3.25	2.95	2.60	2.30
29F296	SM11	P	11 pin Round-Wire Clamps	2⁷/₁₆"	5.45	4.95	4.40	3.85

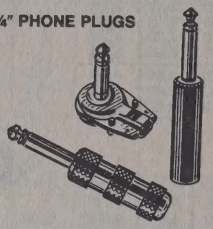
PRO-LINE PLUGS



3-pin connectors for the professional who demands the ultimate in appearance and reliability. Available in either brushed nickel or conductive black finish. Available with gold contacts.

Stock No.	Type	Housing Finish	Plug Type	Each
65F2460	PF3-1	Nickel	Female	4.10
65F2462	BPF3-1	Black	Female	4.80
65F2461	PM3-1	Nickel	Male	3.60
65F2463	BPM3-1	Black	Male	4.15

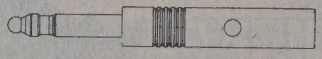
MULTI-PURPOSE HI-IMPEDANCE ¼" PHONE PLUGS



Two-Conductor—Solder Terminals
Fully compatible and interchangeable with other standard ¼" plugs. Available with metal or plastic shells. All metal parts are brass. Plastic insulating tube has higher dielectric strength.

Stock No.	Type	Shell	Tip & Sleeve	Each
13F5041	AP280	Nickel Plated Brass	Nickel Plated	2.35
13F5042	AP280B	Brass	Brass	2.35
13F5043	AP228	Right Angle/Steel	Nickel Plated	2.25
13F5044	AP250	Black Plastic	Nickel Plated	1.80
13F5045	AP255	Red Plastic	Nickel Plated	1.80

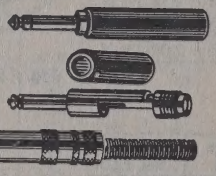
BANTAM PLUGS



Attachable Single and Dual Bantam Plugs are manufactured of profiled construction using nylon insulation for extended life. Each plug is supplied with shell, shell mounting screw, two lugs, and two lug attachment screws. Available in Black or Red shells.

Stock No.	Type	Description	Each
65F296	PJ-777	Single Bantam Plug	6.70
65F297	PJ-778	Dual Bantam Plug	13.20

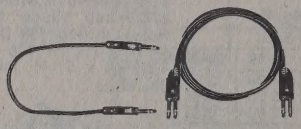
HEAVYWEIGHT PLUGS



All brass plugs designed for durability. They incorporate the best features of military plugs with the audio shaped tip. Available with the screw on metal or plastic shell. Crimp ring supplied. Optional flex relief spring is available for use with AP100B to increase cord life.

Stock No.	Type	Description	Each
13F5038	AP100	Heavyweight with black plastic shell	3.45
13F5039	AP100B	Heavyweight with brass shell	5.40
13F5040	RS100B	Brass plated flex relief for use with AP100B	.14

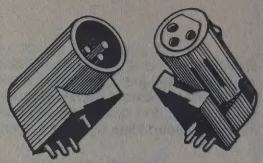
BANTAM PATCH CORDS



Cords are plastic jacketed, overall shielded and molded on plugs.

Stock No.	Type	Description	Length	Each
57F086	PJ-702	Single 2 Conductor	12"	11.05
57F187	PJ-704	Single 2 Conductor	24"	11.35
57F196	PJ-712	Single 3 Conductor	12"	12.70
57F197	PJ-714	Single 3 Conductor	24"	13.25
57F198	PJ-716	Single 3 Conductor	36"	13.75
57F199	PJ-718	Single 3 Conductor	48"	14.25
57F088	PJ-720	Single 3 Conductor	60"	14.80
57F1191	PJ-764	Double 3 Conductor	24"	20.40
57F1192	PJ-766	Double 3 Conductor	36"	21.55
57F089	PJ-770	Double 3 Conductor	60"	23.20

LOW IMPEDANCE RIGHT ANGLE RECEPTACLES

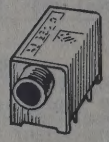


PCF3-1 PCM3-1WG

Eliminate the need for discrete wiring or mother/daughter arrangements. Available in 12.5mm and 10mm heights. Silver plated contacts shield circuit grounds for metal plugs.

Stock No.	Type	Description	Each
81F1907	PCF3-1	Rt. angle PC plug-female	3.40
81F1908	PCM3-1WG	Rt. angle PC plug-male with ground	3.40
81F1909	PCM3-1	Rt. angle PC plug-male without ground	3.25
81F1910	BRK-PCB	Mounting bracket	.45

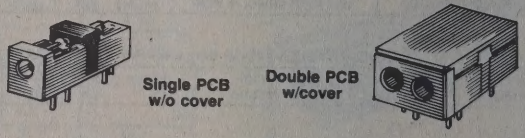
RIGHT ANGLE PC JACKS



Eliminate need for discrete wiring or mother/daughter board arrangements. Mount directly to board. Available with or without shunts. May be mounted with screws.

Stock No.	Type	Description	Each
81F1911	AJ318-1	Two conductor-12.5mm	1.60
81F1912	AJ318-2	Two conductor-18mm	1.75
81F1913	AJ339-1	Three conductor 12.5mm	1.90
81F1914	AJ339-2	Three conductor 18mm	2.15

BANTAM PRINTED CIRCUIT BOARD JACKS



Single PCB w/o cover

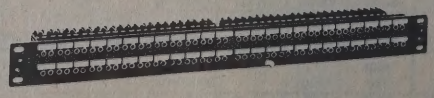
Double PCB w/cover

Mounts directly to circuit board. No external switching. Color selection for coding. Interfaces with industry standard Bantams and miniature telephone jacks. Compact design conserves space. Dust cover inhibits contamination.

Packaging provides addition environmental protection.

Stock No.	Type	Description	Schematic	Each
13F5010	PC-834J	Single jack, black	F	
13F5011	PC-834J	Single jack, blue	F	
13F5012	PC-834J	Single jack, red	F	2.40
13F5013	PC-834J	Single jack, white	F	
13F5014	PC-834C	Single cover, black	—	
13F5015	PC-834C	Single cover, blue	—	
13F5016	PC-834C	Single cover, red	—	.31
13F5017	PC-834C	Single cover, white	—	
13F5018	PC-888J	Dual jack, black	F*	
13F5019	PC-888J	Dual jack, blue	F*	
13F5020	PC-888J	Dual jack, red	F*	4.75
12F5021	PC-888J	Dual jack, white	F*	
13F5022	PC-888C	Dual cover, black	—	
13F5023	PC-888C	Dual cover, blue	—	
13F5024	PC-888C	Dual cover, red	—	.35
13F5025	PC-888C	Dual cover, white	—	

BANTAM JACK PANELS



Stock No.	Type	Holds	Each
57F173	PJ-731	96 jacks, less jacks	47.50
57F080	PJ-789	48 PJ-889 Back-to-Back jacks	371.00

Plugs, Cords and Sound Connectors

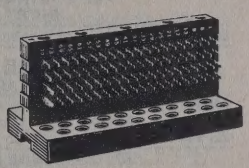
ADC Products
A DIVISION OF MAGNETIC CONTROLS COMPANY

LONGFRAME PLUGS

ADC standard ¼" 2- and 3-conductor plugs are manufactured in accordance with stringent WE and military requirements.

Stock No.	Type	WE/MIL Equiv.	Description	Each
57F130	PJ-1	WE-241	2-conductor dual common sleeves.	8.87
57F163	PJ-327	WE-327	Two independent 2-conductor plugs.	9.72
57F131	PJ-051R	642/2-2	3-conductor for use with T-R-S jacks.	4.26
57F073	PJ-7	WE-425	Twin T-R-S conductors on ⅝ centers.	10.37
57F074	PJ-310	WE-310	Standard T-R-S ¼" plug.	4.42
57F075	PJ-055B	642/4-1	.207 dia. sleeve 3-conductors.	1.92

TERMINAL BLOCKS



20 PIN

Stock No.	Type	No. of Rows	Height	Each
57F102	PJ-103	3	2.59"	13.98
57F103	PJ-104	4	2.94"	15.83
57F104	PJ-105	5	3.28"	17.68
57F105	PJ-106	6	3.63"	19.50

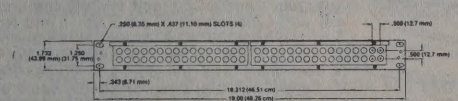
26 PIN

Stock No.	No. of Rows	Solder/ Solder	Stock No.	Wire Wrap Wire Wrap	Height	Each
65F280	4	PJ-660-4	65F290	PJ-660-4WW	2.750"	15.99
57F078	5	PJ-660-5	65F291	PJ-660-5WW	3.062"	17.49
57F079	6	PJ-660-6	65F292	PJ-660-6WW	3.375"	19.14
65F281	8	PJ-660-8	65F293	PJ-660-8WW	4.0"	22.10
65F282	10	PJ-660-10	65F294	PJ-660-10WW	4.625"	25.42
65F283	12	PJ-660-12	65F295	PJ-660-12WW	5.250"	28.34

WRAPID TERMINAL BLOCKS

Stock No.	Type	Rows	Height	Each
65F284	PJ-604	4	1.75"	6.96
65F285	PJ-606	6	2.25"	7.87
65F286	PJ-608	8	2.75"	8.84
65F287	PJ-610	10	3.25"	9.75
65F288	PJ-612	12	3.75"	10.73

MID-SIZE COAXIAL PANEL



Aluminum black finish frame. Inserts: black thermoplastic. Mid-size panel type CJ-1535.

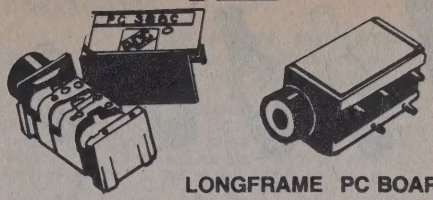
81F9202 ..... $58.60

MID-SIZE COAXIAL JACKS

Single jack plugs for use with the 75 ohm RG59 U cable.

Stock No.	Type	Description	Each
81F1922	CJ1510N*	Single plug Panel mount	11.25
81F1923	CJ1520N*	Dual plug	58.60
81F1924	CJ1540N*	Single plug	9.75

*Available with gold plating on all contact surfaces.

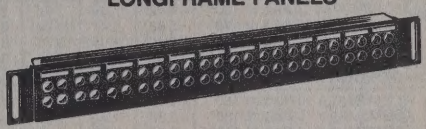


LONGFRAME PC BOARD JACKS

Light weight units provide access points for constricted confines of PC board layouts. Mount on .625 centers. No external switches required. Dust covers available. Case: Black thermoplastic polyester.

Stock No.	Type	Description	Each
81F1920	PC-388J	Single jack Black	1.17
81F1921	PC-388C	Dust cover Black	.13

LONGFRAME PANELS



Molded of solid phenolic, reinforced with steel for added strength. Equipped with mounting brackets and designation strips. Designed for 19" mounting.

Stock No.	Type	Height	Positions	Each
57F108	PJ-30	1¾"	52	20.25
57F106	PJ-31	2⅛"	48	26.26
57F110	PJ-33	2⅛"	24	25.51

LONGFRAME JACK PANELS WITH JACKS

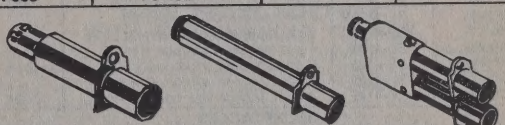
Jacks accept ADC standard 2- and 3-conductor plugs. Jacks are spaced permitting use of double plugs with standard ⅝" centers.

Stock No.	Type	Equipped With	Each
57F069	PJ-390	52—PJ-339	110.50
57F107	PJ-341	48—PJ-318	91.65
57F070	PJ-391	48—PJ-339	117.65
57F071	PJ-393	24—PJ-339	88.40

LONGFRAME JACKS

One piece frame, WE #1 gold crossbar contacts welded to nickel silver springs. Insulation of XXXP phenolic. 6-32 mounting screws included. *Double with normals tied.

Stock No.	Type	Stack Height	Each
57F112	PJ-238	9/16	1.92
57F119	PJ-318	½	1.82
57F116	PJ-339	9/16	2.11
57F068	PJ-482	9/16	5.82



STANDARD SIZE COAXIAL JACKS

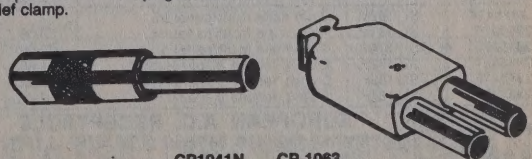
Designed for patching or accessing high frequency signals from DC to 100 MHz.

Stock No.	Type	Description	Each
81F1915	CJ-1000N	Single jack*	21.25
81F1916	CJ-1011N	Single jack*	21.20
81F1917	CJ-1014N	Multi purpose jack*	58.60

*Available with gold plating on all surfaces.

STANDARD SIZE COAXIAL PLUGS

Compatable with WE plugs. Standard wrench fittings includes cable strain relief clamp.



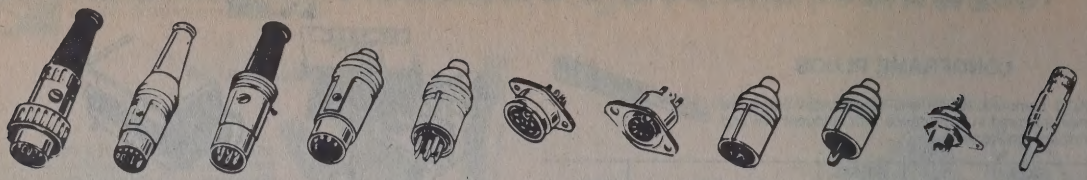
CP1041N CP-1063

Stock No.	Type	Description	Each
81F1918	CP-1063N	Dual plug*	14.20
81F1919	CP-1041N	Single jack*	21.95

*Available with gold plating on all contacts. Will fit any long frame panel.

10

SWITCHCRAFT Audio Connectors



Exact replacement plugs and receptacles for most foreign built tape recorders, radios, computers, and test equipment. Designed for all low level circuitry. Nickel plated barrel with plastic "snap-on" shells.

MALE PLUGS

FIG. A—STRAIGHT CORD WITH 30° LOCK RING PIN

Stock No.	Type	Description	1-9	10-24	25-99	100-249
22F454	05CL3M	3 Pins at 180°	4.92	3.69	3.38	2.77
22F455	05CL5M	5 Pins at 180°	5.88	4.41	4.04	3.31
22F456	09CL4M	4 Pins at 210°	5.40	3.04	3.71	3.04
22F457	12CL5M	5 Pins at 240°	5.88	4.41	4.04	3.31

FIG. B—STRAIGHT CORD PLUG WITH SHIELDED BARRELL

22F458	05GM3M	3 Pins at 180°	2.12	1.59	1.46	1.19
22F459	05GM5M	5 Pins at 180°	2.36	1.77	1.62	1.33
22F465	09GM4M	4 Pins at 210°	2.16	1.62	1.49	1.22
22F466	12GM5M	5 Pins at 240°	2.44	1.83	1.68	1.37

FIG. C—STRAIGHT CORD PLUG WITH EXTENDED BARRELL

22F467	05BL3M	3 Pins at 180°	2.80	2.10	1.93	1.58
22F468	05BL5M	5 Pins at 180°	3.04	2.28	2.09	1.71
22F469	12BL5M	5 Pins at 240°	3.04	2.28	2.09	1.71

SLIMLINE MINIATURE AUDIO CONNECTORS

SL-40 SL-41 SL-10 SL-17 SL-18

Features interchangeable inserts, allows plug or receptacle to be male or female. Housing provides shielding for internal circuitry. Polarized inserts. Accepts cable up to 9/32" dia. Insert pins are silver plated brass, molded into inserts.

CORD PLUGS

Stock No.	Type	Description	Net
23F5450	SL-402M	2 pin male w/coupler ring	2.64
23F5451	SL-403M	3 pin male w/coupler ring	2.76
23F5452	SL-404M	4 pin male w/coupler ring	2.88
23F5453	SL-402F	2 cont. female w/coupler ring	2.04
23F5454	SL-403F	3 cont. female w/coupler ring	2.16
23F5455	SL-404F	4 cont. female w/coupler ring	2.24
23F5456	SL-412M	2 pin male w/o coupler ring	
23F5457	SL-413M	3 pin male w/o coupler ring	
23F5458	SL-414M	4 pin male w/o coupler ring	
23F5459	SL-412F	2 cont. female w/o coupler ring	2.16
23F5460	SL-413F	3 cont. female w/o coupler ring	
23F5461	SL-414F	4 cont. female w/o coupler ring	2.24

RECEPTACLES

Stock No.	Type	Description	Net
23F5462	SL-102M	2 pin male flange mount	1.96
23F5463	SL-103M	3 pin male flange mount	2.08
23F5464	SL-104M	4 pin male flange mount	2.04
23F5465	SL-102F	2 cont. female flange mount	1.64
23F5466	SL-103F	3 cont. female flange mount	1.88
23F5467	SL-104F	4 cont. female flange mount	2.04
23F5468	SL-172M	2 pin male rear/panel mt.	
23F5469	SL-173M	3 pin male rear/panel mt.	2.08
23F5470	SL-174M	4 pin male rear/panel mt.	2.20
23F5471	SL-172F	2 cont. female rear/panel mt.	1.88
23F5472	SL-173F	3 cont. female rear/panel mt.	1.92
23F5473	SL-174F	4 cont. female rear/panel mt.	2.12
23F5474	SL-182M	2 pin male front/panel mt.	
23F5475	SL-183M	3 pin male front/panel mt.	2.08
23F5476	SL184M	4 pin male front/panel mt.	2.20
23F5477	SL-182F	2 cont. female fr./panel mt.	1.88
23F5478	SL-183F	3 cont. female fr./panel mt.	1.92
23F5479	SL-184F	4 cont. female fr./panel mt.	2.12

EUROPEAN A.C. RECEPTACLE

Meets I.E.C. standards. 3 pins. .078" x .157"; rated at 250V, 6 AMP. U.L. and C.S.A. approved. Mounts in a rectangular 1 1/16" x 3 1/4" hole and two 1/8" dia. holes.

Stock No.	Type	1-9	10-24	25-99	100-249
26F719	ECA-301	1.28	.96	.88	.80
36 F1256	EAC-302	1.48	1.11	1.02	.83

Molded phenolic in all inserts, and silver plated contact pins provide low mechanical interference, reduce noise and lower contact resistance. Lock-ring coupling to prevent shock. Exclusive automatic grounding and polarization provision.

MALE PLUGS

FIG. D—STRAIGHT CORD PLUG WITH SNAP-LOCK PLASTIC SHELL

Stock No.	Type	Description	1-9	10-24	25-99	100-249
22F478	05LK3M	3 Pin at 180°	1.80	1.35	1.24	1.01
22F481	12KL5M	5 Pins at 240°	2.24	1.68	1.54	1.26

FIG. E—STRAIGNT CORD PLUG WITH SHORT PLASTIC SHELLS

22F536	12QK5M	5 Pins at 240°	1.68	1.26	1.16	1.05

FEMALE RECEPTACLES

FIG. F—RECEPTACLES FOR LOCKING PLUGS

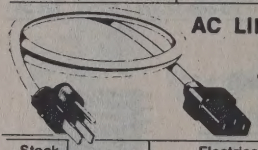
22F537	57HA3F	3 Cont. at 180°	2.24	1.68	1.54	1.26
22F543	60HA4F	4 Cont. at 210°	2.40	1.80	1.65	1.35
22F544	61HA5F	5 Cont. at 240°	2.68	2.01	1.84	1.51

FIG. G—FLANGE MOUNT RECEPTACLE FOR SHIELDED BARREL PLUGS

Stock No.	Type	Description	1-9	10-24	25-49	50-99
22F545	57GA3F	3 Cont. at 180°	1.28	.96	.88	.72
22F546	57GB5F	5 Cont. at 180°	1.60	1.20	1.10	.90
22F547	60GA4F	4 Cont. at 210°	1.32	.99	.91	.75
22F548	61GA5F	5 Cont. at 240°	1.52	1.14	1.05	.86

CONTROL AND SWITCHING PLUGS WITH SNAP-ON SHELLS

22F566	01QK2M	Male Fig. I	1.00	.75	.69	.57
22F567	02QK2F	Female Fig. H	1.48	1.11	1.02	.84

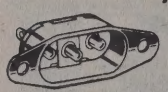


AC LINE CORD

#18 AWG cond., UL type SVT cordage. Lgth. is 7½' with heavy black vinyl jacket. Male plug is 3 pin type. U.L. and C.S.A. recognized. Female connector is designed to meet I.E.C. req.

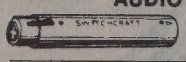
Stock No.	Type	Electrical Specifications	1-9	10-24	25-49	50-99
26F720	P-2392	3-cond. 7 amps DC 7 amps AC, 125V.	5.12	3.84	3.52	2.88

AC RECEPTACLES



3 brass contact pins are silver plated, chromate dipped. AC3 and LAC3 (ungrounded) and AC3G and LAC3G (grounded) allow movement of pins No. 1 and No. 3 in the shell to take up any off centering of mating plug contacts. Center pin No. 2 is stationary and serves as a guide. Receptacles AC3 and AC3G have .122" dia. pins. LAC3GD, same as LA3G, except center pin is 1/8" longer. LAC3, LAC3G and LAC3GD have .124" dia. pins. U.L. approved. LAC3GD is also C.S.A. approved. Rating: 115V. 7 amps.

Stock No.	Type	1-9	10-24	25-99	100-249
26F723	LAC3G	1.80	1.35	1.24	1.01
26F724	LAC3GD	1.92	1.44	1.32	1.08



AUDIO CONNECTOR ADAPTER

Male insert at one end, female insert other end. For use as a transformer, attenuator circuit, etc. Length 4".

Stock No.	Type	Insert Pins/ Contacts	1-9	10-24	25-99	100-249
26F721	S3FM	3	7.44	5.58	5.12	4.19

RF JACKS AND PLUGS

3505F mnts. front of panel in 3/8" hole. Fits panel up to 1 1/64" thick. **3507** has 1 3/32" O.D. shielded. Screw-on handle with cable clamp.

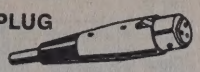
Stock No.	Type	Fig.	Description	1-9	10-24	25-99	100-249
26F717	3505F	J	Chassis jack	.96	.72	.66	.54
26F718	3507	K	Plug	1.20	.90	.83	.68

10

"QUICK GROUND" CONNECTORS

Feature a separate "Ground-Terminal" electrically integral with the connector shell. Ground continuity between mating plugs automatically accomplished. Socket and pin assemblies utilize "wedge-action" to assure firm, reliable positioning. ***Asterisk** denotes black velvet finish. All others satin nickel.

STRAIGHT FEMALE PLUG



Fresh, streamlined design includes rugged, diecast zinc body, satin nickel finish. Grounding feature offers 4-, 5-, 6-contact versatility. Mates with straight male plugs with similar arrangements. ***Asterisk** denotes black velvet finish. All others satin nickel.

Stock No.	Type	No. Con.	1-9	10-24	25-99	100-249
27F066	A3F	3	3.64	2.73	2.50	2.05
22F1060	A3FB*	3	4.16	3.12	2.86	2.34
27F067	A4F	4	4.56	3.42	3.14	2.57
39F2274	A5F	5	7.48	5.61	5.14	4.21

STRAIGHT MALE PLUG

One-piece pin insert assembly easily removable for fast soldering. Polarizing groove. Mates with straight female plugs and other connectors with similar contact arrangements. Overall length 2 25/32"; dia. 3/4". ***Asterisk** denotes black velvet finish. All others satin nickel.

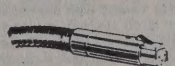
Stock No.	Type	No. Pins	1-9	10-24	25-99	100-249
27F068	A3M	3	3.16	2.37	2.17	1.78
23F1061	A3MB*	3	3.76	2.82	2.59	2.12
27F069	A4M	4	3.36	2.52	2.31	1.89
39F2275	A5M	5	5.96	4.47	4.10	3.35

RIGHT-ANGLE MALE AND FEMALE PLUGS

Rugged die-cast housing. Ideal for equipment with limited space for connectors. Mates with straight male and female plugs and other similar connectors and receptacles.

Stock No.	Type	No. Con./Pins	1-9	10-24	25-99	100-249
39F2284	R3F	3	8.24	6.18	5.67	4.64
39F2285	R4F	4	9.28	6.96	6.38	5.22
39F2286	R5F	5	12.68	9.51	8.72	7.13
39F2287	R3M	3	7.60	5.70	5.23	4.28
39F2288	R4M	4	7.80	5.85	5.36	4.39
39F2289	R5M	5	11.12	8.34	7.65	6.26

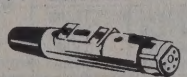
FEMALE PLUG



Mounts directly to a flexible gooseneck and/or microphone stem. 5/8-27NS-2B internal thread, 9/16" deep. Overall length 2 1/4"; dia. 3/4".

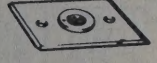
Stock No.	Type	No. Con.	1-9	10-24	25-99	100-249
22F1023	P3F	3	5.00	3.75	3.44	2.81

FEMALE PLUG WITH ON-OFF SWITCH



Connect directly to microphones. Built-in submin. slide switch permits instant on-off control of audio. Switch provides in-line DPDT (2-C) switching — Has locking switch; 3 61/64" L; dia. 3/4".

Stock No.	Type	No. Con.	1-9	10-24	25-99	100-249
22F1025	T3F	3	11.12	8.34	7.65	6.26



WALL PLATES WITH MALE SOCKETS

Single gang wall plates with male panel sockets. Fits standard electrical outlet box. 4 1/2" H. x 2 3/4" W. Stainless steel finish.

Stock No.	Type	No. Pins	1-9	10-24	25-99	100-249
27F1000	G3MS	3	7.76	5.82	5.34	4.37
22F1028	G4MS	4	8.24	6.18	5.67	4.64

WALL PLATES WITH FEMALE RECEPTACLES

Single gang wall plates with female receptacle. Fits standard electrical outlet box. 4 1/2" H. x 2 3/4" W. Stainless steel finish.

Stock No.	Type	No. Con.	1-9	10-24	25-99	100-249
22F1029	J3FS	3	8.16	6.12	5.61	4.59
22F1030	J4FS	4	8.40	6.30	5.78	4.73

MALE PANEL SOCKETS

For panel or chassis mounting; locknut accommodates panels up to 1/4" thick. Single hole mounting, can be keyed by using "D" shaped panel hole or S-3519 mounting adapter. Mates with straight female plugs and other connectors with similar contact arrangements. Flange 1 7/64" dia.; Barrel 1 7/16" overall; pin extension 9/32". ***Asterisk** denotes black velvet finish. All others satin nickel.

Stock No.	Type	No. Pins	1-9	10-24	25-99	100-249
27F062	B3M	3	4.52	3.39	3.11	2.54
22F1063	B3MB*	3	5.40	4.05	3.71	3.04
27F065	B4M	4	4.64	3.48	3.19	2.61
39F2279	B5M	5	7.64	5.73	5.25	4.30

FEMALE PANEL SOCKETS

Panel mount receptacle. Supplied with 1 1/4-18 UNEF spanner nut; mounts in 1 1/4" dia. hole, in panels up to 7/16" thick. Mates with straight male plugs and other similar connectors. ***Asterisk** denotes black velvet finish. All others satin nickel.

Stock No.	Type	No. Con.	1-9	10-24	25-99	100-249
39F2276	B3F	3	7.48	5.61	5.14	4.21
22F1062	B3FB*	3	9.04	6.78	6.22	5.09
39F2277	B4F	4	7.80	5.85	5.36	4.39
39F2278	B5F	5	10.84	8.13	7.45	6.10

MALE PANEL SOCKETS WITH FLANGE

Mounts on wall panel or chassis with three .140" dia. mounting holes. High impact thermosetting plastic pin insert. Mates with straight female plugs and other connectors with similar contact arrangements. Flange 1 7/16" dia.; Barrel 1 3/16" overall; pin extensions 9/32".

Stock No.	Type	No. Pins	1-9	10-24	25-99	100-249
27F060	C3M	3	3.04	2.28	2.09	1.71
27F064	C4M	4	3.24	2.43	2.23	1.82
39F2280	C5M	5	5.76	4.32	3.96	3.24

FEMALE PANEL SOCKETS WITH FLANGE

For panel or chassis mounting; has socket insert, push-type latch locking device. Flange has three .140" holes for mounting screws. Mates with Switchcraft straight male plugs and other similar connectors.

Stock No.	Type	No. Con.	1-9	10-24	25-99	100-249
27F059	C3F	3	4.56	3.42	3.14	2.57
27F063	C4F	4	5.76	4.32	3.96	3.24
39F2281	C5F	5	9.36	7.02	6.44	5.27

MALE PANEL SOCKETS WITH RECTANGULAR FLANGE

Narrow, rectangular flange design for mounting on compact panel or chassis. Mates with straight female plugs and other similar connectors. ***Asterisk** denotes black velvet. All others satin finish.

Stock No.	Type	No. Pins	1-9	10-24	25-99	100-249
27F072	D3M	3	3.04	2.28	2.09	1.71
22F1065	D3MB*	3	3.84	2.88	2.64	2.16
22F1031	D4M	4	3.24	2.43	2.23	1.82
39F2283	D5M	5	5.76	4.32	3.96	3.24

FEMALE PANEL SOCKETS WITH RECTANGULAR FLANGE

Rectangular flange design permits close mounting on crowded panel or chassis. Positive latch locking device and high impact thermosetting socket insert. Mates with straight male plugs and other connectors with similar contact arrangements. ***Asterisk** denotes black velet finish. All others satin nickel.

Stock No.	Type	No. Con.	1-9	10-24	25-99	100-249
27F070	D3F	3	4.20	3.15	2.89	2.36
22F1064	D3FB*	3	5.00	3.75	3.44	2.81
27F071	D4F	4	5.28	3.96	3.63	2.97

WALL PLATES WITH FEMALE RECEPTACLES

Two gang wall plates with two female receptacles. Mounts in standard electrical outlet junction box 4 1/2" H. x 2 3/4" W. Stainless steel finish.

Stock No.	Type	No. Pins	1-9	10-24	25-99	100-249
22F1032	K3FS	3	11.48	8.61	7.89	6.46
22F1033	K4FS	4	12.32	9.24	8.47	6.93

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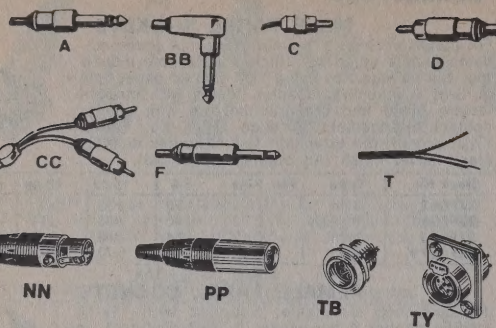
®Registered trademark of Switchcraft.

Audio Cable Assemblies



Molded cable assemblies offer built-in cable clamps to support cable. Cable is chrome grey with matching plastic handles. Fig. N, Q-G 3-Pin Audio Connector—Female. Fig. P, Q-G 3-Pin Audio Connector. **25WN25** have molded brown handles and low visibility rip cord cables.

Stock No.	Type	Terminations End No.1 Fig.	Terminations End No. 2 Fig.	Length	1-9	10-24	25-49	50-99

STRAIGHT 2-CONDUCTOR PHONE PLUG TO VARIOUS CONNECTIONS

37F2905	05AC05	A	A	18″	3.44	2.58	2.37	1.94
37F2906	05AD05	A	A	24″	3.48	2.61	2.39	1.96
37F2907	05AK05	A	A	6′	5.28	3.96	3.63	2.97
37F2908	05AN05	A	A	10′	5.36	4.02	3.69	3.02
37F2909	05AU05	A	A	25′	7.16	5.37	4.92	4.03
37F2910	05AK15	A	BB	6′	4.20	3.15	2.89	2.36
37F2911	05AK25	A	C	6′	3.40	2.55	2.34	1.91
37F2912	05AN25	A	C	10′	4.60	3.45	3.16	2.59
37F2914	05AN80	A	H	10′	6.76	5.07	4.65	3.80
37F2915	05AR80	A	H	15′	6.96	5.22	4.79	3.92
37F2916	05AU80	A	H	25′	9.00	6.75	6.19	5.06
37F2917	05AK84	A	T	6′	2.68	2.01	1.84	1.51

STRAIGHT PHONO PLUG TO VARIOUS CONNECTIONS

37F2925	25AK80	C	H	6′	4.60	3.45	3.16	2.59
37F2926	25AC82	C	G	18″	2.20	1.65	1.51	1.24
37F2927	25AF82	C	G	36″	2.52	1.89	1.73	1.42
37F2928	25AH82	C	G	4′	2.68	2.01	1.84	1.51
37F2929	25AK82	C	G	6′	2.92	2.19	2.01	1.64
37F2930	25AN82	C	G	10′	4.08	3.06	2.81	2.30
37F2931	25AR82	C	G	15′	4.68	3.51	3.22	2.63
37F2932	25AT82	C	G	20′	5.20	3.90	3.58	2.93
37F2933	25AU82	C	G	25′	6.16	4.62	4.24	3.47
37F2936	25AC84	C	T	18″	1.24	.93	.86	.70
37F2938	25AH84	C	T	4′	1.68	1.26	1.16	.95
37F2939	25AK84	C	T	6′	1.96	1.47	1.35	1.10
37F2940	25AN84	C	T	10′	2.80	2.10	1.93	1.58
37F2942	25WT84	C	T	20′	2.80	2.10	1.93	1.58

Special Stereo Cables. Two shielded insulated cables inside a common grey plastic jacket. Provides two isolated channels for all stereo applications. Phono plugs color coded.

37F2945	25FF25	CC	CC	36″	5.60	4.20	3.85	3.15
37F2946	25FK25	CC	CC	6′	6.92	5.19	4.76	3.89
37F2947	25FN25	CC	CC	10′	8.68	6.51	5.97	4.88
37F2948	25FF82	CC	G	36″	6.12	4.59	4.21	3.44
37F2949	25FK82	CC	G	6′	7.20	5.40	4.95	4.05
37F2951	25FF84	CC	TT	36″	4.80	3.60	3.30	2.70
37F2952	25FK84	CC	TT	6′	6.92	5.19	4.76	3.89
37F2953	25AC25	C	C	18″	1.92	1.44	1.32	1.08
37F2954	25AF25	C	C	36″	2.08	1.56	1.43	1.17
37F2955	25AH25	C	C	4′	2.44	1.83	1.68	1.37
37F2956	25AK25	C	C	6′	2.56	1.92	1.76	1.44
37F2957	25AN25	C	C	10′	3.36	2.52	2.31	1.89
37F2958	25AR25	C	C	15′	4.08	3.06	2.81	2.30
37F2959	25AT25	C	C	20′	4.92	3.69	3.38	2.77
37F2960	25AU25	C	C	25′	5.88	4.41	4.04	3.31
37F2961	25WN25	C	C	10′	2.80	2.10	1.93	1.58

RIGHT ANGLE 2-CONDUCTOR PHONE PLUG TO VARIOUS CONNECTIONS

37F2963	15AK15	BB	BB	6′	4.28	3.21	2.94	2.41

Stock No.	Type	Terminations End No.1 Fig.	Terminations End No. 2 Fig.	Length	1-9	10-24	25-49	50-99

STRAIGHT PHONO PLUG (LONG HANDLE) TO VARIOUS CONNECTIONS

37F2964	26AF26	D	D	36″	2.16	1.62	1.49	1.22
37F2966	26AN82	D	G	10′	3.68	2.76	2.53	2.07

RIGHT ANGLE PHONO PLUG TO VARIOUS CONNECTIONS

37F2967	30AF30	E	E	36″	2.12	1.59	1.46	1.19

STRAIGHT TINI-PLUG TO VARIOUS CONNECTIONS

37F2971	40DK05	F	A	6′	4.52	3.39	3.11	2.54
37F2972	40DF25	F	C	36″	3.24	2.43	2.23	1.82
37F2973	40DK25	F	C	6′	3.72	2.79	2.56	2.09
37F2974	40DN25	F	C	10′	4.28	3.21	2.94	2.41
37F2975	40DK40	F	F	6′	4.60	3.45	3.16	2.59
37F2976	40DK80	F	H	6′	5.44	4.08	3.74	3.06
37F2977	40DK82	F	G	6′	4.00	3.00	2.75	2.25
37F2999	40DN83	F	J	10′	5.40	4.05	3.71	3.04
37F2979	40DF84	F	T	36″	2.80	2.10	1.93	1.58
37F2980	40DK84	F	T	6′	3.20	2.40	2.20	1.80
37F2981	40DN84	F	T	10′	3.72	2.79	2.56	2.09
37F2982	40DN86	F	L	10′	4.44	3.33	3.05	2.50

EXTENSION JACK CORDS

37F2983	82AK82	G	G	6′	3.48	2.61	2.39	1.96

TINI "Q-G" MINIATURE CONNECTORS

Ideal for use with slim style, small lavaliere or "clip-on" microphones. Positive latch system, molded flex relief, polarized 3 and 4 pin connectors. **TA Series:** Cord Plug. **TB Series** and **TY Series:** Receptacle. Suffix 3F: 3-pin female. Suffix 4M: 4-pin male.

Stock No.	Type	Fig.	1-9	10-24	25-49	50-99
38F1222	TA3F	NN	4.24	3.18	2.92	2.39
38F1224	TA4F	NN	4.44	3.33	3.05	2.50
38F1225	TA3M	PP	3.84	2.88	2.64	2.16
38F1226	TA4M	PP	3.96	2.97	2.72	2.23
38F1227	TB3M	TB	3.92	2.94	2.70	2.21
38F1228	TB4M	TB	3.09	2.83	2.32	2.06
38F1229	TY3F	TY	4.84	3.63	3.33	2.72
38F1230	TY4F	TY	5.00	3.75	3.44	2.81

"POWER JAX," "POWER PLUG" JACKS AND PLUGS

Designed for AC/DC converter/battery charger connections. Jacks mount in 5/16″ dia. hole in panels up to 1/8″ thick.

Stock No.	Type	Fig.	Mating Plug	Pin Dia.	Ea. 1-9	10-24	25-49	50-99
37F2993	712A	A	760	.100″	1.64	1.23	1.13	.93
37F2994	722A	A	S-760	.080″				

Stock No.	Type	Fig.	Handle	Center Hole Dia.				
37F2995	760	B	Blk. Plastic	.100″	1.40	1.05	.97	.79
37F2996	765	B	Red Plastic	.100″				
37F2997	S-760	B	Blk. Plastic	.080″	1.48	1.11	1.02	.84
37F2998	S-765	B	Red Plastic	.080″				

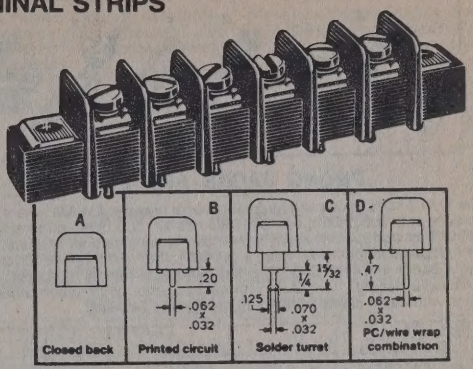
10

BEAU Single-row Terminal Strips from Vernitron

HIGH BARRIER RESILIENT TERMINAL STRIPS

- **Virtually Eliminate Breakage**
- **Single Row; 3/8" Centers**
- **20 Amps, 600 Volts**
- **Feed Thru and Closed Back**

Barrier strips made of highly resilient glass-filled thermoplastic materials. Terminals are imbedded in walls of the terminal block on four sides. Enclosed contact tails eliminate entrapment of foreign materials and reduce copper wicking. Base: 3/8"W × 21/32"H. Terminals: high strength copper alloys, tin plated: 6/32" × 1/4" binding head screw.



72100: CLOSED BACK—Fig. A

Stk. No.	Type	Terminals	5-24	25-49	50-99	100-249
14F2000	72102	2	.51	.41	.34	.27
14F2001	72103	3	.66	.53	.44	.35
14F2002	72104	4	.77	.62	.51	.41
14F2003	72105	5	.93	.74	.62	.50
14F2004	72106	6	1.05	.84	.70	.56
14F2006	72108	8	1.33	1.06	.89	.71
14F2007	72109	9	1.46	1.17	.98	.78
14F2008	72110	10	1.61	1.29	1.08	.86
14F2009	72111	11	1.72	1.38	1.15	.92
14F2010	72112	12	1.86	1.49	1.24	.99
14F2013	72115	15	2.26	1.81	1.51	1.21
14F2014	72116	16	2.40	1.92	1.60	1.28

72500: PRINTED CIRCUIT—Fig. B

Stk. No.	Type	Terminals	5-24	25-49	50-99	100-249
14F2034	72502	2	.54	.43	.36	.29
14F2035	72503	3	.71	.57	.47	.38
14F2036	72504	4	.84	.68	.57	.45
14F2037	72505	5	1.02	.82	.68	.55
14F2038	72506	6	1.17	.94	.78	.63
14F2039	72507	7	1.31	1.05	.88	.70
14F2040	72508	8	1.49	1.19	.99	.80
14F2041	72509	9	1.64	1.32	1.10	.88
14F2042	72510	10	1.82	1.45	1.21	.97
14F2043	72511	11	1.96	1.57	1.31	1.05
14F2044	72512	12	2.11	1.69	1.41	1.13
14F2045	72513	13	2.27	1.82	1.52	1.22
14F2046	72514	14	2.43	1.95	1.62	1.30
14F2047	72515	15	2.59	2.08	1.73	1.38
14F2048	72516	16	2.76	2.21	1.84	1.48

72200: INSULATED TURRET—Fig. C

Stk. No.	Type	Terminals	5-24	25-49	50-99	100-249
14F2017	72202	2	.59	.48	.40	.32
14F2018	72203	3	.78	.63	.52	.42
14F2019	72204	4	.94	.75	.63	.50
14F2020	72205	5	1.15	.92	.77	.61
14F2021	72206	6	1.30	1.04	.87	.70
14F2022	72207	7	1.47	1.18	.99	.79
14F2023	72208	8	1.67	1.34	1.11	.89
14F2024	72209	9	1.85	1.48	1.23	.99
14F2025	72210	10	2.04	1.63	1.36	1.09
14F2026	72211	11	2.20	1.76	1.47	1.17
14F2027	72212	12	2.38	1.90	1.59	1.27

72700: PRINTED CIRCUIT/WIRE WRAP—Fig. D

14F2053	72702	2	.52	.41	.34	.28
14F2054	72703	3	.68	.55	.45	.36
14F2055	72704	4	.81	.65	.54	.44
14F2056	72705	5	.99	.79	.66	.53
14F2057	72706	6	1.13	.91	.76	.60
14F2058	72707	7	1.27	1.02	.85	.68
14F2059	72708	8	1.45	1.16	.97	.77
14F2060	72709	9	1.60	1.28	1.06	.86
14F2061	72710	10	1.77	1.42	1.18	.95

70000 SERIES—LO PROFILE W/.325" CENTERS

CLOSED BACK

Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
81F1879	70104	4	.78	.63	.52	.42
81F1880	70105	5	.91	.73	.61	.49
81F1881	70106	6	1.03	.82	.69	.55
81F1882	70107	7	1.14	.91	.76	.61
81F1883	70108	8	1.26	1.01	.84	.67
81F1884	70109	9	1.38	1.10	.92	.73
81F1885	70110	10	1.50	1.20	1.00	.80

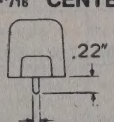
PC TERMINATION

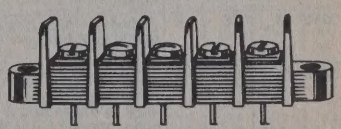
Stk. No.	Type	Terminals	1-24	25-49	50-99	100-249
81F1886	70504	4	.78	.63	.52	.42
81F1887	70505	5	.91	.73	.61	.49
81F1888	70506	6	1.03	.82	.69	.55
81F1889	70507	7	1.14	.91	.76	.61
81F1890	70508	8	1.26	1.01	.84	.67
81F1891	70509	9	1.38	1.10	.92	.73
81F1892	70510	10	1.50	1.20	1.00	.80

AVAILABLE WIRE-WRAP AND RIGHT ANGLE P.C.

73000 SERIES—7/16" CENTERS

Highly resilient glass-filled thermoplastic. High barrier, closed back or feed thru. UL rated: 20A, 300V general industrial use and 250V commercial equipment. CSA certified 300V @ 20A. Withstand 10500V rms. Size: 3/4" × 3/4". Wire: 14 AWG max. NO. 6-32 × 1/4" binding head screws, brass, nickel plated.





CLOSED BACK

Stock No.	Type	Terminals	1-24	25-49	50-99	100-249
14F3194	73104	4	1.19	.96	.80	.64
14F3195	73105	5	1.37	1.10	.92	.73
14F3196	73106	6	1.58	1.26	1.05	.84
14F3197	73107	7	1.80	1.44	1.20	.96
14F3198	73108	8	2.00	1.60	1.34	1.07
14F3199	73109	9	2.23	1.78	1.48	1.19
14F3200	73110	10	2.43	1.94	1.62	1.30

PC (direct solder feed thru)

Stock No.	Type	Terminals	1-24	25-49	50-99	100-249
14F3201	73504	4	1.03	.83	.69	.55
14F3202	73505	5	1.21	.97	.81	.65
14F3203	73506	6	1.37	1.10	.92	.73
14F3204	73507	7	1.58	1.26	1.05	.84
14F3205	73508	8	1.76	1.41	1.17	.94
14F3206	73509	9	1.91	1.53	1.27	1.02
14F3207	73510	10	2.09	1.67	1.39	1.11

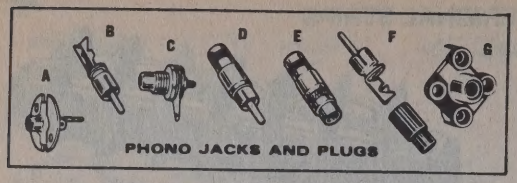
75000 SERIES—CLOSED SIDE

CLOSED BACK

Stk. No.	Type	Terminals	1-24	25-49	50-99	100-Up
81F1893	75104	4	1.97	1.76	1.41	1.06
81F1894	75105	5	2.34	2.09	1.67	1.25
81F1895	75106	6	2.70	2.41	1.93	1.45
81F1896	75107	7	3.07	2.74	2.19	1.64
81F1897	75108	8	3.43	3.07	2.45	1.84
81F1898	75109	9	3.80	3.39	2.71	2.03
81F1899	75110	10	4.16	3.72	2.97	2.23

PC TERMINATION

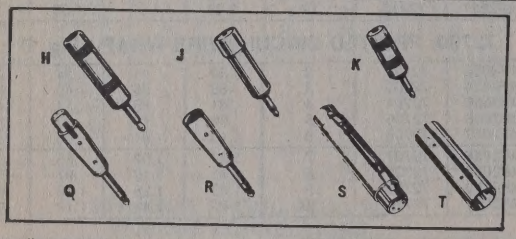
Stk. No.	Type	Terminals	1-24	25-49	50-99	100-Up
81F1900	75504	4	1.99	1.77	1.42	1.06
81F1901	75505	5	2.35	2.10	1.68	1.26
81F1902	75506	6	2.74	2.45	1.96	1.47
81F1903	75507	7	3.12	2.79	2.23	1.67
81F1904	75508	8	3.50	3.13	2.50	1.88
81F1905	75509	9	3.80	3.39	2.71	2.03
81F1906	75510	10	4.26	3.80	3.04	2.28



PHONO JACKS AND PLUGS

Low cost 2-cond. jacks and plugs for record players, FM-AM tuners, tape recorders, test equipment, etc. 3501MC has 3/8" O.D. shell and cable clamp. 3501FP for front panel mount in 1/4" hole. in panels up to 1/8" thick. 3501FR for rear panel mount in 3/8" hole, in panels up to 13/64" thick. 3502 has unique cable clamp with 13/32" O.D. shielded removable handle. 3503 ext. jack has removable handle, 11/32" O.D. with cable clamp. 3508, color coded phono plugs with cable clamp and "snap-on" plastic handles.

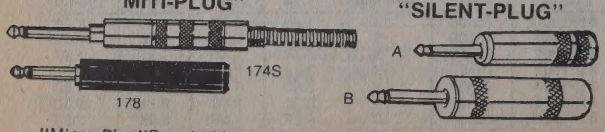
Stock No.	Type	Fig.	Description	1-9	10-24	25-49
39F2154	3501F	A	Chassis jack	.32	.24	.22
39F2155	3501M	—	Plug, less cable clamp	.24	.18	.17
39F2156	3501MC	B	Plug with cable clamp	.44	.33	.31
39F2157	3501FP	C	Chassis jack	.56	.42	.39
39F2158	3501FR	—	As above, chassis jack	.72	.54	.50
39F2159	3502	D	Plug	.80	.60	.55
39F2160	3503	E	Extension jack	1.20	.90	.55
39F2161	3558-1	F	Plug, Red handle	.48	.36	.83
39F2162	3558-2	F	Plug, Black handle	.48	.36	.33
39F2163	3558-5	F	Plug, White handle	.48	.36	.33
39F2164	3512	G	Chassis, jack, closed circuit	.56	.42	.39
39F2165	3512A	G	Chassic jack, closed circuit, grounded	.56	.42	.39

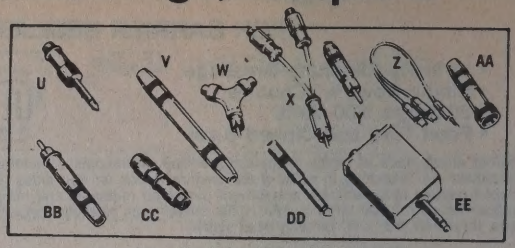


Versatile adapters for interconnecting components and cables that do not have mating jacks and/or plugs. Positive mating contacts prevent resistive line-losses. 378, "Tini-Tee," provides dual output jacks for two separate earphones. Allows two to listen at once from a single radio, tape recorder, etc.

ADAPTERS

Stock No.	Type	Fig.	Description	1-9	10-24	25-49
39F2166	374	H	Phone jack input to a 2-cond. "Tini-Plug" output.	3.32	2.49	2.28
39F2167	375	J	Phono jack input to a 2-cond. "Micro-Plug" output.	3.08	2.31	2.12
39F2168	376	K	"Tini-Jax" input to a 2-cond. "Micro-Plug" output.	3.56	2.67	2.45
39F2173	386A	Q	3 Contact Switchcraft A3F female microphone input to a standard 3-cond. phone plug output.	7.80	5.85	5.36
39F2174	387A	R	3 Pin Switchcraft A3M male microphone input to a standard 3-cond. phone plug output.	6.96	5.22	4.79
39F2175	389	S	Coupler. 3-pin audio connector (Switchcraft A3M) at each end. Shielded.	8.28	6.21	5.69
39F2176	390	T	Coupler. 3-pin male audio connector (Switchcraft A3M) at each end. Shielded.	6.96	5.22	4.79





A versatile and complete line of adapters for interconnecting components that do not have mating jacks and/or plugs. 335A has unsoldered internal wire at one end to permit user to convert terminal needed. 33A, 334A can be used as male or female connector; coupling ring screws back, converting to male mike connector. *Shielded.

ADAPTERS

Stock No.	Type	Fig.	Description	1-9	10-24	25-49
39F2178	330F*	W	Y-Adapter. Two phono jacks to phono plug.	5.28	3.96	3.63
39F2179	330F1	X	Flexible Y-Adapter. Phono plug to 2 phono jacks	5.28	3.96	3.63
39F2180	330F2	. . .	Above, but phono plug and phono jack to phono plug.	5.28	3.96	3.63
39F2181	330F3	. . .	Above, but 2 phono plugs to 1 phono plug.	5.28	3.96	3.63
39F2184	330T3	Z	Above, but 2-cond. "Tini-Plug" to 2 "Tini-Jax".	7.52	5.64	5.17
39F2185	332A	AA	Phone jack input to female mike connector output.	3.72	2.79	2.56
39F2189	336A*	BB	2-cond. phone jack input to phono plug output.	5.12	3.84	3.52
39F2192	340*	EE	Two 2-cond. phone jack inputs to 2-cond. phone plug output.	9.24	6.93	6.35
39F2193	345A	U	Phone plug output to phono jack input.	2.48	1.86	1.71
39F2194	349A*	CC	Phone plug coupler, phono plug at each end.	2.40	1.80	1.65
39F2195	361A*	V	Coupler, 2-cond. phone jack at each end.	4.32	3.24	2.97
39F2196	362A	. . .	Above, but 3-cond. phone jack at each end.	5.20	3.90	3.58
39F2197	364A*	DD	2-cond. "Tini-Jax" to 2-cond. phone plug.	2.88	2.16	1.98
39F2198	365*	Y	2-cond. "Tini-Jax" input to phone jack output.	2.88	2.16	1.98

"MITI-PLUG" AUDIO PLUG

Premium quality 2-cond. phone plug with full shielding and resistance to extremely rough usage for electified audio instruments such as guitars and basses, and other instrumentation such as amplifiers, synthesizers, power heads, speaker systems, and others requiring high quality audio plugs. Large cable clamp on all plugs. Choice of cable flex relief spring and brass, red or black plastic handle. Typical mating jack: Switchcraft No. 11.

Stock No.	Part No.	Handle & Flex Relief Spring	1-9	10-24	25-49
81F484	174S	Brass handle w/flex	3.28	2.46	2.26
81F485	175	Brass handle, no flex	3.24	2.43	2.23
81F486	176S	Black plastic w/flex	2.92	2.19	2.01
81F487	177S	Red plastic w/flex	2.92	2.19	2.01
81F488	178	Black plastic no flex	2.84	2.13	1.95
81F489	179	Red plastic no flex	2.84	2.13	1.95

"SILENT-PLUG" PHONE PLUGS

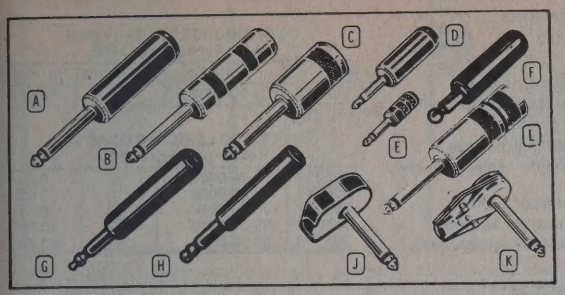
Nos. 169 & 172 2-cond. Silent-Plugs feature a circuit closing device that automatically shorts tip and sleeve together when plug is disconnected. Eliminates hum pickup, pops and squeals from amplifier. For high quality & professional audio applications. NEW 181 & 182 similar to 172 & 169 respectively, except they have solder lugs for quick, easy solder connections and mylar type handle insert for max. insulation. Mates with standard 1/4" Littel-Jax jacks.

Stock No.	Part No.	Fig.	Handle	Terms	Length & Dia.	1-9	10-24	25-49
81F2721	169	A	shielded	Screw	1" × 11/16	3.92	2.94	2.70
20F906	172	B			2" × 11/16	5.00	3.75	3.44
81F494	181	B	shielded	Solder lugs				
					2" × 11/16	4.80	3.60	3.30
81F495	182	A			1" × 11/16	3.80	2.85	2.61

"Micro-Plug"® and "Micro-Jax"® are registered tradenames of Switchcraft, Inc.

Phone Jacks and Plugs

SWITCHCRAFT



"LITTEL-PLUG" PHONE PLUGS

Small size phone plugs fit standard ¼" phone jacks except (*) S-250 and S-280 which have a .206" dia. sleeve. Plugs with solder terminals have built-in cable clamp. ⅝" long x ½" dia. (‡). Has wide insulator between tip and sleeve for use in 3 conductor jack to perform a 2 conductor function without shorting.

TWO-CONDUCTOR TYPE

Stock No.	Type	Fig.	Mtg. Jack	Handle	Term	1-9	10-24	25-99	100-249
39F760	240	A	11	Black	Screw	1.48	1.11	1.02	.84
39F761	245	A	11	Red	Screw	1.48	1.11	1.02	.84
39F763	250	A	11	Black	Solder	1.40	1.05	.97	.79
39F674	255	A	11	Red	Solder	1.40	1.05	.97	.79
39F765	270	B	11	Shield	Screw	2.32	1.74	1.60	1.31
39F764	280	B	11	Shield	Solder	2.04	1.53	1.40	1.15
39F678	288‡	B	11	Shield	Solder	2.12	1.59	1.46	1.19
39F677	S-250*	A	S-11	Black	Solder	1.48	1.11	1.02	.84
39F762	S-280*	B	S-11	Shield	Solder	2.04	1.53	1.40	1.15

THREE-CONDUCTOR TYPE

39F675	260	A	12B	Black	Screw	2.44	1.83	1.68	1.37
39F771	267	A	12B	Black	Solder	2.12	1.59	1.46	1.19
39F676	269	A	12B	Red	Solder	2.12	1.59	1.46	1.19
39F766	290	B	12B	Shield	Screw	2.76	2.07	1.90	1.55
39F767	297	B	12B	Shield	Solder	2.56	1.92	1.76	1.44

STANDARD ¼" PHONE PLUGS

TWO-CONDUCTOR TYPE—SOLDER TERMINALS

Typical mating jack "Littel-Jax" No. 11.

Stock No.	Type	Fig.	Handle	Length & Dia.	1-9	10-24	25-99	100-249
39F679	40	A	Black	2 1/16" x ¾	1.92	1.44	1.32	1.08
39F680	70	B	Shield	2 1/16" x 1 1/16	2.44	1.83	1.68	1.37
39F681	160	C	Shield	1 x 1 1/16	2.12	1.59	1.46	1.19
22F275	170	L	Shield	2 1/16" x 1 1/16	3.12	2.34	2.15	1.76

THREE-CONDUCTOR TYPE—SOLDER TERMINALS

Typical mating jack "Littel-Jax" No. 12B.

39F682	60	A	Black	2 1/16 x 1 1/16	2.32	1.74	1.60	1.31
39F683	90	C	Shield	1 x 1 1/16	2.52	1.89	1.73	1.42
22F1034	190	B	Shield	2 1/16 x 1 1/16	2.92	2.19	2.01	1.64

"TINI-PLUG" MINIATURE PHONE PLUGS

Miniature 2-conductor phone plugs for use with "Tini-Jax" only ⅓ the size of standard phone plugs. Handles 1⅝" overall length, are plastic or brass, nickel plated.

Stk. No.	Type	Fig.	Term	Handle	1-9	10-24	25-99	100-249
22F1036	740	D	Screw	Black	1.32	.99	.91	.75
22F1037	745	D	Screw	Red	1.32	.99	.91	.75
39F746	750	D	Solder	Black	1.28	.96	.88	.72
39F747	755	D	Solder	Red	1.28	.96	.88	.72
39F748	780	D	Solder	Shield	1.80	1.35	1.24	1.01

"MICRO-PLUG" SUB-MINIATURE PHONE PLUGS

Sub-miniature 2-conductor phone plugs, only 1 1/64" long; ¼" O.D., .097" dia. sleeve. Accommodates cables up to 7/64" dia. All plugs have integral cable clamps.

Stock No.	Type	Fig.		1-9	10-24	25-99	100-249
22F395	850	E	Black Handle	1.24	.93	.86	.70
22F1038	855	E	Red Handle	1.24	.93	.86	.70
22F1039	880	E	Natural Handle	1.24	.93	.86	.70

MILITARY TYPE "LITTEL-PLUG" & "EXTENSION JAX"

Plugs are made in accordance with MIL-P-642(A) specifications. One piece tip rod and one piece sleeve and plug body provide internal interlock to prevent parts shifting in position. Handle: black except *red. All plugs have screw terminals.

Stock No.	Type	Fig.	Mil-Type	Mating Jack	No. Cond.	1-9	10-24	25-99	100-249
22F1040	430	F	PJ-054B	820	2	3.56	2.67	2.45	2.00
39F792	440		PJ-055B	MT-820	2	3.12	2.34	2.15	1.76
39F791	480	G	PJ-068	MT-342B	3	6.24	4.68	4.29	3.51
22F391	482*	H	PJ-051R	MT-332B	3	5.48	4.11	3.77	3.08
22F1041	483	H	PJ-051B	MT-332B	3	5.48	4.11	3.77	3.08

"FLAT-PLUG" PHONE PLUGS

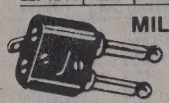
¼" phone plugs featuring flat, space-saving handles. Ideal for applications where conventional plugs would protrude too far. No. 220 has adapter clip which makes it convenient to clamp standard phone tips to terminals.

TWO-CONDUCTOR TYPE

Stock No.	Type	Fig.	Mating Jack	Handle	Term.	1-9	10-24	25-99	100-249
39F768	220	J	11	Black	Screw	2.12	1.59	1.46	1.19
22F1042	227	J	11	Black	Screw	1.64	1.23	1.13	.93
22F1043	228	K	11	Shield	Solder	1.92	1.44	1.32	1.08

THREE-CONDUCTOR TYPE

22F1044	238	K	128	Shield	Solder	2.64	1.98	1.82	1.49



MILITARY TYPE "TWIN-PLUG"

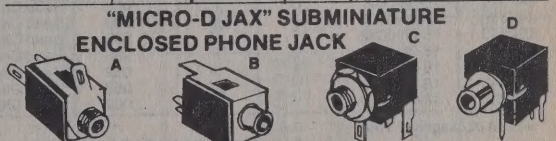
Meet exact industrial and military requirements. Nos. 412 & 413 use identical materials. Sleeves spaced ⅝" center to center with self-aligning feature.

No. 412—Two electrically independent 2-conductor plugs in black plastic handle. Has external cord clamp. Old Military Type PJ-289. Similar to W.E. 289B.

No. 413—Three circuit plug with two electrically independent tip circuits. Interchangeable with MIL-Type PJ-421 and W.E. 241.

Stock No.	Type	MIL-Type	1-9	10-24	25-99	100-249
22F1045	412	PJ-289	7.16	5.37	4.92	4.03
22F1046	413	PJ-421	8.76	6.57	6.02	4.93

"MICRO-D JAX" SUBMINIATURE ENCLOSED PHONE JACK



"Super Small" 2 cond. shunted. fully enclosed jack is only 5/16"x1 1/32"x1 1/16". One piece molded body locks all internal parts in place. Mates with Switchcraft Micro Plug phone plugs.

A. No. MDSL-2A has solder Lugs and #10 48 threaded bushing with mtg. washer and lock nut (supplied). Mounts thru 1/64" dia hole in panels up to 1/16" thk., singly or in rows on .350" (min) centers.

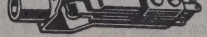
B. No. MDPC-2A has P.C. terms., with standoff shoulders. Mounts singly or in rows or arrays on .315" (min) centers or .350" (min) centers. Adjacent sleeves touch each other when mt . on .315" centers.

C. No. MDSL-2A-RA is similar to No. MDSL-2A above except right angle solder-lug terms., for minimum space (0.382" behind-panel clearance).

D. No. MDPC-2A-RA is similar to No. MDPC-2A above except right angle PC terms., with standoff shoulders (0.345" clearance above PC board).

Stock No.	Part No.	Schematic No.	Typical Mating Plug	Conductors	1-9	10-24	25-49	50-99
81F491	MDSL-2A	I	850, 851		1.00	.75	.69	.57
81F490	MDPC-2A	II I	850		1.00	.75	.69	.57
81F493	MDSL-2A-RA	I V.	850, 851	2	1.12	.84	.77	.63
81F492	MDPC-2A-RA	X I	850		1.12	.84	.77	.63

"MT-JAX" MILITARY TELEPHONE JACKS



Long frame, telephone switchboard jacks designed for high quality communication and military equipment. Springs are of a special nickel silver alloy with welded cross bar palladium contacts. "A" frame design. (Refer to previous page for schematic)

Stock No.	Type	Schem. No.	For Plug	MIL-Type	1-9	10-24	25-99	100-249
22F255	MT-331	I	440*	JJ-086	2.12	1.59	1.46	1.19
22F256	MT-332A	III	440	JJ-024	2.52	1.89	1.73	1.42
22F257	MT-332B	IV	482†	JJ-022	2.52	1.89	1.73	1.42
22F259	MT-334B	XII	482	JJ-042	3.24	2.43	2.23	1.82

Similar in design to "MT-Jax" except frame is double width, with two mounting ears on 1⅜" centers; bushings are on ⅝" centers. Has two 3-conductor jacks interconnected.

Stock No.	Type	For Plug	1-9	10-24	25-99	100-249
22F1049	MT-389	482	8.32	6.24	5.72	4.68

*MIL TYPE PJ-055. †MIL Type PJ-051B.

molex waldom Crimp & PC Terminals

INTEGRATED CIRCUIT SOLDERCON TERMINALS

Molex 1938-4 Soldercon terminals provide manufacturers with the advantages of plug-in packages for connecting integrated circuits. Available in precut strips to fit your exact I.C. requirements. Provide excellent electrical contact. Standard material: 70/30 spring tempered tin plated brass—.010" thick. Available on special order: gold plated (over nickel), brass, or phosphor bronze.

CARRIER BREAK-OFF TOOLS

Stock No.	Type No.	Contacts	Each
30F326	11-10-1020	7-8	1.15
30F333	11-10-1021	10-12	1.15
30F340	11-10-1022	14-18	1.30

SPECIFICATIONS

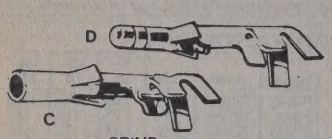
1. Height above board—.180"
2. Hole required.
   A. Drilled—.032/.030 dia.
   B. Punched—.032/.030 dia. with .037 diameter maximum breakout.
   C. Plated through—.037/.029 diameter.
3. Minimum spacing—.100 on centers per row; 200 row spacing.
4. Insertion—1 oz. minimum per terminal.
5. Withdraw—¾ oz. minimum per terminal.
6. Lead size range—.007"/.011" x .018"/.030".

CONTINUOUS LENGTH REELS
Sold in Packages of 1000.

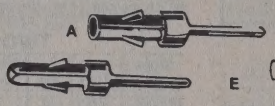
Stock No.	Type No.	Contacts	Per Pkg.
30F325	05-30-0001		16.50

CUT TO LENGTH STRIPS
Sold in packages of 50

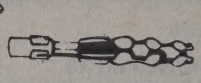
30F322	05-30-0007	7	6.25
30F341	05-30-0008	8	6.60
30F337	05-30-0010	10	8.90
30F344	05-30-0012	12	10.70
30F335	05-30-0014	14	12.40



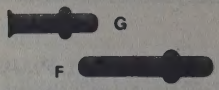
CRIMP



PRINTED CIRCUIT TAIL



CLASPCON



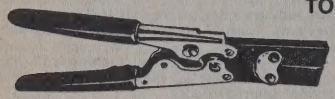
BEAD CHAIN

CRIMP & PC TERMINALS FOR NYLON CONNECTORS

Stock No.	Type No.	Fig.	Type	Mating Dia.	Style	Wire Range	Crimp Tool	Per Pkg.
31F1020	02-09-1103	C	F	093	Crimp	18-14	11-01-0014(HT-1919) & 11-01-0084(HTR-1031-E)	
31F1021	02-09-2103	D	M	093	Crimp	18-14	11-01-0014(HT-1919) & 11-01-0084(HTR-1031-E)	
31F1023	02-09-1118	C	F	093	Crimp	24-18	11-01-0014(HT-1919) & 11-01-0084(HTR-1031-E)	5.35
31F1022	02-09-2118	D	M	093	Crimp	24-18	11-01-0014(HT-1919) & 11-01-0084(HTR-1031-E)	
31F1024	02-09-1143	C	F	093	Crimp	30-22	11-01-0015(HT-1921) & 11-01-0006(HTR-2262)	
31F1025	02-09-2143	D	M	093	Crimp	30-22	11-01-0015(HT-1921) & 11-01-0006(HTR-2262)	
43F741	02-09-1134	A	F	093	PC Tail			4.30
43F742	02-09-2134	B	M	093	PC Tail			
30F327	02-08-1102	E	F	093	Claspcon	28-16	11-01-0014(HT-1919) & 11-01-0084(HTR-1031-E)	7.60
31F1027	02-06-1103	C	F	062	Crimp	22-18	11-01-0015(HT-1921) & 11-01-0006(HTR-2262)	5.85
31F1026	02-06-2103	D	M	062	Crimp	22-18	11-01-0015(HT-1921) & 11-01-0006(HTR-2262)	5.85
31F1029	02-06-1132	C	F	062	Crimp	30-22	11-01-0015(HT-1921) & 11-01-0006(HTR-2262)	5.85
31F1028	02-06-2132	D	M	062	Crimp	30-22	11-01-0015(HT-1921) & 11-01-0006(HTR-2262)	5.85
30F339	02-05-1105	E	F	062	Claspcon	22-18	11-01-0015(HT-1921) & 11-01-0006(HTR-2262)	5.25
30F328	16-06-0007	G	F	093	Bead Chain			5.90
30F329	16-06-0005	F	M	093	Bead Chain			5.20
30F342	16-06-0012	F	M	093	Bead Chain			5.25
30F336	16-06-0006	G	F	093	Bead Chain			9.80
30F330	16-06-0004	F	M	062	Bead Chain			7.75
30F343	16-06-0011	F	M	062	Bead Chain			8.65
30F334	16-06-0010	F	M	062	Bead Chain			9.40

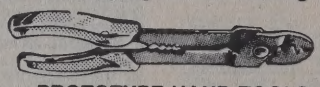
*Sold in packages of 100

TOOLING For Crimping and Extracting Terminals



PRODUCTION TOOLS

Stock No.	Type	Description	Each
70B910	11-01-0084	HTR-1031-E	120.00
30F338	11-01-0006	HTR-2262	103.35



PROTOTYPE HAND TOOLS

Stock No.	Type	Description	Each
31F1048	11-01-0014	HT-19	12.95
31F1049	11-01-0015	HT-1921	

EXTRACTOR TOOLS

Stock No.	Type	Description	Each
30F772	11-03-0006	HT-2038	9.95
30F773	11-03-0002	HT-2285	

K-120
K-130 K-180
K-220 K-140

DELUXE SOLDERLESS TERMINAL ASSORTMENTS

- **Quick and Easy Connections**
- **Includes Crimping Tool**

Kit No. K-120 Non-Insulated: 510 pieces of the most pop. ring, flanged spade, spade term. & butt, quick disconnect and closed end connectors in wire ranges 22-18 thru 16-14.

Kit No. K-130 Insulated & Non-Insulated: Cont. 600 pieces of ring, flanged spade, spade term. and butt, quick disconnect and closed end connectors. Wire ranges: 22-18 through 6-12.

Kit No. K-220 Insulated & Non-Insulated: Cont. 420 pieces of male & female quick disconnect term., wire ranges 18-14 through 12-10.

Kit No. K-180 Insulated: Cont. 120 pieces of flanged spade, spade, ring, quick disconnect term. and butt, closed end connectors in wire sizes 22-18 through 12-10.

Kit No. K-140 Insulated: Cont. 600 pieces of ring, flanged spade, spade term. and butt, quick disconnect, closed end connectors in wire sizes 22-18 through 16-20.

KIT ASSORTMENTS

Stk. No.	Type	Net
49F1260	K-120	29.95
49F1261	K-170	21.95
49F1262	K-130	38.95
49F1263	K-220	34.95
49F1264	K-180	23.95
49F1265	K-140	46.95

VINYL GROMMET ASSORTMENT

Contains: total of 185 pieces. Size of chassis hole, 1/4", 5/16", 3/8", 7/16", 1/2", 5/8". Wire hole size, 1/8", 3/16", 1/4", 5/16", 3/8", 1/2",. Complete with reusable plastic box.

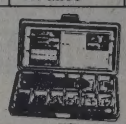
Stk. No.	Type	Net
49F1266	HD-4209	8.95

WIRE CONNECTOR ASSORTMENT

Contains 130 wire connectors. From 3 #10 down to 2 #24 plus all combinations in between. Rated at 300 Volts.

Stk. No.	Type	Net
49F1267	K-210	7.95

WM-72
WM-50



MOLEX® NYLON CONNECTOR DESIGNER/SERVICE KIT

- Unbreakable Container
- Crimping Tool Included
- A Must for Every Creative Designer

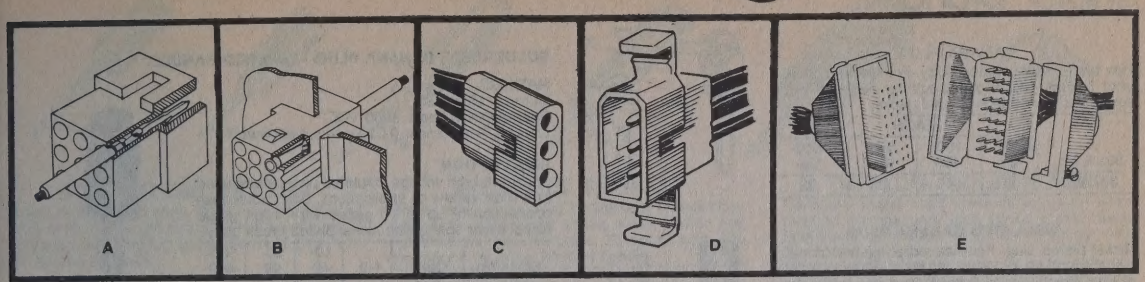
Includes all circuit capacities: Male and Female housings, terminals, crimp tool, terminal ejector tool and detailed instructions. **Kit No. WM-72:** Uses .062" pin terminals. Miniature Series. Contains parts to assemble male and female connector housing from 1 to 36 circuit connectors. Total of 56 connectors. Crimp and extractor tool included. UL and CSA recognized. **Kit No. WM-50:** Uses .093" pin terminals. Standard Series. Contains parts to assemble male and female connector housing from 1 to 15 circuit connectors. Total of 45 connectors. Crimp and extractor tool included. UL and CSA recognized.

Stk. No.	Type	Net
49F1268	WM-72	35.95
30F774	WM-50	35.95

MANUFACTURED BY

Nylon Connectors

molex waldom



Mistake-Proof Polarity—Noted for great flexibility. Pin terminals easily removed individually from housing for circuit changes & reinserted. Housing is polarized; but possible to interchange female pins in receptacle and to install male pins individually in plug to achieve unlimited polarization.

Miniature connectors .062" pin terminals, 250 volts per circuit, up to 5 Amps per circuit; standard nylon connectors (using .093" pin terminals) from 1 to 15 circuits (250 volts per circuit, up to 12 Amps per circuit).

Most housings have integrally molded mounting ears for ease of panel mounting. UL Approved, CSA Listed.

MINATURE NYLON CONNECTOR HOUSING

PLUG OR RECEPTABLE
FIG. D

PLUG CONFIGURATION ONLY
With Mtg. Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1002	3	5	P (03-06-2031)	.....	2.35
31F1004	4	5	P (03-06-2041)	.....	4.85
31F1006	5	5	P (03-06-2054)	1.75	.....
31F1008	6	5	P (03-06-2062)	1.60	.....
31F1012	9	5	P (03-06-2091)	1.65	.....
31F1014	12	5	P (03-06-2121)	1.85	.....
31F1016	15	5	P (03-06-2151)	2.80	.....
43F735	24	4	P (03-06-2241)	4.35	.....
31F1018	36	4	P (03-06-2361)	5.10	.....

Fig. A — Without Mtg. Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1000	1	5	P (03-06-2011)	.....	1.35
59F1786	3	5	PI (03-06-2032)	.....	2.35
59F1787	4	5	PI (03-06-2042)	.....	4.85
59F1788	5	5	PI (03-06-2055)	1.75	.....
59F1789	6	5	PI (03-06-2061)	1.55	.....
31F1010	8	5	P (03-06-2081)	1.50	.....
59F1790	9	5	PI (03-06-2092)	1.65	.....
59F1791	12	5	PI (02-06-2122)	1.85	.....
59F1792	15	5	PI (03-06-2152)	2.80	.....
59F1793	24	4	PI (03-06-2242)	4.35	.....
59F1794	36	4	PI (03-06-2362)	5.05	.....

STANDARD NYLON CONNECTOR HOUSINGS

Fig. D — With Mtg. Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1032	1	12	P (03-09-2021)	.....	2.60
31F1034	3	12	P (03-09-2031)	.....	2.50
31F1036	4	9	P (03-09-2041)	.....	3.00
31F1040	6	9	P (03-09-2061)	2.05	.....
31F1042	9	9	P (03-09-2091)	2.10	.....
59F1795	12	7.5	P1 (03-09-2122)	2.40	.....
59F1796	15	7.5	P2 (03-09-2152)	3.05	.....

Fig. A — Without Mtg. Ears

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1030	1	12	P (03-09-2011)	.....	1.40
59F1802	2	12	PI (03-09-2022)	.....	2.20
59F1803	3	12	PI (03-09-2032)	.....	2.40
59F1804	4	9	PI (03-09-2042)	.....	3.00
31F1038	5	9	P (03-09-2052)	1.85	.....
59F1805	6	9	PI (03-09-2062)	2.05	.....
59F1806	9	9	PI (03-09-2092)	2.25	.....
31F1044	12	7.5	P (03-09-2121)	2.25	.....
31F1046	15	7.5	P (03-09-21511)*	3.25	.....

* With Pull Tabs Only

.062" PIN DIA.—250 VOLTS PER CIRCUIT

Fig. C — RECEPTABLE CONFIGURATION ONLY
With Holding Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1001	1	5	R (03-06-1011)	.....	1.15
59F1780	3	5	R1 (03-06-1032)	.....	2.45
59F1781	4	5	R1 (03-06-1042)	.....	5.10
59F1782	9	5	R1 (03-06-1092)	1.90	.....
59F1783	12	5	R1 (03-06-1122)	2.10	.....
59F1784	15	5	R1 (03-06-1152)	3.35	.....
59F1785	24	4	R1 (03-06-1242)	4.35	.....

Fig. B — With Mtg. Ears & Hldg. Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1003	3	5	R (03-06-1031)	.....	2.45
31F1005	4	5	R (03-06-1041)	.....	5.10
31F1007	5	5	R (03-06-1055)	2.20	.....
31F1009	6	5	R (03-06-1061)	1.80	.....
31F1011	8	5	R (03-06-1081)	1.90	.....
31F1013	9	5	R (03-06-1091)	1.90	.....
31F1015	12	5	R (03-06-1121)	2.10	.....
31F1017	15	5	R (03-06-1151)	3.35	.....
43F736	24	4	R (03-06-1241)	4.35	.....
31F1019	36	4	R (03-06-1361)	5.30	.....

.093" PIN DIA.—250 VOLTS PER CIRCUIT

Fig. C — With Holding Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1031	1	12	R (03-09-1011)	.....	1.10
59F1797	2	12	R1 (03-09-1022)	.....	2.35
59F1798	3	12	R1 (03-09-1032)	.....	2.40
59F1799	4	9	R1 (03-09-1042)	.....	3.20
31F1039	5	9	R (03-09-1052)	2.35	.....
59F1800	6	9	R2 (03-09-1063)	2.05	.....
59F1801	9	9	R3 (03-09-1094)	2.15	.....

Fig. B — With Mtg. Ears & Hldg. Tabs

Stk. No.	No. of Ckts.	Amps per Ckt.	Type	Price Per Pkg. Pkg. of 5	Price Per Pkg. Pkg. of 10
31F1035	3	12	R (03-09-1031)	.....	2.45
31F1037	4	9	R (03-09-1041)	.....	3.20
31F1041	6	9	R (03-09-1061)	2.15	.....
31F1043	9	9	R (03-09-1091)	2.25	.....
31F1045	12	7.5	R (03-09-1121)	2.55	.....
31F1047	15	7.5	R (03-09-1151)	3.80	.....

STRAIN RELIEF (2 PCS. REQUIRED PER PLUG OR RECEPTABLE)

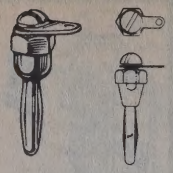
Stk. No.	Type	Fig.	Use With	"A" I.D.	Price Per Pkg.
59F1807	15-04-0201	E	15 cir. .062"	.230"	4.15/Pkg. of 10
59F1808	15-04-0202		36 cir. .062"	.500"	5.10/Pkg. of 10

VOLTREX® brand Banana Plugs and Jacks

BANANA PLUG

Hex brass, nickel plated body. Four-leaved phosphor bronze, nickel plated spring. Supplied with screw and tinned lug. Fits std. jacks.

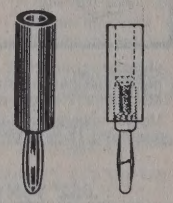
Stock No.	EACH 1-99	100-499	500-999	1000-Up
39N890	.60	.40	.36	.32



INSULATED BANANA PLUG

Nickel plated plug. Four-leaved phosphor bronze nickel plated spring. Wire can be soldered to brass stud or directly into plug itself. Stud also locks wire to plug for solderless connection. Fits standard banana jacks. Available in four colors.

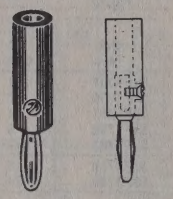
Stk. No.	Color	1-9	10-24	25-99	100-499
39N944 39N940 39N941 39N942	Red Black Yellow Green	.80	.66	.58	.49



INSULATED BANANA PLUG

Brass, nickel plated plug. Four-leaved phosphor bronze, nickel plated spring. Set screw secures wire without soldering. Fits standard banana jacks. Molded handle available in four colors: red, black, green and yellow.

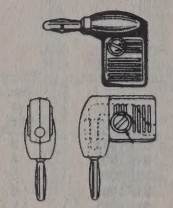
Stk. No.	Color	1-9	10-24	25-99	100-499
39N863 39N864 39N865 39N866	Red Black Green Yellow	.80	.66	.58	.49



METER BANANA PLUG

Brass, nickel plated plug. Four-leaved phosphor bronze, nickel plated spring. Molded in two halves for easy assembly with screw and nut. Fits std banana jacks. Phenolic handle.

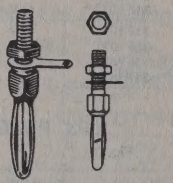
Stk. No.	Color	1-9	10-24	25-99	100-499
39N965 39N966	Red Black	1.26	1.03	.92	.76



BANANA PLUG

Hex brass, nickel plated body. Four-leaved phosphor bronze, nickel plated spring. Supplied with hex nut, tinned lug. Threaded stud for panel mntg. Fits std. jacks.

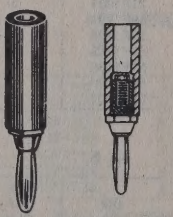
Stock No.	EACH 1-9	10-24	25-99	100-499
38N291	.97	.79	.71	.60



INSULATED BANANA PLUG

Hex brass, nickel plated plug. Four-leaved phosphor bronze, nickel plated spring. Wire can be soldered to brass stud or plug. Stud also locks wire for solderless connection.

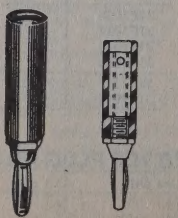
Stk. No.	Color	EACH 1-9	10-24	25-99	100-499
39N934 39N935 39N936 39N937 39N938 39N939	Red Black Yellow Green Blue White	.96	.79	.70	.58



INSULATED BANANA PLUG

Hex brass nickel plate with mating brass spacer plug. Four-leaved phosphor bronze, nickel plated spring. Fits standard banana jacks.

Stk. No.	Color	EACH 1-9	10-24	25-99	100-499
35N635 35N640	Red Black	1.69	1.38	1.23	1.03



SOLDERLESS BANANA PLUG—TAPERED HANDLE

RATINGS
Current: 15 amps
Breakdown Voltage: 5000 VDC
Contact Resistance: 0.010 ohms maximum

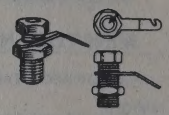
DESCRIPTION
Compact, high voltage insulated plug can be used in a wide variety of applications. Fast, solderless connection of up to 16 gauge wire. High grade nickel silver spring with nickel plated brass body.

Stock No.	Color	1-9	10-49	50-99	100-499
81N1187 81N1188 81N1189 81N1190 81N1191 81N1192	White Red Black Green Yellow Blue	.78	.72	.65	.43

BANANA JACKS

Hex brass, nickel plated body. Supplied with hex nut and tinned lug. Mounts in ¼" hole in panels up to ⅜" thick. Accepts std. banana plugs.

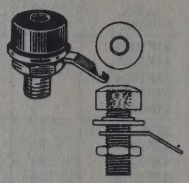
Stock No.	1-9	10-24	25-99	100-499
39N867	.46	.38	.34	.28



INSULATED BANANA JACKS

Brass, nickel plated body. Supplied with hex nut/fiber washer. Mounts in 5/16" hole in panels up to ⅜".

Stock No.	Color	1-9	10-24	25-99	100-499
39N868 39N869 39N870 39N871	Red Black Green Yellow	.53	.43	.39	.32



COMBINATION INSULATED JACK

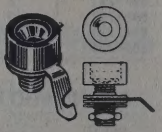
Brass, nickel plated body. Phosphor bronze spring. Hex nut/fiber washer. Accepts std. phone tip or banana plugs. Mnts. in 5/16" hole in panels up to ½" thick.

Stock No.	Type	Color	1-9	10-24	25-99	100-499
35N2760 35N2761 35N2762 35N2763	848R 848B 848GR 848Y	Red Black Green Yellow	.85	.69	.62	.52

INSULATED BANANA JACK

Brass, nickel plated body. Supplied with hex nut/fiber washer/lockwasher/brass tinned lug.

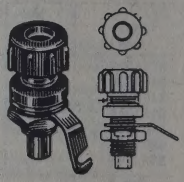
Stock No.	Color	1-9	10-24	25-99	100-499
39N967 39N968	Red Black	.80	.66	.58	.49



NYLON BANANA JACK

Brass, nickel plated body. Molded nylon, per MIL-P-20693A, head. Hex nut, brass tinned lug. Mts. in 5/16" hole in panels up to ¼" thick.

Stock No.	Color	1-9	10-24	25-99	100-499
39N972 39N973	Red Black	1.14	.94	.83	.70

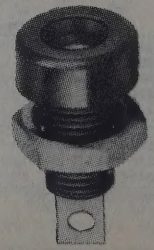


BANANA JACK—SOLDER TYPE
For Panel Thicknesses up to 8.8mm (.343")

RATINGS
Current: 15 amps
Breakdown Voltage: 10,000 VDC
Contact Resistance: 0.010 ohms maximum

DESCRIPTION
Versatile jack has cadmium plated formed contact with pierced terminal for solder connection. Threaded nylon body withstands 7kg. cm. (6lb. in.) of thread stripping torque.

Stock No.	Color	1-9	10-49	50-99	100-499
81N1227 81N1228 81N1229 81N1230 81N1231 81N1232	White Red Black Green Yellow Blue	.42	.39	.35	.23



TIP PLUGS & JACKS

VOLTREX® brand

Fig. A

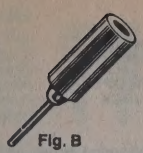


Fig. B

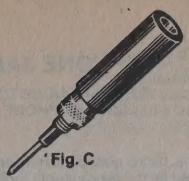


Fig. C

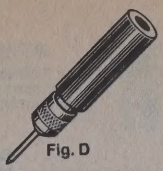


Fig. D

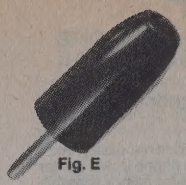


Fig. E

Fig. F

SOLDERLESS TIP PLUG

Brass, nickel plated body. Solderless wire fits thru body of tip then wraps around screw portion and is tightened with knurled collar. Force fit type. Fits std. phone tip jacks.

Stock No.	Fig.	1-9	10-24	25-99	100-499
39N850	A	.51	.41	.37	.31

INSULATED TIP PLUG

Brass, nickel plated plug. Drawn hollow tip for easy soldering. Molded Butyrate per Fed. Spec. L-P349A, Type 3, Class MS handle. Fits standard phone tip jack.

Stock No.	Fig.	Color	1-9	10-24	25-99	100-499
35N689	B	Red	.22	.19	.18	.15
35N690		Black				

INSULATED TIP PLUG

Brass, nickel plated plug. Solderless. Wire fits thru body of tip, then wraps around screw portion and tightened with knurled collar. Threaded type. Fits std. phone tip jacks. Molded handle.

Stock No.	Fig.	Color	1-9	10-24	25-99	100-499
39N852	C	Red	.60	.51	.46	.40
39N853		Black				

INSULATED TIP PLUG

Brass, nickel plated plug. Solderless. Knurled, threaded type collar. Molded handle. Fits std. phone tip jacks.

Stock No.	Fig.	Color	1-9	10-24	25-99	100-499
35N775	D	Red	.60	.51	.46	.40
35N776		Black				
35N777		Green				
35N778		Yellow				

TIP PLUG—SOLDERLESS

Recessed metal head prevents exposure when plugged into standard jack. Nickel plated brass. Solderless connection of up to 16 gauge wire. Current rating: 5A

Stock No.	Fig.	Color	1-9	10-49	50-99	100-499
81N1239	E	White	.85	.78	.65	.43
81N1240		Red				
81N1205		Black				
81N1206		Green				
81N1207		Yellow				
81N1208		Blue				

METER TIP PLUG

Brass, nickel plated plug. Molded in two halves for easy assembly with screw and nut. Fits standard phone tip jacks. Molded phenolic handle. Red or black.

Stock No.	Fig.	Color	1-9	10-24	25-99	100-499
39N963	F	Red	.80	.67	.61	.54
39N964		Black				

PHONE TIP JACK

Brass, nickel plated body. Phosphor bronze contact. Positive contact with std. phone tip plugs. Hex nut. Mounts in ¼" hole in panel up to ⅜" thick.

Stock No.	Fig.	1-9	10-24	25-99	100-499
39N855	G	.64	.54	.49	.43

INSULATED PHONE TIP JACKS

Brass, nickel plated body. Phosphor bronze contact. Supplied with hex nut/fiber washer. Mounts in 5/16" hole in panels up to ⅜" thick. Accepts standard phone tip plugs.

Stock No.	Fig.	Color	1-9	10-24	25-99	100-499
39N856	H	Red	.59	.48	.45	.39
39N857		Black				
39N858		Green				
39N859		Yellow				

COMBINATION INSULATED JACK

Brass, nickel plated body. Phosphor bronze spring. Hex nut/fiber washer. Accepts std. phone tip or banana plugs. Mnts. in 5/16" hole in panels up to ½" thick.

Stock No.	Fig.	Color	1-9	10-24	25-99	100-499
35N2760	I	Red	.73	.62	.56	.49
35N2761		Black				
35N2762		Green				
35N2763		Yellow				

STANDARD TIP JACK

Phosphor bronze formed contact per QQ-B-750 cadmium plated slotted terminal for corrosion resistance. Hex socket head 4.77mm (.188"). Threaded nylon body withstands 4.5kg. cm. (4.0 lb. in.) of thread stripping torque. Current 10A

Stock No.	Fig.	Color	1-9	10-49	50-99	100-499
81N1193	J	Violet	.43	.40	.33	.22
81N1194		White				
81N1195		Red				
81N1196		Black				
81N1197		Green				
81N1198		Yellow				
81N1199		Blue				
81N1200		Orange				
81N1201		Brown				
81N1202		Gray				

METAL CLAD TIP JACK

Phosphor bronze formed contact per QQ-B-750, silver plated, slotted terminal. Threaded brass jacket, nickel plated, covers nylon body for high corrosion resistance. For Panel Thicknesses up to 7.10mm (.281"). Current: 10A

Stock No.	Fig.	Color	1-9	10-49	50-99	100-499
81N1203	K	White	.59	.54	.45	.30
81N1204		Red				
81N1223		Black				
81N1224		Green				
81N1225		Yellow				
81N1226		Blue				

Fig. G

Fig. H

Fig. I

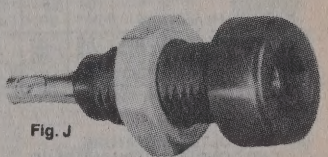


Fig. J

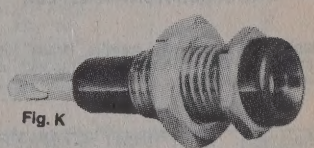


Fig. K

HORIZONTAL TEST JACK

Design accepts 2.03mm (.080") dia. tip plug in either end, from top or bottom. Gold plated beryllium copper formed contact. Current rating: 5 amps. Mounts in two .054 x .002" holes on .400 x .005" centers.

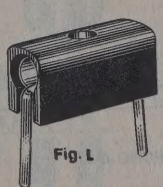


Fig. L

Stock Number	Fig.	Color	1-9	10-24	25-99	100-499
99N1725	L	White	.64	.57	.50	.45
99N1726		Red				
99N1727		Black				
99N1729		Green				
99N1731		Blue				
99N1732		Yellow				

MINIATURE HORIZONTAL TEST JACK

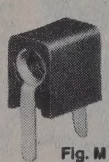


Fig. M

Compact size fits into today's high density circuit board designs. Probe access from both ends. Current: 5A

Stock Number	Fig.	Color	1-9	10-49	50-99	100-499
81N1209	M	White	.58	.50	.44	.37
81N1210		Red				
81N1211		Black				
81N1212		Green				
81N1213		Yellow				
81N1214		Blue				

PC MOUNT VERTICAL TEST JACK—FORMED CONTACT SPRING-LOADED TYPE

Fig. N

Save production time and cost with this unique jack. Spring loaded shank holds jack in up to 2.38mm (.094") thick circuit boards throughout assembly and wave solder operations. Accepts standard tip plug. Current: 5A

SILVER PLATING

Stock No.	Fig.	Color	1-9	10-49	50-99	100-499
81N1215	N	White	.38	.32	.29	.24
81N1216		Red				
81N1217		Black				
81N1218		Green				
81N1219		Yellow				
81N1220		Blue				

10

VOLTREX® brand

Plugs and Jacks

PHONE PLUGS

TWO CONDUCTOR PHONE PLUG

Brass, nickel plated plug. Molded handle except *. Mates with two conductor std. phone jacks. Solder type plug has tinned terminals for easy solderability.

Stock No.	Handle	Lug Type	1–9	10–24	25–99	100–249
39N674	Red	Solder	1.40	1.05	.97	.79
39N763	Black	Solder	1.40	1.05	.97	.79
39N764	Metal*	Solder	2.04	1.53	1.40	1.15
39N761	Red	Screw	1.48	1.11	1.02	.84
39N760	Black	Screw	1.48	1.11	1.02	.84
39N765	Metal*	Screw	2.32	1.74	1.60	1.31

THREE CONDUCTOR PHONE PLUG

Molded or brass, nickel plated handle. Brass nickel plated plug. Mates with std. phone jacks. Solder type plug has tinned terminals.

Stock No.	Handle	Lug Type	1–9	10–24	25–99	100–249
39N676	Red	Solder	2.12	1.59	1.46	1.19
39N771	Black	Solder	2.12	1.59	1.46	1.19
39N767	Metal	Solder	2.56	1.92	1.76	1.44
39N675	Black	Screw	2.44	1.83	1.68	1.37
39N766	Metal	Screw	2.76	2.07	1.90	1.55

MINIATURE TWO CONDUCTOR PHONE PLUG

Molded or brass, nickel plated handle. Brass, nickel plated plug. Has tinned terminals. Mates with miniature phone jack.

Stock No.	Handle	1–9	10–24	25–99	100–249
39N747	Red	1.28	.96	.88	.72
39N746	Black	1.28	.96	.88	.72
39N748	Metal	1.80	1.35	1.24	1.01

ULTRA-MINIATURE TWO CONDUCTOR PHONE PLUG

Black, molded Bakelite handle. Brass, nickel plated plug. Tinned terminals. Mates with ultra-miniature phone jack.

Stock No.	1–9	10–24	25–99	100–249
22N395	1.24	.93	.86	.70

PHONE JACK

TWO CONDUCTOR OPEN

CIRCUIT PHONE JACK

Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts two conductor std phone plug. Needs 1" clearance behind panel, ⅜" dia. hole.

Stock No.	1–9	10–24	25–99	100–249
39N782	.92	.69	.64	.52

PHONE JACKS

THREE CONDUCTOR OPEN CIRCUIT PHONE JACK

Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts three conductor phone plug. Needs 1" clearance behind panel, ⅜" dia. hole.

Stock No.	1–9	10–24	25–99	100–249
39N665	1.08	.81	.75	.61

MINIATURE TWO CONDUCTOR OPEN CIRCUIT PHONE JACK

Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts two conductor miniature phone plug. Mounts in ¼" dia. hole.

Stock No.	1–9	10–24	25–99	100–249
39N744	.76	.57	.53	.43

ULTRA-MINIATURE TWO CONDUCTOR CLOSED CIRCUIT PHONE JACK

Brass, nickel plated bushing and spring. Brass, tin plated terminals. Accepts two conductor ultra-min. phone plug. Mounts in 3/16" diam. hole.

Stock No.	1–9	10–24	25–99	100–249
22N394	1.08	.81	.75	.61

PHONO PLUGS & JACKS

SHIELDED HANDLE PHONO PLUG

Steel, cadmium plated shell. Drawn brass, nickel plated pin. .062" fiber washer. Mates with phono jacks. Finger grip. Neat appearance.

Stock No.	1–9	10–24	25–99	100–249
39N685	.80	.60	.55	.45

FRONT MOUNT PHONO JACK

Steel, cadmium plated shell. Brass, nickel plated contacts. Brass, cadmium plated lugs. Laminated phenolic insulation. Mates with phono plugs. Mnts. in ¼" dia. hole. Supplied with nut, washer and solder lug.

Stock No.	1–9	10–24	25–99	100–249
39N684	.56	.42	.39	.32

INLINE PHONO JACK

Steel, cadmium plated shell. Brass, nickel plated contacts. Laminated phenolic insulation. Mates with phono plugs. Combo clamp and shielded jack.

Stock No.	1–9	10–24	25–99	100–249
22N250	1.20	.90	.83	.68

VOLTREX® brand

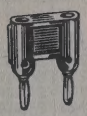
DUAL BANANA PLUG

Brass, nickel plated plug. Four-leaved, phosphor/bronze, nickel plated spring. Steel, cadmium plated screw. 1.0 pf cap. between conductors. Wire held with internal set screw.

Stk. No.	Color99	1-499	100-999	500-Up	1000-
39N895	Red	2.65	1.77	1.56	1.38
39N896	Black				

DUAL BANANA PLUG

Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Molded Butyrate handle. 7/32" dia. cable guide on rear. 15 amps AC for 10°C. temp. rise cont. duty.



Stk. No.	Color	1-24	25-49	50-99	100-249
34N856	Red	1.55	1.40	1.32	1.16
34N857	Black				

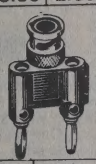
BINDING POST TO BNC MALE

Front: BNC male. Rear: Insulated five-entry binding post. Permits adaption of a five-entry insulated binding post to equipment using BNC jack.

Stk. No.	Color	1-24	25-49	50-99	100-249
35N1069	Red	3.95	3.56	3.36	2.96
35N1070	Black				

BNC MALE TO BANANA PLUGS

Rear: BNC series co-axial plug. Front: Dual banana plugs on ¾" centers. Banana jack holes for side stacking. Black.



Stk. No.	1-24	25-49	50-99	100-249
35N1067	6.75	6.08	5.74	5.06

DUAL SHORTING PLUG

Internally shorted plug mates with standard dual binding posts on ¾" centers. Rear banana jack holes allow connection to shorted posts. Black.

Stk. No.	1-24	25-49	50-99	100-249
34N858	2.35	2.12	2.00	1.76

BINDING POSTS TO BNC MALE

Meet UG-144 I/U. Front: BNC series co-axial plug. Rear: Insulated dual five-way binding posts, red and black, on ¾" centers. Black body.

Stk. No.	1-24	25-49	50-99	100-249
34N870	7.95	7.16	6.76	5.96

BINDING POSTS TO BNC FEMALE

Front: BNC series co-axial jack. Rear: Insulated, dual five-way binding posts, red and black on ¾" centers. Black body.

Stk. No.	1-24	25-49	50-99	100-249
35N1068	6.50	5.85	5.53	4.88

BINDING POSTS

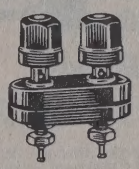
METAL BINDING POST

Brass, nickel plated head and body. Accepts standard phone tip or banana plugs.

Stk. No.	1-24	25-49	50-99	100-499
38N293	.85	.69	.62	.52

DUAL ASSEMBLY BINDING POST NYLON

Brass, nickel plated body. Captive molded Nylon head. Molded black insulation, cross slotted to accept std. phone tips in post either forward or sideways. Mounts in 2, ½" hole on ¾" mounting centers in panels up to ¼" thick. Accepts single or dual banana plugs. Supplied with 4 hex nuts. 2 flat washers.



Stk. No.	Color	1-9	10-24
35N845	Two Black	2.97	2.43
35N846	Two Red		
35N847	One Red, One Black		

INSULATED SPADE LUG

Steel hot tinned, .030" thick lug. Molded handle Tapered slots fit studs from ¼" down to #6 dia. Fits all standard binding posts. Accepts std. banana plugs in rear. Solder bridge for wire connection up to No. 18 AWG.

Stk. No.	Color	1-24	25-49	50-99	100-499
39N977	Red	.15	.14	.14	.12
39N978	Black				

NYLON BINDING POST

Captive molded Nylon, with brass, gold plated insert hex head. Brass, gold plated body. Molded Nylon, with gold plated brass insert washers. Accepts phone tip, spade lug, banana plug, alligator clip, standard or solid wire up to 15 AWG.

Stk. No.	Color	1-24	25-49	50-99	100-499
35N844	Red	2.97	2.43	2.16	1.80
39N978	Black				

Standard Binding Post

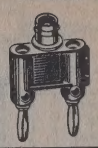
For Panel Thicknesses up to 7.15 mm (281")

Description: Fully insulated nylon binding post solves many common design problems. Nylon is flatted to prevent tuning. Metal body is silver plated with turret terminal. Threaded nylon body withstands 7kg. cm. (6.0 lb. in.) of thread stripping force. **Ratings:** Current: 15 amps. Breakdown Voltage: 8000 VDC.

Stk. No.	Color	1-24	25-49	50-99	100-499
81N1245	White	1.13	.97	.81	.65
81N1246	Red				
81N1247	Black				
81N1248	Green				
81N1249	Yellow				
81N1250	Blue				

BNC FEMALE TO BANANA PLUGS

Front: Dual banana plugs on ¾" centers. Banana jack holes for side stacking. Rear: BNC series co-axial jack. Black body.



Stk. No.	1-24	25-49	50-99	100-249
34N860	4.25	3.83	3.61	3.19

Standard Binding Post—UL Type with Keyed Insulators

For Panel Thicknesses From 1.58mm (.062") to 6.35mm (.250")

Description: New binding post designed to meet UL-1244, IEC 348.P and C39.5-1974 specifications for distance of thumb nut opening. Keyed insulators prevent turning of installation. Metal body has turret terminal and is gold plated. **Ratings:** Current: 15 amps. Minimum Withstanding Voltage: 1000 VAC RMS. Contact Resistance: 0.01 ohms maximum.

Stk. No.	Color	1-24	25-49	50-99	100-499
81N1233	White	2.50	2.14	1.79	1.43
81N1234	Red				
81N1235	Black				
81N1236	Green				
81N1237	Yellow				
81N1238	Blue				

Standard Binding Post—MIL Type with Keyed Insulator

For Panel Thicknesses from 1.58mm (.062") to 4.78mm (.188")

Description: Keyed insulators prevent turning of installation. Metal body has turret terminal for soldered wire connection and is gold plated. **Ratings:** Current: 15 amps. Minimum Withstanding Voltage: 1000 VAC RMS. Contact Resistance: 0.01 ohms maximum.

Stk. No.	Color	1-24	25-49	50-99	100-499
81N1251	White	2.50	2.14	1.79	1.43
81N1252	Red				
81N1253	Black				
81N1254	Green				
81N1255	Yellow				
81N1256	Blue				

Press Fit Tip Jack

For Panel Thicknesses up to 9.05mm (.375%)

Description: Nylon body design saves production time and costs. Installs by pressing into mounting hole. Requires no mounting hardware. Silver plated contact with turret terminal sets in a nylon body. [Closed entry feature prevents access of probes over 2.16mm (.085").] **Ratings:** Current: 5 amps. Breakdown Voltage: 5000 VDC. Contact Resistance: 0.005 ohms maximum.

Stk. No.	Color	1-24	25-49	50-99	100-499
81N1221	White	.45	.38	.32	.26
81N1222	Red				
81N1241	Black				
81N1242	Green				
81N1243	Yellow				
81N1244	Blue				

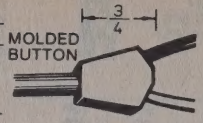
10

Patch Cords, Connectors

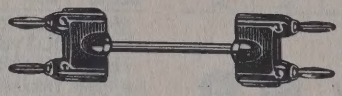
PATCH CORDS AND CLIPS

CABLE TYPES AVAILABLE

	Wire "A"	Wire "B"
Descr.	18 ga. 65/36 str.	RG58/U Coax
Insul.	Vinyl	Polyethylene
Jacket	Vinyl	Vinyl
Nom. Cap.	30 pd/ft	50 ohm imp.



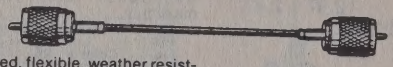
DOUBLE PLUG BOTH ENDS



Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Wire "B," 36" L. Molded Butyrate handle. Mates with std. dual binding post having 3/4" cntrs. Each end terminates with molded double banana plug. Interconnects unlimited no. of multiple circuits top and side.

Stock No.	Wire	1-24	25-49	50-99	100-249
34N801	"A"	9.25	8.33	7.86	6.94
34N805	"B"	9.25	8.33	7.86	6.94

UHF PLUG BOTH ENDS



Feature pre-assembled, flexible, weather resistant RG-58U cable. Coaxial connectors crimped to wire with unique waterproof seal for greater flexibility and strain relief. With wire "B".

Stock No.	Cable Lgth.	1-9	10-24	25-99	100-Up
16N1104	12"	5.88	5.52	5.20	4.52
16N1105	24"	6.17	5.79	5.46	4.74
16N1106	36"	6.44	6.04	5.70	4.95

BNC MALE BOTH ENDS

With wire "B" as specified above.

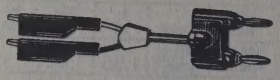
Stock No.	Lgth.	1-24	25-49	50-99	100-
34N842	24"	9.95	8.96	8.46	7.46
34N843	36"	9.95	8.96	8.46	7.46

CROSS PATCH BANANA PLUG CORD

Brass, nickel plated body. Four-leaved, beryllium copper, nickel plated spring. Uses wire "A". Molded Butyrate handle. Interconnects unlimited number of multiple circuits. Positive, lasting contact for all banana plugs on top and side. With plug spring 9/16" long.

Stock No. Red	Stock No. Black	Type BBP--BP	Wire Lgth.	1-24	25-49	50-99	100-249
34N877	34N878	1808	8"	2.40	2.16	2.04	1.80
34N879	34N880	1812	12"	2.40	2.16	2.04	1.80
34N848	34N849	1824	24"	2.40	2.16	2.04	1.80
34N850	34N851	1836	36"	2.40	2.16	2.04	1.80

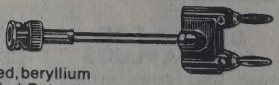
DOUBLE PLUG TO ALLIGATOR CLIPS



Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Steel, cadmium plated clip. Molded vinyl plastic insulation. 36" long wire. Mates with std. dual binding post having 3/4" cntrs. One end with double banana plug, other has insulated alligator clips; one red, one black. Polarity indication molded in.

Stock No.	Wire	1-24	25-49	50-99	100-249
34N807	"A"	11.95	10.76	10.16	8.96
34N811	"B"	11.95	10.76	10.16	8.96

BNC MALE TO DOUBLE PLUG



Brass, nickel plated plug. Four-leaved, beryllium copper, nickel plated spring. Molded Butyrate handle. Wire "B." 36" L. Mates with std. dual binding post having 3/4" cntrs. One end double banana plug other has BNC male plug.

Stock No.	1-24	25-49	50-99	100-249
34N815	10.50	9.45	8.93	7.88

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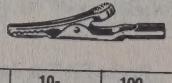
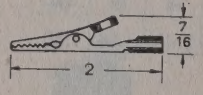
2" ALLIGATOR CLIPS

3/8" jaw opening. Accepts standard banana plug in rear.

SOLDER CONNECTION

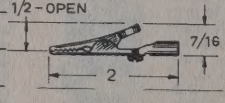




Stock No.	1-9	10-99	100-499
28N500	.23	.18	.15

2" SCREW CONNECTION

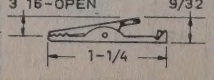
Stock No.	1-9	10-99	100-499
28N501	.27	.21	.17
28N502	.39	.30	.24



1¼" MINIATURE ALLIGATOR CLIP

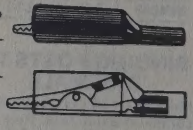
3/16" jaw opening. Jaws match accurately and grip securely. Unique spring construction. Solder connection and ears for crimping.

Stock No.	1-9	10-99	100-499
28N528	.17	.13	.11
28N529	.21	.16	.13



ALLIGATOR CLIP BOOTS

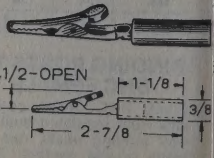
Molded vinyl plastic material. Fully insulates clip while allowing maximum jaw opening.



Stock No.	Color	Clip Lgth.	1-9	10-99	100-499
28N492	Red	2"	.13	.10	.08
28N493	Black	2"	.13	.10	.08
28N472	Red	1¼"	.12	.09	.08
28N473	Black	1¼"	.12	.09	.08

ALLIGATOR CLIP ADAPTER

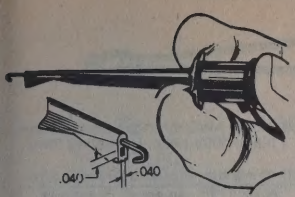
Phone tip to alligator clip. Steel, cadmium plated clip. Molded Butyrate handle. Rear jack permits adapting std. .080 tip plug to alligator clips. Length 2 7/8".

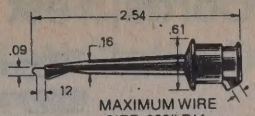


Stock No.	Color	1-9	10-24	25-99	100-Up
28N604	Red	1.71	1.19	.91	.63
28N605	Black	1.71	1.19	.91	.63

Test Leads and Clips

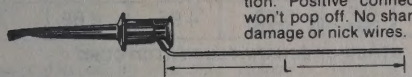
POMONA ELECTRONICS





MAXIMUM WIRE SIZE .090" DIA.

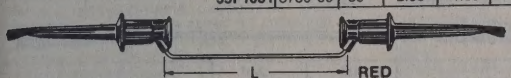
Plunger action clips with gold-plated contact hook can be connected rapidly to component leads. Clip is completely insulated to point of connection. Comfortable finger grip operation. Positive connection that won't pop off. No sharp teeth to damage or nick wires.



SINGLE END MINI GRABBER

No connector on one end to permit connection of various components. Nylon insulation molded directly to clip for added durability. Gold-plated beryllium copper tip for maximum sensitivity. Wire is 20 AWG, stranded 41x36. Extra flexible polyvinyl insulation, .087" outside diameter.

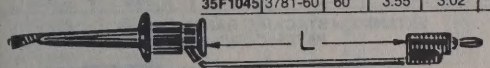
Stk. No.	Type	Lgth.	1-24	25-49	50-99
RED					
35F1020	3780-8	8"			
35F1021	3780-12	12"			
37F1022	3780-24	24"	1.65	1.49	1.40
35F1023	3780-36	36"			
35F1024	3780-48	48"	1.85	1.67	1.57
35F1025	3780-60	60"	2.05	1.85	1.74
BLACK					
35F1026	3780-8	8"			
35F1027	3780-12	12"			
35F1028	3780-24	24"	1.65	1.49	1.40
35F1029	3780-36	36"			
35F1030	3780-48	48"	1.85	1.67	1.57
35F1031	3780-60	60"	2.05	1.85	1.74



DOUBLE ENDED MINI GRABBER

Connectors at both ends for quick connections between test points, without damage from sharp teeth. Both ends have gold-plated beryllium copper hook tips for high conductivity. Nylon insulation molded directly onto wire for added strength. 20 AWG, stranded tin copper wire. Polyvinyl insulation has .087" O.D. Operating range: −25°C to +102°C.

Stk. No.	Type	Lgth.	1-24	25-49	50-99
RED					
35F1032	3781-8	8"			
35F1033	3781-12	12"			
35F1034	3781-18	18"	2.95	2.66	2.51
35F1035	3781-24	24"			
35F1036	3781-36	36"			
35F1037	3781-48	48"	3.15	2.84	1.83
35F1038	3781-60	60"	3.55	3.02	2.00
BLACK					
35F1039	3781-8	8"			
35F1040	3781-12	12"			
35F1041	3781-18	18"	2.95	2.66	2.51
35F1042	3781-24	24"			
35F1043	3781-36	36"			
35F1044	3781-48	48"	3.15	2.84	2.84
35F1045	3781-60	60"	3.55	3.02	3.02

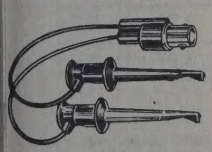


MINI GRABBER-TO MINIATURE STACKING BANANA PLUG

Miniature test clip lead adapts to equipment using miniature banana jacks. Beryllium copper gold-plated hook tip. Nylon insulation molded directly onto clip and wire. Wire is 20 AWG, stranded 41x36 T.C. Extra flexible polyvinyl insulation.

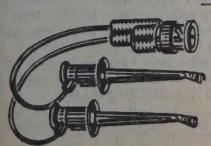
Stk. No.	Type	Lgth.	Net
RED			
35F955	3784-12-2	12"	2.95
35F956	3784-24-2	24"	2.95
35F957	3784-36-2	36"	2.95
35F958	3784-48-2	48"	3.15
35F959	3784-60-2	60"	3.35
BLACK			
35F950	3784-12-0	12"	2.95
35F951	3784-24-0	24"	2.95
35F952	3784-36-0	36"	2.95
35F953	3784-48-0	48"	3.15
35F954	3784-60-0	60"	3.35

MINI GRABBER CLIPS TO BNC RECEPTACLE



Model 3788. Molded breakout converts coaxial cable with a male plug to test cable with clips. Clips are gold-plated beryllium copper with hook tips. Nylon insulation molded directly onto one black, one red wire. Wire 20 AWG tinned copper, PVC insulation .087" O.D. Connector BNC receptacle UG-1094/U, Length. 7".

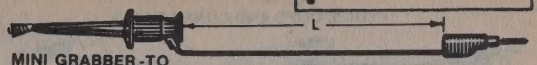
Stock No.	Type	1-24	25-49	50-99	100-249
35F1061	3788	6.95	6.26	5.91	5.21



MINI GRABBER TO BNC PUG

Molded breakout converts coaxial cable with BNC receptacle to test cable with clips. Beryllium copper gold-plated hook tip. Nylon insulation molded directly onto clip and wire: one red, one black.

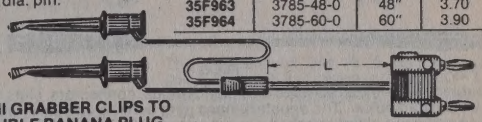
Stk. No.	Type	Lgth.	Net
35F975	3789	7"	7.95



MINI GRABBER-TO STACKING PIN TIP PLUG

Miniature test clip adapts to equipment using standard pin tip jacks. Beryllium copper gold-plated hook tip. Nylon insulation. .080 dia. ½" long, brass, gold flashed pin tip plug. Beryllium copper, gold flashed stack-up. Accepts .080 dia. pin.

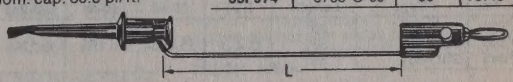
Stk. No.	Type	Lgth.	Net
RED			
35F965	3785-12-2	12"	3.50
35F966	3785-24-2	24"	3.50
35F967	3785-36-2	36"	3.50
35F968	3785-48-2	48"	3.70
35F969	3785-60-2	60"	3.90
BLACK			
35F960	3785-12-0	12"	3.50
35F961	3785-24-0	24"	3.50
35F962	3785-36-0	36"	3.50
35F963	3785-48-0	48"	3.70
35F964	3785-60-0	60"	3.90



MINI GRABBER CLIPS TO DOUBLE BANANA PLUG

For use with equipment having standard binding posts or banana jacks. Shielded coaxial cable, RG58C/U, .195" O.D., nom. cap. 30.8 pf/ft.

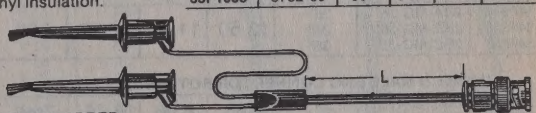
Stk. No.	Type	Lgth.	Net
35F970	3786-C-18	18"	
35F971	3786-C-24	24"	9.25
35F972	3786-C-36	36"	
35F973	3786-C-48	48"	9.85
35F974	3786-C-60	60"	10.45



MINI GRABBER-TO STACKING BANANA PLUG

Miniature test clip lead adapts to equipment using standard banana jacks. Beryllium copper gold-plated hook tip. Nylon insulation molded directly onto clip and wire. Wire is 20 AWG, stranded 41x36 T.C. Extra flexible polyvinyl insulation.

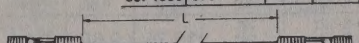
Stk. No.	Type	Lgth.	1-24	25-49	50-99
RED					
35F1046	3782-12	12"	2.85	2.57	2.42
35F1047	3782-24	24"	2.85	2.57	2.42
35F1048	3782-36	36"	2.85	2.57	2.42
35F1049	3782-48	48"	3.05	2.75	2.59
35F1050	3782-60	60"	3.25	2.93	2.76
BLACK					
35F1051	3782-12	12"	2.85	2.57	2.42
35F1052	3782-24	24"	2.85	2.57	2.42
35F1053	3782-36	36"	2.85	2.57	2.42
35F1054	3782-48	48"	3.05	2.75	2.59
35F1055	3782-60	60"	3.25	2.93	2.76



MINI GRABBER TO BNC MALE

For use with equipment having BNC receptacles. Beryllium copper gold-plated hook tip. Shielded coaxial cable, .195" O.D., 30.8 pf/ft.

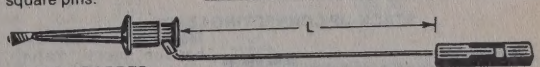
Stk. No.	Type	Lgth.	1-24	25-49	50-99
35F1056	3787-C-18	18"			
35F1057	3787-C-24	24"			
35F1058	3787-C-36	36"	9.95	8.96	8.46
35F1059	3787-C-48	48"	10.55	9.50	8.97
35F1060	3787-C-60	60"	11.15	10.04	9.48



(.025) SQUARE PIN RECEPTACLE PATCH CORD

Excellent for use as jumper for boards with .025 in. square pins.

Stk. No.	Type	Color	Lgth.	1-24	25-49	50-99
35F1693	4741-12	Black	12"	4.95	4.46	4.21
35F1694	4741-12	Red	12"	4.95	4.46	4.21
35F1695	4741-24	Black	24"	4.95	4.46	4.21
35F1696	4741-24	Red	24"	4.95	4.46	4.21
35F1697	4741-36	Black	36"	4.95	4.46	4.21
35F1698	4741-36	Red	36"	4.95	4.46	4.21



MINI GRABBER TO .025 SQUARE PIN RECEPTACLE

Miniature test clip lead has .025 square pin receptacle which slides over .025 square pins. Beryllium copper gold-plated hook tip. Wire is 22 AWG, stranded 19x34 T.C. .025 pin receptacle has gold-plated beryllium copper contact.

Stk. No.	Type	Lgth.	Net
RED			
35F981	3783-12-2	12"	3.95
35F982	3783-24-2	24"	3.95
35F983	3783-36-2	36"	3.95
BLACK			
35F976	3783-12-0	12"	3.95
35F977	3783-24-0	24"	3.95
35F978	3783-36-0	36"	3.95

10

POMONA ELECTRONICS

Patch Cords, Test Leads

PLUGS, CLIPS AND CONNECTORS

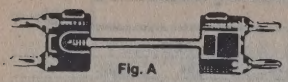


Fig. A

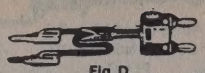


Fig. D

Fig. B

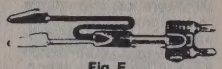


Fig. E

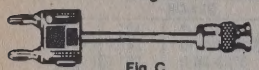


Fig. C

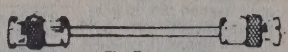


Fig. F

Fig. G

¾" double banana plug cabled to a variety of plugs, connectors, clips and tips as indicated below. The double banana plug permits parallel multiple stacking and has a clearly marked ground connection. Color of plug body matches cable color. *Two conductor twisted 18 ga. (65 x 35) wire. Vinyl jacket and insulation. Nom. cap. 30 pf/ft. gray color. **Shielded microphone cable. Polyethylene insulation. Vinyl jacket. Nom. cap. 30.8 pf/ft, gray color. Coaxial cable, cir. blk. †50 ohm RG58C/U, ‡75 ohm RG59 B/U § 93 ohm RG62 A/U.

WITH DOUBLE PLUGS EACH END—Fig. A

Stk. No.	Type	Length	1-24	25-49	50-99	100-249
34F801	28A-36*	36"	9.25	8.33	7.86	6.94
34F803	2BB-36**	36"				
34F805	2BC-36†	36"				

WITH ALLIGATOR CLIPS—Fig. B.

34F807	2BA-AL-36*	36"	11.95	10.76	10.16	8.96
34F809	2BB-AL-36**	36"				
34F811	2BC-AL-36†	36"				

WITH UG88E/U MALE BNC CONNECTOR—Fig. C.

34F813	2BB-BNC-36**	36"	10.50	9.45	8.93	7.88
34F815	2BC-BNC-36†	36"				

WITH .080 DIA. PHONE TIP PLUG—Fig. D.

34F821	2BC-PP-36†	36"	10.50	9.45	8.93	7.88

WITH MINIGATOR CLIPS—Fig. E.

34F823	2BA-MG-36*	36"	12.50	11.25	10.63	9.38
34F825	2BB-MG-36**	36"				
34F827	2BC-MG-36†	36"				

UG88E/U MALE BNC CONNECTOR BOTH ENDS—Fig. F.

34F842	BNC-C24†	24"	9.95	8.96	8.46	7.46
34F843	BNC-C36†	36"				

CRIMP BNC BOTH ENDS—Fig. G

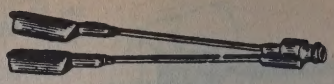
35F1072	2249-C-12†	12"	9.35	8.42	7.95	7.01
35F1073	2249-C-24†	24"				
35F1074	2249-C-36†	36"				
35F1075	2249-C-48†	48"	9.95	8.96	8.46	7.46
35F1076	2249-C-60†	60"	10.55	9.50	8.97	7.91
35F1077	2249-E-12‡	12"	10.75	9.68	9.14	8.06
35F1078	2249-E-24‡	24"				
35F1079	2249-E-36‡	36"				
35F1080	2249-E-48‡	48"	11.35	10.22	9.65	8.51
35F1081	2249-E-60‡	60"	11.95	10.76	10.16	8.96
35F1082	2249-M-12§	12"	11.25	10.13	9.56	8.44
35F1083	2249-M-24§	24"				
35F1084	2249-M-36§	36"				
35F1085	2249-M-48§	48"	11.85	10.67	10.07	8.89
35F1086	2249-M-60§	60"	12.45	11.21	10.58	9.34

STACK-UP CONNECTING LEADS

Model B. Fits all standard banana jacks. Permit stack-up and side connections

Stk. No.	Type	Length	Code	1-24	25-49	50-99	100-249
34F875	B-4	4"	Red	2.40	2.16	2.04	1.80
34F876	B-4	4"	Black				
34F877	B-8	8"	Red				
34F879	B-12	12"	Red				
34F880	B-12	12"	Black				
34F881	B-18	18"	Red				
34F882	B-18	18"	Black				
34F848	B-24	24"	Red				
34F849	B-24	24"	Black				
34F850	B-36	36"	Red				
34F851	B-36	36"	Black				

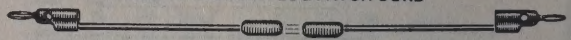
BREAK-OUT CABLE



MODEL 2630. BNC jack - alligator clips, 2-18-AWG stranded leads. Cable and clips are color coded. 1 red and 1 black 500V peak. Operating temp. range: −25° C to +55° C. 7" long.
Model 2631. Same as 2630, except with minigator clips and 20 AWG wire.

Stk. No.	Type	1-24	25-49	50-99	100-249
34F964	2630	5.50	4.95	4.68	4.13
34F965	2631				

STACK-UP BANANA PLUG PATCH CORD

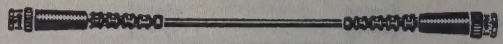


These molded in-line fuse holder patch cords are used as added safety feature. Fuse holder will accept ¼" dia. SFE and AGC fuses (fuse not included). Wire: 18 AWG, stranding 65 x 36 TC.

Stock No. Red	Stock No. Black	Type	Length	1-24	25-49	50-99	100-249
25F2218	25F2200	4274-12	12"	5.25	4.33	4.46	3.94
25F2221	25F2203	4274-48	48"	5.45	4.91	4.63	4.09
25F2222	25F2204	4274-60	60"	5.65	5.09	4.80	4.24

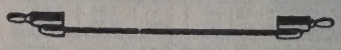
TYPE "F" MALE PUSH-ON BOTH ENDS

This 'F' type fits standard female 'F' connectors. Positive connection is made by pushing the male onto the female connector. Excellent for television inputs, video recorders, cable TV systems, etc.



Stock No.	Type	1st End Conn.	2nd End Conn.	Cable	RG Type	Net
81F4667	4920-PP-48	Push-on Type 'F' (male)	Push-on Type 'F' (male)	Shielded coax., CATV cable	59	6.75

MINIATURE STACK-UP BANANA PLUG



Model 1081 miniature banana plug: fits 1.04" banana jacks. Stocked in black only.

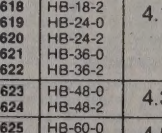
Stk. No.	Type	1-24	25-49	50-99	100-249
29F3053	1081-18-0	2.85	2.57	2.42	2.14
29F3054	1081-24-0				
29F3055	1081-36-0				
29F3056	1081-48-0	3.05	2.75	2.59	2.29
29F3057	1081-60-0	3.25	2.93	2.76	2.44

EXTENSION STACKING BANANA PLUG PATCH CORD—Fig. I.

Dual purpose. Insulates all hot leads when used as an extension cord. Endless extension couplings possible with any banana plug patch cord. Provides vertical stacking from any jack. Reliable solder-bonded connections withstand pull test in excess of 50 lbs. Banana plugs both ends.

Stk. No.	Type	1-24	25-49	50-99	100-249
81F4615	HB-12-0	4.15	3.74	3.53	3.11
81F4616	HB-12-2				
81F4617	HB-18-0				
81F4618	HB-18-2				
81F4619	HB-24-0				
81F4620	HB-24-2				
81F4621	HB-36-0				
81F4622	HB-36-2				
81F4623	HB-48-0	4.35	3.92	3.70	3.24
81F4624	HB-48-2				
81F4625	HB-60-0	4.55	4.10	3.87	3.41
81F4626	HB-60-2				

TEST LEAD HOLDER



Model 1506. Patch cords and cable assemblies can be filled for instant selection. Accepts cables up to .210" diameter. Cold rolled steel with orange baked enamel finish. Wt. 5 oz.
Model 2708. RG cable holder. Similar to 1508, but with .450" slots for coax cable. Blue finish. 11"L x 3.5"W; p slots.

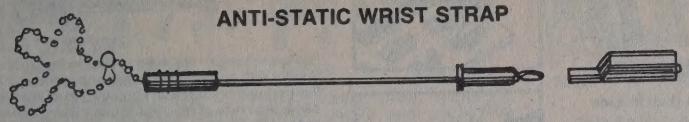
Stk. No.	Type	Color	Max. Cable Dia.	1-24	25-49	50-99	100-249
34F956	1508	Orange	5.33mm (.210")	5.45	4.91	4.63	4.09
34F957	2708	Blue	11.4mm (.450")				
34F1017	4408	Black	8.13mm (.320")				

10

Test Adapters, Patch Cords, Anti-Static Devices

POMONA ELECTRONICS

ANTI-STATIC WRIST STRAP



MODEL 4918-48

This personnel grounding wrist strap protects even the most sensitive I.C. from accidental damage due to static electricity. The self-adjusting chain wrist strap (see inset) allows freedom of movement, yet is attractive and comfortable to wear. The unit features a built-in 1 megohm resistor. The unit is supplied with a banana jack to alligator clip adapter for quick disconnect. The strap can also be used with the model 1614 adapter for even greater versatility.

Stk. No.	Model	1-24	25-49	50-99	100-249
81F4632	4918-48	7.50	6.75	6.38	5.63

CONNECTOR TEST ADAPTERS

An ideal test adapter for the rapid testing of the hard to get at contacts of multi-pin MS type connectors such as miniature circular standard circular and rack and panel. Excellent for testing of continuity, voltage and signal on individual contacts. Test adapter available in pin and socket contact sizes 22, 20, 16 and 12.

- Gold plated contacts.
- Flexible tip prevents damage to connector contacts if test adapter is accidentally bent.
- Flexible tip allows testing of adjacent contacts.
- Fully insulated to prevent accidental shorting.
- Accepts standard banana plug.

UPPER: Banana jack, 4.22 mm (.166) dia. brass, nickel plated.
LOWER: "MS" style contact, gold plated, see tab block.
INSULATION: Polyvinyl chloride (PVC), +50°C. (+122°F.) Max.

Stock No.	Model	Contact Size	Type	1-24	25-49	50-99	100-249
81F4641	4690-0	22	Socket	2.95	2.66	2.51	2.21
81F4649	4690-2	22	Socket	2.95	2.66	2.51	2.21
81F4642	4691-0	22	Pin	2.50	2.25	2.13	1.88
81F4650	4691-2	22	Pin	2.50	2.25	2.13	1.88
81F4643	3560-0	20	Socket	2.25	2.03	1.91	1.69
81F4651	3560-2	20	Socket	2.25	2.03	1.91	1.69
81F4644	3561-0	20	Pin	2.50	2.25	2.13	1.88
81F4652	3561-2	20	Pin	2.50	2.25	2.13	1.88
81F4645	3562-0	16	Socket	2.50	2.25	2.13	1.88
81F4653	3562-2	16	Socket	2.50	2.25	2.13	1.88
81F4646	3563-0	16	Pin	1.95	1.76	1.66	1.46
81F4654	3563-2	16	Pin	1.95	1.76	1.66	1.46
81F4647	3564-0	12	Socket	3.95	3.56	3.36	2.96
81F4655	3564-2	12	Socket	3.95	3.56	3.36	3.96
81F4648	3565-0	12	Pin	1.95	1.76	1.66	1.46
81F4656	3565-2	12	Pin	1.95	1.76	1.66	1.46

Available in Black & Red. Specify Color.

PATCH CORDS & CLIPS

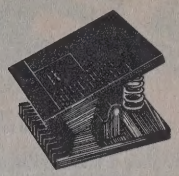
Pin Tip Patch Cords

Stock No.	Model	Color	Length	Fig.	1-24	25-49	50-99	100-249
81F4668	P-4-0	Black	101.6 (4.0)	E	2.95	2.66	2.51	2.21
81F4669	P-4-2	Red	101.6 (4.0)	E	2.95	2.66	2.51	2.21
81F4670	P-8-0	Black	203.2 (8.0)	E	2.95	2.66	2.51	2.21
81F4671	P-8-2	Red	203.2 (8.0)	E	2.95	2.66	2.51	2.21
81F4672	P-12-0	Black	304.8 (12.0)	E	2.95	2.66	2.51	2.21
81F4673	P-12-2	Red	304.8 (12.0)	E	2.95	2.66	2.51	2.21
81F4674	P-18-0	Black	457.2 (18.0)	E	2.95	2.66	2.51	2.21
81F4675	P-18-2	Red	457.2 (18.0)	E	2.95	2.66	2.51	2.21
81F4676	P-24-0	Black	609.6 (24.0)	E	2.95	2.66	2.51	2.21
81F4677	P-24-2	Red	609.6 (24.0)	E	2.95	2.66	2.51	2.21
81F4678	P-36-0	Black	914.4 (36.0)	E	2.95	2.66	2.51	2.21
81F4679	P-36-2	Red	914.4 (36.0)	E	2.95	2.66	2.51	2.21
81F4680	AL-B-12-0	Black	304.8 (12.0)	F	2.95	2.66	2.51	2.21
81F4681	AL-B-12-2	Red	304.8 (12.0)	F	2.95	2.66	2.51	2.21
81F4682	AL-B-24-0	Black	609.6 (24.0)	F	2.95	2.66	2.51	2.21
81F4683	AL-B-24-2	Red	609.6 (24.0)	F	2.95	2.66	2.51	2.21
81F4684	AL-B-36-0	Black	914.4 (36.0)	F	2.95	2.66	2.51	2.21
81F4685	AL-B-36-2	Red	914.4 (36.0)	F	2.95	2.66	2.51	2.21
81F4657	2484-36-0	Black	914.4 (36.0)	G	6.50	5.85	5.53	4.88
81F4658	2484-36-2	Red	914.4 (36.0)	G	6.50	5.85	5.53	4.88
81F4659	3220-36-0	Black	914.4 (36.0)	H	2.60	2.34	2.21	1.95
81F4660	3220-36-2	Red	914.4 (36.0)	H	2.60	2.34	2.21	1.95

Medium Size Test Probes with: Retractable Sheath Banana, Pin Tip, or Banana Plugs

81F4661	4909-48-0	Black	.....	J	5.50	4.95	4.68	4.13
81F4662	4909-48-2	Red	.....	J	5.50	4.95	4.68	4.13
81F4663	4923-48-0	Black	.....	..	4.75	4.28	4.04	3.56
81F4664	4923-48-2	Red	.....	..	4.75	4.28	4.04	3.56
81F4665	4924-48-0	Black	.....	..	4.75	4.28	4.04	3.56
81F4666	4924-48-2	Red	.....	..	4.75	4.28	4.04	3.56

ANTI-STATIC DIP REMOVER



DIP REMOVER, SIZE 16

This DIP remover has 16 (8 per side) equally spaced notches that allows removal of DIP's from 8 to 20 pins. Accepts DIP's up to 8.89 (.35). **COLOR:** Black.

DIP REMOVER, SIZE 24

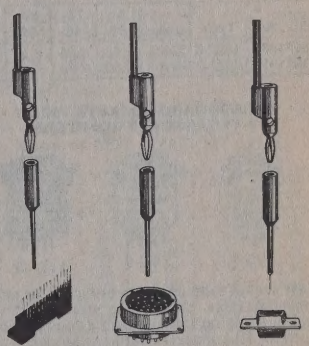
This DIP remover has 24 (12 per side) equally spaced notches that allows removal of DIP's from 22 to 36 pins. Accepts DIP's up to 16.51 (.65). **COLOR:** Black.

DIP REMOVER, SIZE 40

This DIP remover has 40 (20 per side) equally spaced notches that allows removal of DIP's with 40 to 64 pins. Accepts DIP's up to 16.51 (.65). **COLOR:** Black.

Stk. No.	Model	1-24	25-49	50-99	100-249
81F4638	5016	3.50	3.15	2.98	2.63
81F4639	5024	4.50	4.05	3.83	3.38
81F4640	5040	6.50	5.85	5.53	4.88

CONNECTOR TEST ADAPTERS



MODEL 4690 **SOCKET TYPE** **PIN TYPE**

PATCH CORDS AND CLIPS

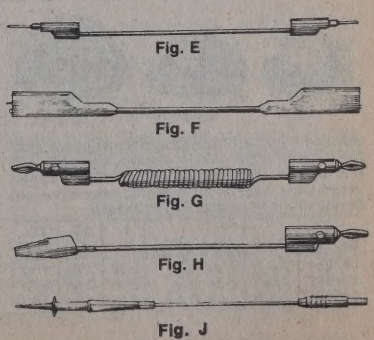


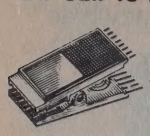
Fig. E
Fig. F
Fig. G
Fig. H
Fig. J

Test Probes, Clips and Sockets

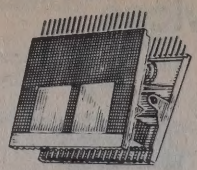
POMONA ELECTRONICS

14/16 Pin Dual In-Line

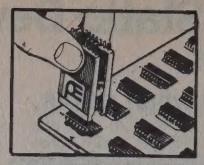
DIP CLIP IC TEST CLIPS

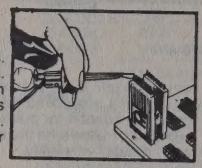


24 Pin Dual In-Line



40 Pin Dual In-Line



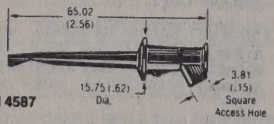


Specially designed to allow the attachment of test probes to IC packages. Design reduces possibility of accidental shorting while testing live circuits. Tarnish resistant, nickel-silver contacts have spring-loaded wiping action to assure good electrical connection. Positive control finger design gives positive positioning to prevent accidentally overloading sensitive circuits. Once connected, numerous test probes may be quickly connected for convenient hands-free testing in the laboratory or in the field.

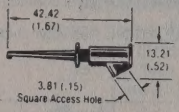
Stock No.	Type	Description	1-24	25-49	50-99	100-249
35F1064	3916A	14/16 Pin Dual In-Line	3.71	3.56	3.47	2.97
35F1004	4124A	24 Pin Dual In-Line	12.85	11.57	10.92	9.64
35F1005	4140A	40 Pin Dual In-Line	18.85	16.97	16.02	14.14
35F1006	4236*A	14/16 Pin Dual In-Line	4.95	4.46	4.21	3.71
35F1007	4324*A	24 Pin Dual In-Line	12.85	11.57	10.92	9.64
35F1008	4340*A	40 Pin Dual In-Line	18.85	16.97	16.02	14.14

*Reduced thickness for testing ultra dense packages.

"GRABBERS" WITH 0.63 mm (.025) SQUARE PIN



Model 4587



Model 4521

Contact hook on one end and .025 in. square pin on other end. Access hole for .025 in. square receptacles is .150 in. square.

Stk. No.	Type	Color	1-24	25-49	50-99	100-249
35F1689	4587-0	Black	2.50	2.25	2.13	1.88
35F1690	4587-2	Red	2.50	2.25	2.13	1.88

Stk. No.	Type	Color	1-24	25-49	50-99	100-249
35F1691	4521-0	Black	1.95	1.76	1.66	1.46
35F1692	4521-2	Red	1.95	1.76	1.66	1.46

BREADBOARD SOCKETS, RELAY & TEST SOCKET ADAPTERS

TVS-7

TVS-8

TVS-12

Test socket tube adapters are ideal for making measurements of voltage, audio, and video without tracing complicated circuits from the bottom of the chassis. Feature extended test tabs for easy use with either alligator clips or test prods.

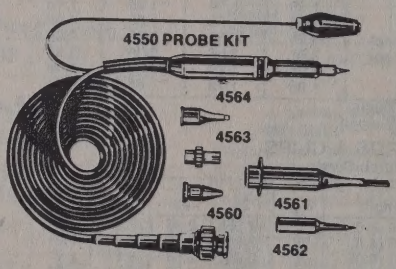
Stk. No.	Type	Description	1-24	25-49	50-99
34F527	TVS-7	7 pin min.	7.95	7.16	6.76
34F545	TVS-8	8 pin Octal	10.95	9.86	9.31
34F546	TVS-9	9 pin min.	8.95	8.06	7.61
34F869	TVS-12	Compactron	8.95	8.06	7.61

XS-7 XS-8 XS-9

Surface mounted breadboard sockets are ideal for experimental circuit design, portable and enclosed units, plug-in and packaged assemblies. Feature an insulated base to prevent connections from shorting to chassis.

Stk. No.	Type	Description	1-24	25-49	50-99
34F864	XS-7	7-pin min.	2.50	2.25	2.13
34F865	XS-9	9-pin min.	2.95	2.66	2.51
34F866	XS-8	8 pin Octal	4.25	3.83	3.61

OSCILLOSCOPE PROBE KIT



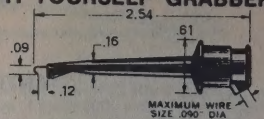
- **Long length 1.5m (4.92 ft.)**
- **3-position slide switch**

Passive probe has 3-position slide switch in head and cable length of 1.5 m. (4.92 ft.). **Position x 1 Bandwidth:** D.C. to 10 MHz. Input Res.: 1MΩ (oscilloscope input). Working Volt: 600 VDC (including Peak A.C.). Position Ref.: Probe top grounded via 9MΩ resistor, oscilloscope input grounded. **Position x 10 Bandwidth:** D.C. to 100 MHz Input Res. 10MΩ when used with 1MΩ input oscilloscopes. Working Volt, 600 VDC (Including Peak A.C.)
39K3609. Model 4550. **Net** 39.95

REPLACEMENT ACCESSORIES

Stk. No.	Type	Description	1-24	25-49	50-99
39F3610	4560	Insulating Tip	.70	.63	.60
39F3611	4561	Sprung Hook	8.85	7.97	7.52
39F3612	4562	Trimmer Tool	1.25	1.13	1.06
39F3613	4563	BNC Adap.	2.40	2.16	2.04
39F3614	4564	I.C. Tip	1.65	1.49	1.40

DO-IT-YOURSELF "GRABBERS"



Features plunger type action between thumb and two fingers with comfortable finger grip operation. Positive connection that won't pop off. No sharp teeth to damage or nick wires. High temperature material resists melting when soldering. Accepts wire up to .090" dia.

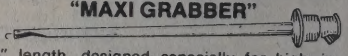
.090 MAX. WIRE SIZE

Stock No.	Type	Color	Per Pkg. of 10 1-24	25-49	50-99
35F1001	3925-0	Black	10.00	9.00	8.50
35F1002	3925-2	Red	10.00	9.00	8.50

.141 MAX. WIRE SIZE

Stock No.	Type	Color	1-24	25-49	50-99
35F1685	4555-0	Black	10.00	9.00	8.50
35F1686	4555-2	Red	10.00	9.00	8.50

"MAXI GRABBER"



6" length, designed especially for high-rise packaging of electronic components where depth of testing is a key factor. Will fit entry holes as small as ¼" dia.

.090 MAX. WIRE SIZE

Stock No.	Type	Color	1-24	25-49	50-99
35F994	4225-0	Black	2.75	2.48	2.34
35F995	4225-2	Red	2.75	2.48	2.34

.141 MAX. WIRE SIZE

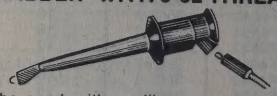
Stock No.	Type	Color	1-24	25-49	50-99
35F1687	4565-0	Black	2.75	2.48	2.34
35F1688	4565-2	Red	2.75	2.48	2.34

"MICRO GRABBER"

1.75" grabber is designed for testing of high density packaging. Lightweight and small size permits multiple usage of units in confined areas.

Stock No.	Type	Color	1-24	25-49	50-99
35F996	4233-0	Black	1.20	1.08	1.02
35F997	4233-2	Red	1.20	1.08	1.02

"GRABBER" WITH 6-32 THREAD



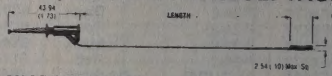
Can be used with oscilloscopes and leads equipped with a 6-32 screw-on tip. Can be crimped or soldered to wire. Supplied with shrink sleeving.

Stock No.	Type	Color	1-24	25-49	50-99
35F998	4011-0	Black	2.25	2.03	1.91
35F999	4011-2	Red	2.25	2.03	1.91

6-32 SCREW-ON REPLACEMENT TIP

Stock No.	Type	Pkg. of 10 1-24	25-49	50-99
35F1000	4311	19.50	17.60	16.50

"MICROGRABBER" TO .63 mm (.025) SQUARE PIN RECEPTACLE



MICROGRABBER: Gold plated beryllium copper contact. Insulation: Glass filled nylon. **WIRE:** 22 AWG, stranding 12 x 54 TC. PVC insulation, 1.63 (0.64) O.D. **(.025) SQUARE PIN RECEPTACLE:** Gold plated beryllium copper contact, black thermoplastic housing. **RATINGS:** 3 amps, cont. 1000 W VDC. +102° (+216° F) Max. **COLORS:** -0 Black, -2 Red.

Stock No.	Model No.	Length	1-24	25-49	50-99
81F4627	4919-12	304.8 (12.0)	4.75	4.28	4.04
81F4628	4919-24	609.6 (24.0)	4.75	4.28	4.04
81F4629	4919-36	914.4 (36.0)	4.75	4.28	4.04
81F4630	4919-48	1219.2 (48.0)	4.95	4.46	4.21
81F4631	4919-60	1524.0 (60.0)	5.15	4.64	4.38

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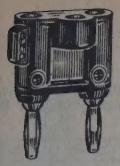
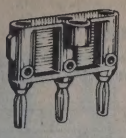
Plugs, Adapters & Connectors

POMONA ELECTRONICS


MDP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MDP-X

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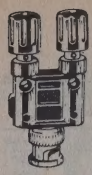
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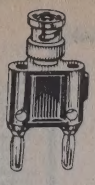
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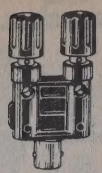

1452

3430

1297

MDP. Double banana plugs to separate cable. **2790.** Triple banana plug to a separate cable. **MDP-X.** Jacks and plugs with isolated terms. **MDP-S.** Int. bonded shorting bar. **1269.** BNC jack to dbl. banana plug, **1269.** Binding post to BNC plug. **1270.** BNC plug to dbl. banana plug. **1452.** Binding post jack to BNC receptacle. **3430.** Binding post to BNC plug. **1297.** BNC to phone plug.

Stk. No.	Model	Color	1-24	25-49	50-99	100-249
34F856	MDP	Red	1.55	1.40	1.32	1.16
34F857	MDP	Black	1.55	1.40	1.32	1.16
35F1065	2970	Red	3.25	2.93	2.76	2.44
35F1066	2970	Black	3.25	2.93	2.76	2.44
34F858	MDP-S	White	2.35	2.12	2.00	1.76
34F859	MDP-X	Red	5.25	4.73	4.46	3.94
34F860	1269	Black	4.25	3.83	3.61	3.19
34F870	1296	Black	7.95	7.16	6.76	5.96
35F1067	1270	Black	6.75	6.08	5.74	5.06
35F1068	1452	Black	6.50	5.85	5.53	4.88
35F1069	3430	Red	3.95	3.56	3.36	2.96
35F1070	3430	Black	3.95	3.56	3.36	2.96
35F1071	1297	Metal	7.25	6.53	6.16	5.44

MINIATURE BANANA PLUGS AND ADAPTERS

3269

3296

2945

2244

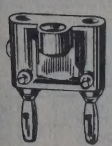
Model 3269. Adapter. BNC receptacle to miniature double banana plug — ½"ctrs. **Model 3296 Adapter.** 5-way binding posts on ½" ctrs. with .104" dia. banana jacks attached to BNC plug.

Model 2945. Miniature Solderless Banana Plug Stack-up. Safety collar acts as strain relief. .104" dia. jack to plug.

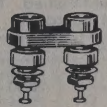
Model 2244. Miniature double banana plug with set screws on ½" ctrs.

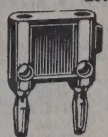
Stk. No.	Type	Color	1-24	25-49	50-99	100-249
34F936	3269	Black	6.25	5.63	5.31	4.69
34F937	3296	Black	9.95	8.96	8.46	7.46
34F938	2945	Black	1.95	1.76	1.66	1.46
34F939	2945	Red	1.95	1.76	1.66	1.46
34F844	2244	Black	3.25	2.93	2.76	2.44

BANANA TYPE CONNECTORS


MDP-ST

1809

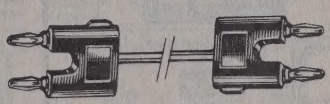

2269


MDP-R

2142

3276

1432


2247

3277/3279

MDP-ST. Standard size double banana plug with solder turret terminals; units are stackable.

1809. .08" dia. tip jack to banana plug adapter. With .166" cross hole for side stacking.

2269. Double banana jack; standard size, nickel plated, one each red and black jacks on either red or black base.

MDP-R-600. Standard size double banana jack with an internal 600 ohm, ½ watt, 1% tolerance resistor across the leads. .166" holes for top and side stack up.

2142. Miniature insulated banana jack; requires ¼" hole.

3276. Miniature banana plug with gold flashed body and threaded stud for rapid mounting.

1432. Banana jack to pin tip adapter; nickel plated brass body with .166" cross hole to allow side stacking.

2247. Miniature double banana plug patch cord. Two miniature double plugs on RG174/U coax.

3277. Miniature banana jack; for 1/16" panel, mounts in .135" hole.

3279. Same as **3277** except 1/8" panel.

Stk. No.	Type	Descript.	1-24	25-49	50-99	100-249
39F3615	MDP-ST	Black	2.20	1.98	1.87	1.65
39F3616	1809-0	Black	1.35	1.22	1.15	1.01
39F3617	1809-2	Red	1.35	1.22	1.15	1.01
30F1419	2269-0	Black	1.60	1.44	1.36	1.20
30F1418	2269-2	Red	1.60	1.44	1.36	1.20
39F3618	MDP-R-600	Red	5.50	4.95	4.68	4.13
39F3619	2142-0	Black	.60	.54	.51	.45
39F3620	2142-2	Red	.60	.54	.51	.45

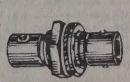
Stk. No.	Type	Descript.	1-24	25-49	50-99	100-249
39F3621	3276	4-40 Thd.x3/8"	.90	.81	.77	.68
39F3622	1432-0	Black	.60	.54	.51	.45
39F3623	1432-2	Red	.60	.54	.51	.45
39F3624	2247-K-12	12"	7.95	7.16	6.76	5.96
39F3625	2247-K-24	24"	7.95	7.16	6.76	5.96
39F3626	3277	1/16" panel	.50	.45	.43	.38
39F3627	3279	1/8" panel	.50	.45	.43	.38

RF CONNECTOR ADAPTORS

4160

3534

3287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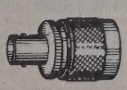
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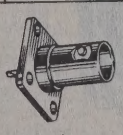
2957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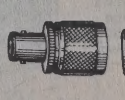
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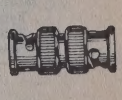

3533

Model 4160. BNC bulkhead receptacle, 50 ohm impedance, can be mounted in panels to .134" in thickness, Teflon insulation and tarnish resistant finish.

Model 3534. Right angle BNC jack to BNC plug; 50 ohm impedance, Teflon insulation and tarnish resistant finish.

Model 3287. UHF jack to BNC plug; 50 ohm impedance, Rexolite insulation, gold flashed Phosphor Bronze contacts.

Model 3846. Isolated ground BNC jack to jack; mounts in panels up to .175" thick, Teflon insulated.

Model 3288. BNC jack to type "N" plug; contacts are gold flashed, Teflon insulation, tarnish resistant case.

Model 2957. Adapts BNC receptacle to male phono plug. All metal construction to insure proper shielding. Allows use of available BNC cables on equipment.

Model 2451. BNC female receptacle; 50 ohms, mounts in 29/64" hole, solder cup connection, Teflon insulated.

Model 3286. BNC jack to UHF plug; gold flashed contacts, Rexolite insulation, tarnish resistant finish.

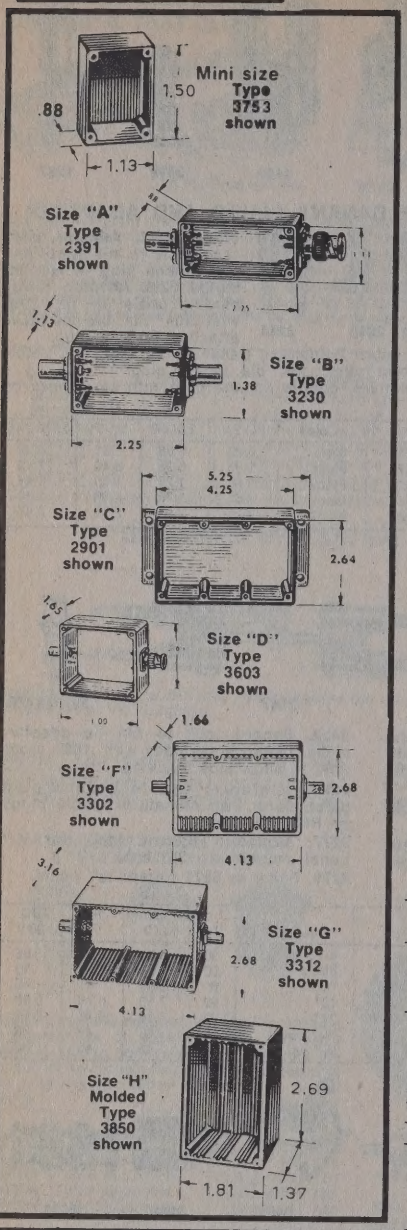
Model 3533. BNC plug to plug; allows interconnection of two coaxial cables with BNC jacks. 50 ohm, Teflon insulated.

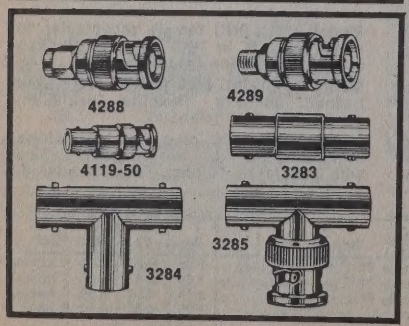
Stk. No.	Type	Description	1-24	25-49	50-99	100-249
39F3628	4160	BNC blkd. receptacle	2.95	2.66	2.51	2.21
39F3629	3534	90° BNC adapter	8.50	7.65	7.23	6.38
39F3630	3287	Male BNC to UHF Female	8.50	7.65	7.23	6.38
39F3631	3846	Isolated BNC jack to jack	12.75	11.48	10.84	9.56
39F3632	3288	Female BNC to "N" plug	6.50	5.85	5.53	4.88

Stk. No.	Type	Description	1-24	25-49	50-99	100-249
39F3633	2957	Female BNC to phono plug	6.95	6.26	5.91	5.21
39F3634	2451	Female BNC panel receptacle	3.85	3.47	3.27	2.89
39F3635	3286	Female BNC to UHF plug	5.75	5.18	4.89	4.31
30F1414	3533	BNC plug to plug adapter	7.25	6.53	6.16	5.44

A PRECIOUS METAL CURRENT PRICE SURCHARGE MAY APPLY ON SOME ITEMS.

Housings and Adapters





SHIELDED "BLACK BOXES"

Die cast aluminum; shielded housing; fulfill the requirement for RF applications. Cove and screws included. Blue baked enamel finish except (*)-unfinished. (**)-Has BNC jack in top center. (†) Isolated.

Stk. No.	Type	1st End	2nd End	Size	1-24	25-49	50-99	100-249
34F952	2390	BNC Jack	BNC Jack	A	15.95	14.36	13.56	11.96
34F953	2391	BNC Jack	BNC Plug	A	17.50	15.75	14.88	13.13
35F3500	**2392	BNC Jack	BNC Jack	A	22.95	20.66	19.51	17.21
34F954	2397	None	None	A	4.50	4.05	3.83	3.38
35F3502	*2400	None	None	A	3.95	3.56	3.36	2.96
35F3503	3230	BNC Jack	BNC Jack	B	14.95	13.46	12.71	11.21
35F3504	3231	BNC Jack	BNC Plug	B	18.25	16.43	15.51	13.69
34F955	2417	None	None	B	4.95	4.46	4.21	3.71
35F3507	*2428	None	None	B	4.50	4.05	3.83	3.38
35F986	3239	BNC Jack†	BNC Jack†	B	24.95	22.46	21.21	18.71
35F987	3234	BNC Jacks	BNC Jacks	B	25.95	23.36	22.06	19.46
35F3508	2901	None	None	C	11.95	10.76	10.16	8.96
34F966	2902	BNC Jack	BNC Jack	C	22.75	20.48	19.34	17.06
35F3510	*2906	None	None	C	10.95	9.86	9.31	8.21
35F3511	3601	None	None	D	9.25	8.33	7.86	6.94
35F3512	3602	BNC Jack	BNC Jack	D	18.95	17.06	16.11	14.21
35F3513	3603	BNC Jack	BNC Plug	D	21.95	19.76	18.66	16.46
35F3514	*3606	None	None	D	8.95	8.06	7.61	6.71
34F1260	3751	BNC Jack	BNC Jack	MINI	18.50	16.65	15.73	13.88
34F1261	3752	BNC Jack	BNC Plug	MINI	17.95	16.16	15.26	13.46
34F1262	3753	None	None	MINI	4.50	4.05	3.83	3.38
34F1263	*3754	None	None	MINI	4.25	3.83	3.61	3.19

SHIELDED BLACK BOXES WITH CARD GUIDES

Extruded aluminum. Blue finish except (*) unfinished. Top and bottom covers and screws supplied. Slotted to accept 1/16" circuit boards.

Stk. No.	Type	1st End	2nd End	Size	1-24	25-49	50-99	100-249
34F947	3301	None	None	F	19.95	17.96	16.96	14.96
35F3515	3302	BNC Jack	BNC Jack	F	29.50	26.55	25.08	22.13
35F3517	3311	None	None	G	23.95	21.56	20.36	17.96
35F3518	3312	BNC Jack	BNC Jack	G	34.25	30.83	29.11	25.69
35F3520	*3316	None	None	G	21.25	19.13	18.06	15.94

MOUNTING BOARDS FOR BOXES WITH CARD GUIDES

Stk. No.	Type	For Use With	Dimensions A	Dimensions B	No. of Holes	Material	1-24	25-49	50-99	100-249
35F3521	3326	Size F	2.39	1.50	24x15	Glass-Epoxy (GEE)	1.50	1.35	1.28	1.13
35F3526	3553	Size G	2.39	3.00	23x30	Glass-Epoxy (GEE)	2.60	2.34	2.21	1.95

NON-SHIELDED BLACK BOXES

Stock No.	Type	Dimensions Length	Dimensions Width	Dimensions Depth	Connections	1-24	25-49	50-99	100-249
35F3527	2103	2.25	1.00	1.00	None	1.50	1.35	1.28	1.13
35F3528	2104	2.38	1.53	1.53	None	1.70	1.53	1.45	1.28
35F3529	2105	1.75	1.44	.69	None	1.50	1.35	1.28	1.13
34F951	2224	2.38	1.53	1.53	Std. Dbl. Banana Plug	5.95	5.36	5.06	4.46

MOLDED THERMOPLASTIC BOXES WITH CARD GUIDES

Box and cover are molded of glass filled nylon thermoplastic and are almost unbreakable under normal use. Box and cover are easily machined. Three slots are provided for 1/16" circuit board. Cover and 4 screws included.

Stk. No.	Type	Color	Size	1-24	25-49	50-99	100-249
30F1424	3850-0	Black	H	2.95	2.66	2.51	2.21
34F1264	3850-6	Blue	H				

RF CONNECTOR ADAPTERS/TERMINATORS

SMA to BNC adapters are 50 ohm RF connectors adaptable to microwave applications such as couplers, dividers and mixers to 12.4 GHz, up to 1000 VRMS. BNC adapters and terminations are all 50 ohm units, contacts are gold flashed beryllium copper with Teflon insulation, exterior is a long lasting tarnish resistant finish.

SMA TO BNC

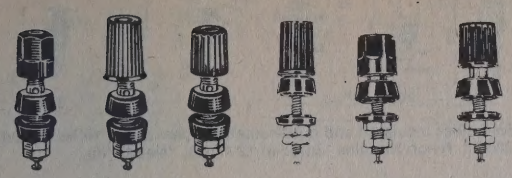
Stk. No.	Type	Description	Net
35F1009	4288	SMA Male to BNC Male	22.75
35F1016	4289	SMA Female to BNC Male	24.95

BNC 50 OHM CONNECTORS

Stk. No.	Type	Description	Net
35F1017	4119-50	BNC Feed-thru Termination	39.95
30F1401	3283	BNC Jack to Jack	3.95
30F1409	3284	BNC "T"—3 Jacks	10.25
30F1402	3285	BNC "T" Jack-Plug-Jack	9.50

H. H. Smith Electronic Connectors

UNIVERSAL BINDING POSTS



257 899 | 1517 1275 | 459 799 | 1277 | 1257 | 1259

Accepts banana and tip plugs, alligator clips, wire and spade lugs. Lexan insulated, metal parts, gold plated, rated at 30 Amps, 2KV for Hex and Fluted heads, 15 Amp 1KV for Mini Head types.

	Mini Head		Hex Head		Fluted Head		
Color	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Each
White	39F841	1517-101	28F1232	257-101	28F1233	459-101	2.97
Red	67F4000	1517-102	35F844	257-102	28F1225	459-102	
Black	67F4001	1517-103	35F749	257-103	28F1226	459-103	
Green	28F1220	1517-104	28F1223	257-104	28F1227	459-104	
Blue	28F1221	1517-105	28F1224	257-105	28F1228	459-105	
Yellow	28F1222	1517-107	.....	.....	28F1229	459-107	

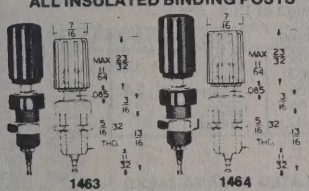
Identical to Above — Low Profile Back Up Washer

Red	28F1230	1275-102	28F1235	899-102	28F1240	799-102	1.94
Black	28F1231	1275-103	28F1236	899-103	28F1241	799-103	

Identical to 1517-257-459—Bright Tin Plated

Red	28F1230	1275-102	28F1235	899-102	28F1240	799-102	1.94
Black	28F1231	1275-103	28F1236	899-103	28F1241	799-103	

ALL INSULATED BINDING POSTS

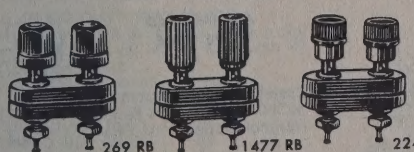


1463 1464

Accepts banana and tip plugs, alligator clips, wire and spade lugs. All Lexan Insulated, metal parts bright tin plated rated at 15 Amps, 5KV. Available with round and double "D" bodies.

	Round Body		Double "D" Body		
Color	Stk. No.	Type	Stk. No.	Type	Each
White	81F4203	1463-101	28F1198	1464-101	1.26
Red	28F1247	1463-102	28F1199	1464-102	
Black	28F1248	1463-103	28F1200	1464-103	
Green	81F4204	1463-104	28F1201	1464-104	
Blue	81F4205	1463-105	28F1202	1464-105	
Yellow	81F4206	1463-107	28F1203	1464-107	

DUAL BINDING POSTS

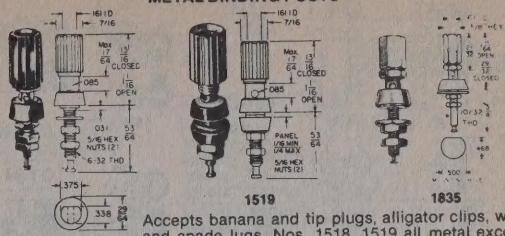


269 RB 1477 RB 224 RB

Insulators made of black Styrene supplied with one red and one black head of Lexan for 269RB and 1477RB and Buytrate head for 224RB. Metal parts nickel plated rated 15 Amps, 2KV. Mounts in two ½" holes on ¾" centers. Accepts single and dual banana plugs.

Stock No.	Type	Each
35F847	269 RB	2.97
28F1245	224 RB	2.28
28F1246	1477 RB	2.28

METAL BINDING POSTS

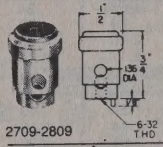


1518 1519 1835

Accepts banana and tip plugs, alligator clips, wire and spade lugs. Nos. 1518, 1519 all metal except nylon insulator washer. No. 1835 all metal, nickel plated. Nos. 1518, 1519 rated at 15 Amps: No. 1835 rated at 30 Amps.

Stock No.	Type	Description	Each
81F4207	1518	Non Insul. Washer	3.37
81F4208	1519	Insulated Washer	3.47
81F4209	1835	All Metal	2.06

SPRING LOADED BINDING POSTS

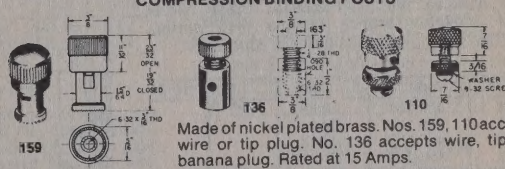


2709-2809

Made of nickel plated brass with top insulator cap in red and black. Spring head retains wire under pressure. Supplied with 6-32 internal thread. No. 2709 supplied with anti-rotation pin; No. 2809 less pin. Rated at 15 Amp.

Color	Stock No.	Type	Each
Red	81F4210	2709-102	1.83
Black	81F4211	2709-103	1.83
Red	81F4212	2809-102	1.71
Black	81F4213	2809-103	1.71

COMPRESSION BINDING POSTS

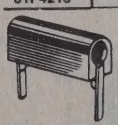


159 136 110

Made of nickel plated brass. Nos. 159, 110 accept wire or tip plug. No. 136 accepts wire, tip or banana plug. Rated at 15 Amps.

Stock No.	Type	Each
81F4214	159	.73
38F293	136	.85
81F4215	110	.85

RIGHT ANGLE PC TEST JACKS



Molded nylon body with gold plated over nickel (325-321) and silver plated (359-402). Mounts on .400" centers in .052 holes. Can be mounted side by side on .160" centers. Nos. 325, 359 for boards up to 1/16" thick; Nos. 321, 402 for boards up to 1/8" thick.

COMMERCIAL TYPES

Stock No.	Type No.	Color	EACH
28F1257	325-101	White	.55
39F843	325-102	Red	
39F862	325-103	Black	
28F1258	325-104	Green	
28F1259	325-105	Blue	
28F1260	325-106	Orange	
28F1261	325-107	Yellow	
28F1264	321-101	White	.51
39F875	321-102	Red	
39F876	321-103	Black	
28F1265	321-104	Green	
28F1266	321-105	Blue	
28F1267	321-106	Orange	
28F1268	321-107	Yellow	
28F1270	321-112	Purple	
28F1271	321-113	Grey	

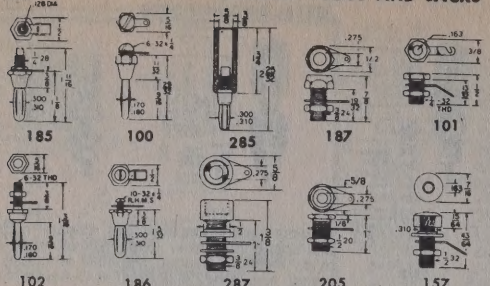
ECONOMY TYPES

Stock No.	Type No.	Color	
12F1060	359-101	White	.40
12F1061	359-102	Red	
12F1062	359-103	Black	
12F1063	359-104	Green	
12F1064	359-105	Blue	
12F1069	402-101	White	.40
12F1070	402-102	Red	
12F1071	402-103	Black	
12F1072	402-104	Green	
12F1073	402-105	Blue	
12F1074	402-106	Orange	
12F1075	402-107	Yellow	
12F1076	402-112	Purple	
12F1077	402-113	Grey	

10

H. H. Smith Plugs and Jacks

BANANA PLUGS AND JACKS

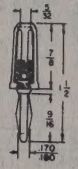


Standard and Jumbo. Brass Nickel plated. Plugs have phosphor bronze springs. (*) Indicates Jumbo plug or jack.

Stock No.	Type No.	Description	1-9	10-24
38F290	102	3/8 × 6/32" Thd	.89	.73
28F1167	433	3/4" × 6/32" Thd	1.03	.84
28F1168	100	6/32" screw	.89	.73
28F1169	185*	1/4-28 Thd	2.40	1.96
38F295	186*	10-32 screw	2.17	1.78
35F865	101	jack	.46	.38
39F868	205-102	red ins. jack	.53	.43
39F869	205-103	blk. ins. jack	.53	.43
35F789	187*	jack	1.44	1.18
28F1170	287-102*	red jack	2.51	2.06
28F1171	287-103*	blk jack	2.51	2.06
32F829	285-102*	red plug	3.88	3.17
32F830	285-103*	blk plug	3.88	3.17

SOLDERLESS INSULATED BANANA PLUG

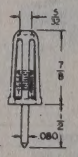
Nylon handles per Mil-P-20693A. Brass Nickel plated phosphor bronze banana plug spring, solderless conn. Accepts up to #16 wire. 15 A.



Stock No.	Type No.	Color	1-9	10-24
35F779	455-101	White	.83	.68
35F780	455-102	Red		
35F781	455-103	Black		
35F782	455-104	Green		
35F783	455-105	Blue		
28F1174	455-106	Orange		
35F784	455-107	Yellow		
28F1175	455-108	Brown		
28F1176	455-112	Purple		
28F1177	455-113	Grey		

SOLDERLESS PHONE TIPS

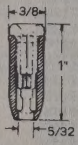
Molded Nylon handle per Mil-P-20693A. Nickel plated Brass tip. Accepts up to #16 wire, 12 A.



Stock No.	Type No.	Color	1-9	10-24
28F1186	492-102	Red	.60	.49
28F1187	492-103	Black		
28F1188	492-104	Green		
28F1189	492-105	Blue		
28F1190	492-107	Yellow		

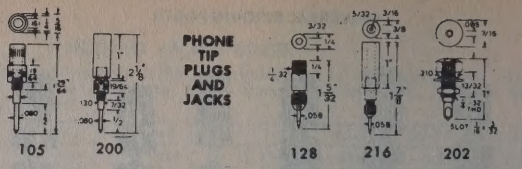
NYLON IN-LINE TIP JACK

Phosphor bronze contact accepts .080 std. phone tip plugs. Handle molded per Mil-P-20693A. Rated at 5 KV, 15 A. AC continuous.



Stock No.	Type No.	Color	1-9	10-24
28F1196	1513-102	Red	.69	.65
28F1197	1513-103	Black		

PHONE TIP PLUGS AND JACKS

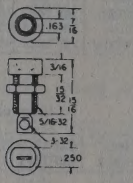


Solderless insulated and non-insulated types. Brass Nickel plated, .080 tip. Nylon Handles. Rated at 12 Amps. *Needle tip.

Stock No.	Type No.	Description	1-9	10-24
39F850	105	Un-Ins. plug	.51	.41
28F1219	128*	Un-Ins. plug	.73	.60
39F852	200-102	Red Ins. plug	.69	.56
39F853	200-103	Blk. Ins. plug	.69	.56
39F856	202-102	Red Ins. jack	.67	.55
39F857	202-103	Blk. Ins. jack	.67	.55
28F1172	216-102*	Red ins. tip	.96	.79
28F1173	216-103*	Blk. ins tip	.96	.79

INSULATED BANANA JACKS

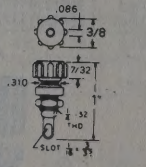
Made of Lexan with brass cadmium plated solder tail. Mounts in 5/16" round or double "D" hole. Rated at 15 Amps, 1KV. Supplied with 5/16"-32 mounting nut.



Stock No.	Type No.	Color	1-9	10-24
28F1178	1509-101	White	.37	.30
35F870	1509-102	Red		
35F869	1509-103	Black		
28F1179	1509-104	Green		
28F1180	1509-105	Blue		
28F1182	1509-107	Yellow		
35F712	1508-101	White		
35F713	1508-102	Red		
35F714	1508-103	Black		
35F715	1508-104	Green		
35F716	1508-105	Blue		
35F717	1508-107	Yellow		

INSULATED PHONE TIP JACK

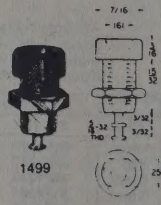
Nylon head, Nickel plated Brass body, Phosphor Bronze soldertail. Mounts in 3/8" hole in panels up to 1/4" thick. Rated at 12 A., 750 V.



Stock No.	Type No.	Color	1-9	10-24
28F1191	241-102	Red	1.14	.94
28F1192	241-103	Black		
28F1193	241-104	Green		
28F1194	241-105	Blue		
28F1195	241-107	Yellow		

ALL-INSULATED BANANA JACKS

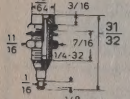
Made of Lexan with brass cadmium plated solder tail. Mounts in 5/16" round or double "D" hole. Rated at 15 Amps, 1KV. Supplied with 5/16"-32 mounting nut.



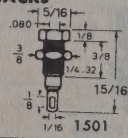
Stock No.	Type No.	Color	1-9	10-24
81F4403	1499-102	Red	.51	.41
81F4404	1499-103	Black		
81F4405	1499-104	Green		
81F4406	1499-105	Blue		
81F4407	1499-107	Yellow		
81F4408	1499-101	White		

NYLON TIP JACKS

METAL CLAD TYPES 1501 & 1502



Designed to meet Mil-C-39024/10. Gold plated Beryillium copper contact rated at 5 Amps. Mounts in 1/4" hole up to 1/4" thick. No. 1501 Turret terminal meets Mil-C-39024-01-10. No. 1502 Eyelet term. meets Mil-C-39024-11-20.

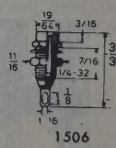


Stock No.	Type No.	Color	1-9	10-24
35F700	1501-101	White	1.51	1.24
35F701	1501-102	Red		
35F702	1501-103	Black		
35F703	1501-104	Green		
35F704	1501-105	Blue		
28F1210	1501-106	Orange		
35F705	1501-107	Yellow		
28F1211	1501-108	Brown		
28F1213	1501-113	Grey		

Stock No.	Type No.	Color	1-9	10-24
35F706	1502-101	White	1.78	1.46
35F707	1502-102	Red		
35F708	1502-103	Black		
28F1214	1502-104	Green		
35F710	1502-105	Blue		
28F1215	1502-106	Orange		
35F711	1502-107	Yellow		
28F1216	1502-108	Brown		
28F1217	1502-112	Purple		

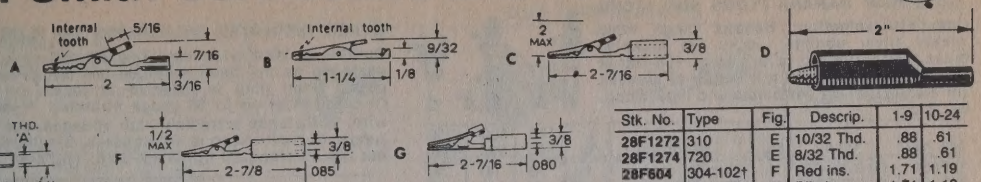
ALL-MOLDED TYPE 1506

Eyelet contact. Mounts in 1/4" hole in 1/4" thick panel Hex molded head. 10A, 3KV



Stock No.	Type No.	Color	1-9	10-24
28F1204	1506-101	White	.92	.75
35F757	1506-102	Red		
35F758	1506-103	Black		
28F1205	1506-104	Green		
35F760	1506-105	Blue		
28F1206	1506-106	Orange		
35F761	1506-107	Yellow		
28F1208	1506-112	Purple		
28F1209	1506-113	Grey		

H. H. Smith Connectors and Test Leads

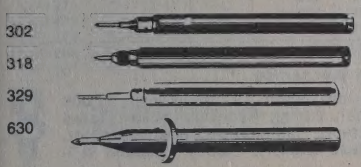


Stk. No.	Type	Fig.	Descrip.	1-9	10-24
28F1272	310	E	10/32 Thd.	.88	.61
28F1274	720	E	8/32 Thd.	.88	.61
28F604	304-102†	F	Red ins.	1.71	1.19
28F605	304-103†	F	Blk. ins.	1.71	1.19
35F948	305-102*	F	Red. ins.	2.09	1.45
35F949	305-103*	F	Blk. ins.	2.09	1.45
39F1652	336-102†	G	Red. ins.	1.90	1.32
39F1653	336-103†	G	Blk. ins.	1.90	1.32
39F1650	337-102	G	Red. ins. clip	1.33	.92
39F1651	337-103	G	Blk. ins. clip	1.33	.92
28F1273	333†	H	Un-ins.	.61	.42

Complete range of insulated and noninsulated standard and mini alligator clips and boot insulators. Standard clip jaws open to ½" max., mini clip jaws open to 3/16" max. Steel clips are cadmium plated, standard clips rated at 5A, mini clips 1A, Jumbo clips 10A.
*Insulation piercing types
†Jumbo, all copper

Stk. No.	Type	Fig.	Descrip.	1-9	10-24
28F1311	300	A	Std. sold.	.41	.28
28F1312	350	A	Solderless	.46	.32
28F1313	347*	A	Std. sold.	.76	.53
28F1314	326*	B	Mini sold.	.69	.48
35F671	301-102	C	Red sold.	.65	.45
35F683	301-103	C	Blk. sold.	.65	.45
35F848	397-102†	C	Red sold.	1.52	1.05
35F849	397-103†	C	Blk. sold.	1.52	1.05
28F1315	331-102	D	Red boot	.21	.15
28F1316	331-103	D	Blk. boot	.21	.15
28F1317	389-102	D	Red mini boot	.17	.12
28F1318	389-103	D	Blk. mini boot	.17	.12

SOLDERLESS TEST PROD THREADED TYPE



Type 302. Molded Butyrate handle. Brass, nickel plated plug. 12 Amps AC for 10° temp. rise. 4" handle. Shpg. wt., 3 oz. **Type 303.** As above except 5½" handle.

Stk. No.	Type	Color	1-9	10-24
35F930	302B	Black	.69	.65
35F638	302R	Red	.69	.65
35F680	303B	Black	.79	.74
35F681	303R	Red	.79	.74

PHONO NEEDLE TEST PRODS

Type 317. Molded Butyrate handle. Brass, nickel plated plug. 12 Amps AC for 10° temp. rise. Removable chuck for needle replacement. 4" handle. Shpg. wt., 3 oz.

Type 318. As above except 5½" handle.

Stk. No.	Type	Color	1-9	10-24
35F939	317B	Black	1.06	.82
35F940	317R	Red	1.06	.82
35F906	318B	Black	1.19	.92
35F907	318R	Red	1.19	.92

HEAVY DUTY TEST PRODS

Type 319. Molded Butyrate handle. Brass, nickel plated plug. 12 Amps AC for 10° temp. rise. 4" handle. Shpg. wt., 3 oz.
Type 329. As above except 5½" handle.

Stk. No.	Type	Color	1-9	10-24
35F908	319R	Red	.69	.65
35F909	319B	Black	.69	.65
35F842	329R	Red	.79	.74
35F843	329B	Black	.79	.74

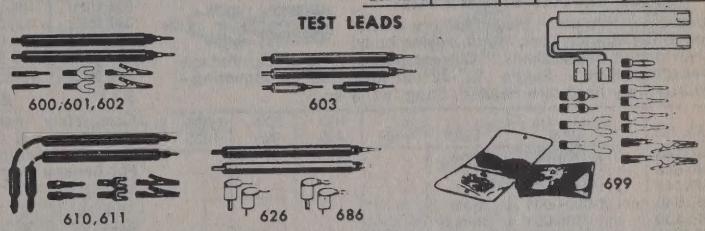
HIGH VOLTAGE TEST PROBE

Type 630. Rating 12 amps. AC for 10° temp. rise. Cont. duty 15 KV 60 cycle AC. Shpg. wt., 3 oz.

Stk. No.	Type	Color	1-9	10-24
35F931	630R	Red	10.26	9.63
35F639	630B	Black	10.26	9.63

Complete line of alligator clip adapters affording phone tip or banana plug to alligator clip. Insulated and Non-ins.
*Accepts banana and phone tip plug.
†Accepts phone tip plugs.

TEST LEADS



SOLDERLESS TIP TEST LEADS

Type 600,601,602. Molded Butyrate handles, red and black, 4" lgth. Brass, nickel plated tip. 50" leads. Shpg. wt. 3 oz.

Stk. No.	Type	Desc.	1-9	10-24
39F872	600	Phone tips	3.49	3.27
39F874	602	Alligator clips	3.55	3.34

TEST LEAD KITS

Type 610,611. Supplied with pair of leads, one end tests prods, other end ins, banana plugs. Two each phone tips, alligator clips, spade lugs. 50", 5000 volt rubber covered test lead wire. Shpg. Wt., 6 oz.

Stk. No.	Type	Prods	1-9	10-Up
35F929	610	*Phone Tip	5.22	4.90
35F682	611	Needle Tip	5.37	5.04

(*)Solderless

SAFETY TEST LEADS

Designed for use with Most Modern Day DVM's. Test Prod with Finger Guard and Insulation Piercing Tip Accepts Screw-on Insulated Alligator Clip (9361) in red or black. Available with Shrouded Banana Plug or Banana Jack and Standard Banana Plug.

Stk. No.	Type	Description	1-9
81F4200	9321P*	Shrouded Banana Jack	5.72
81F4201	9325P*	Shrouded Banana Plug	5.72
81F4202	9322P*	Standard Banana Plug	5.40
35F2263	9361-102	Red Clip Adapter	.68
35F2264	9361-103	Black Clip Adapter	.68

*P = PK-2 One Red - One Black

METER TEST LEADS

Solderless prod, Molded Butyrate. Brass Nickel plated chuck with Steel needle tip. Plastic elbow. Red and black. 50" leads.

Stock No.	Type	Description	1-9	10-24
35F933	626	Phone tip	4.39	4.12
35F402	686	Banana tip	4.54	4.26

Type 603 Solderless phone tip prod with banana plug on other end. Red and black, 50" leads.

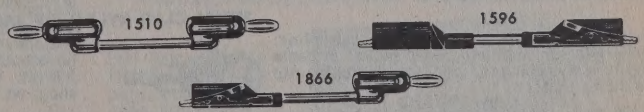
35F936	603	Phone tip	4.09	3.84

"UNIVERSAL" TEST LEAD

Type 699. Fifty leads in one. All parts adapt into prood or tip handle. With plastic folding case. Shpg. Wt., 3 oz.

Stk. No.	Type	1-9	10-24
35F1655	699	11.52	10.81

PHONE TIP/BANANA PLUG CROSS PATCH CORDS STANDARD MINI-ALLIGATOR CLIP JUMPER

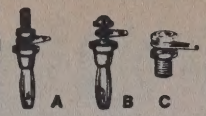


Ten KV Black flexible PVC coated wire. Patch cords and std. ins. alligator clip jumpers. Interconn. at top and sides of stack plugs.

Stock No.	Type	Fig.	Color	Length	1-9	10-24	25-99
35F791	1510-24-102	A	Red	24"	2.49	2.34	2.20
35F792	1510-24-103	A	Blk.	24"	2.49	2.34	2.20
35F795	1510-36-102	A	Red	36"	2.66	2.49	2.35
35F796	1510-36-103	A	Blk.	36"	2.66	2.49	2.35
28F1283	1595-24	B	Blk.	24"	2.72	2.55	2.41
28F1284	1596-24	C	Blk.	24"	2.11	1.98	1.87
35F678	1596-36-102	C	Red	36"	2.27	2.13	2.01
35F685	1596-36-103	C	Blk.	36"	2.27	2.13	2.01
35F722	1866-36-102	D	Red	36"	2.11	1.98	1.87
35F723	1866-36-103	D	Blk.	36"	2.11	1.98	1.87

E. F. Johnson Plugs and Jacks

BANANA PLUGS AND JACKS



Complete selection. Banana plugs have nickel silver springs. Jacks are nickeled brass. Type 108-740 is 5/8" long, 108-760 is 1" long. Studs extend full length of sleeves for added support. With nuts and lugs. Shpg. wt. 2 oz.

Stk. No.	Type	Fig.	Description	1-95	100-495	500-995	1000-4995
39F888	108-0750-001	A	Plug, 3/8" stud	.68	.45	.41	.36
39F889	108-0750-002	A	Plug, 3/4"	.68	.45	.41	.36
39F890	108-0753-001	B	Plug, 6-32 screw	.60	.40	.36	.32
39F891	108-0770-001	A	Jumbo type plug	1.30	.87	.75	.66
39F892	108-0771-001	B	Jumbo type plug	1.70	1.14	1.00	.89
39F893	108-0740-001	C	Standard jack	.40	.27	.24	.21
39F894	108-0760-001	C	Jumbo jack	1.13	.75	.68	.60

SOLD ONLY IN MULTIPLES OF 5

NYLON SIX-WAY BINDING POST

Compact, completely insulated, pre-assembled 6-way binding post. Molded nylon body. Silver-plated brass shank. Current capacity 15 amps. Voltage breakdown 8000 V. Single 5/16"-32 nut furnished for mounting—no auxiliary hardware needed. Shpg. wt. 3 oz.

Stk. No.	Type	Color	1-95	100-495	500-995	1000-4995
39F1545	111-0101-001	White				
39F1546	111-0102-001	Red				
39F1547	111-0103-001	Black				
39F1548	111-0104-001	Green				
39F1550	111-0106-001	Orange				
39F1551	111-0107-001	Yellow	1.08	.72	.65	.57
39F1552	111-0108-001	Brown				
39F1554	111-0110-001	Blue				
39F1556	111-0112-001	Violet				
39F1557	111-0113-001	Gray				

SOLD ONLY IN MULTIPLES OF 5

SOLDERLESS INSULATED BANANA PLUGS

High voltage insulated plug for a wide variety of applications. Connection of up to 16 gauge stranded wire. Polyamide insulating sleeve retains strength and low loss characteristics over wide range of temperatures. 15 amp. Shpg. wt. 3 oz.

39F1530	108-0301-001	White				
39F1531	108-0302-001	Red				
39F1532	108-0303-001	Black				
39F1533	108-0304-001	Green				
39F1535	108-0306-001	Orange				
39F1536	108-0307-001	Yellow	.65	.43	.39	.35
39F1537	108-0308-001	Brown				
39F1539	108-0310-001	Blue				
39F1541	108-0312-001	Violet				
39F1542	108-0313-001	Gray				

SOLD ONLY IN MULTIPLES OF 5

LOW COST NYLON TIP JACKS

Low cost nylon tip jacks with formed silver-plated phosphor bronze contact. Current rating: 10 amps. Voltage breakdown: 9000 volts DC. Capacity to 1/8" panel, 2.0 pf. 1/4"-32 nut furnished; mounts in 17/64" hole. Shpg. wt. 2 oz.

39F1560	105-0801-001	White				
39F1561	105-0802-001	Red				
39F1562	105-0803-001	Black				
39F1563	105-0804-001	Green				
39F1565	105-0806-001	Orange				
39F1566	105-0807-001	Yellow	.33	.22	.19	.17
39F1567	105-0808-001	Brown				
39F1569	105-0810-001	Blue				
39F1571	105-0812-001	Violet				
39F1572	105-0813-001	Gray				

SOLD ONLY IN MULTIPLES OF 5

METAL-CLAD NYLON TIP JACK TIPS

Shock-proof nylon and metal construction. Nickel-plated machined brass jacket protects nylon body—assures positive fastening to mounting surface.

STANDARD TYPE

These low cost metal-clad jacks have nylon tips for extremely long wear. Each is provided with formed silver-plated phosphor-bronze contact to insure optimal performance. Voltage breakdown is 7,000 volts DC. 3.8 pf. 10 amp.

39F1700	105-0251-001	White				
39F1701	105-0252-001	Red				
39F1702	105-0253-001	Black				
39F1703	105-0254-001	Green				
39F1705	105-0256-001	Orange				
39F1706	105-0257-001	Yellow	.45	.30	.27	.24
39F1707	105-0258-001	Brown				
39F1709	105-0260-001	Blue				
39F1711	105-0262-001	Violet				
39F1712	105-0263-001	Gray				

SOLD ONLY IN MULTIPLES OF 5

NYLON INSULATED SOLDERLESS TIP PLUG

Durable molded nylon insulating sleeves designed so no metal surfaces are exposed when plug is inserted in jack. Connection of up to 16 gauge stranded wire. Withstands extremely high voltages and a wide temperature range. Current rating is 10 amperes. Standard .080 inch diameter pin fits all standard tip jacks. Size: 1 7/16"x3/8". Shpg. wt. 2 oz.

Stk. No.	Type	Color	1-95	100-495	500-995	1000-4995
39F1513	105-0301-001	White				
39F1514	105-0302-001	Red				
39F1515	105-0303-001	Black				
39F1516	105-0304-001	Green				
39F1518	105-0306-001	Orange				
39F1519	105-0307-001	Yellow	.50	.33	.29	.26
39F1520	105-0308-001	Brown				
39F1522	105-0310-001	Blue				
39F1524	105-0312-001	Violet				
39F1525	105-0313-001	Gray				

SOLD ONLY IN MULTIPLES OF 5

BANANA JACKS

Completely insulated banana jack. Retains low-loss characteristics through wide temp. range and high rel. humidity conditions. Voltage breakdown: 5000 V DC. For banana plugs of nom. .175" diam. Shpg. wt. 2 oz.

Stk. No.	Type	Color	1-95	100-495	500-995	1000-4995
39F1573	108-0901-001	White				
39F1574	108-0902-001	Red				
39F1575	108-0903-001	Black				
39F1576	108-0904-001	Green				
39F1578	108-0906-001	Orange				
39F1579	108-0907-001	Yellow	.35	.23	.20	.18
39F1580	108-0908-001	Brown				
39F1582	108-0910-001	Blue				
39F1584	108-0912-001	Violet				
39F1585	108-0913-001	Gray				

SOLD ONLY IN MULTIPLES OF 5

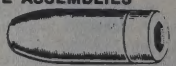
NYLON TIP JACKS

Molded of tough, low-loss nylon. DC breakdown 11,000 volts. Capacity to panel, 2.0 pf. Recessed silver plated beryllium copper contacts. Mating pin .080" diameter. Mtg. hole reg. 17/32". Head diam. 3/8". Body threaded 1/4"-32. Shpg. wt. 1 oz.

39F878	105-0601-001	White				
39F879	105-0602-001	Red				
39F880	105-0603-001	Black				
39F881	105-0604-001	Green				
39F882	105-0606-001	Orange				
39F883	105-0607-001	Yellow	.60	.40	.36	.32
39F884	105-0608-001	Brown				
39F885	105-0610-001	Blue				
39F1558	105-0612-001	Violet				
39F1559	105-0613-001	Gray				

SOLD ONLY IN MULTIPLES OF 5

NYLON JACKS AND SLEEVE ASSEMBLIES



Nylon tip jack with inside thread. Molded nylon insul. sleeve. Shpg. wt. 3 oz.

39F1500	105-0701-001	White				
39F1501	105-0702-001	Red				
39F1502	105-0703-001	Black				
39F1503	105-0704-001	Green	.60	.40	.36	.32
39F1506	105-0707-001	Yellow				
39F1509	105-0710-001	Blue				

SOLD ONLY IN MULTIPLES OF 5

Accommodates tip plugs of nominal .080" diameter. 1/4"-32 nut furnished. Mounts in 17/64" diameter hole. Capacity to 1/8" metal is 3.8 pf. Variations of two available grades listed below. Av. shpg. wt. 3 oz.

MILITARY TYPE

Military type designed to comply with MS-16108 Rev. F of MIL-STD-242A and MIL-C-39024/10. Heavy nickel plated brass jacket. Gold plated beryllium copper contact spring. Voltage breakdown: 8,000 volts DC. 3.8 pf 5 amp.

39F1726	105-0201-200	White				
39F1727	105-0202-200	Red				
39F1728	105-0203-200	Black				
39F1729	105-0204-200	Green				
39F1731	105-0206-200	Orange				
39F1732	105-0207-200	Yellow	1.25	.84	.75	.66
39F1733	105-0208-200	Brown				
39F1735	105-0210-200	Blue				
39F1737	105-0212-200	Violet				
39F1738	105-0213-200	Gray				

SOLD ONLY IN MULTIPLES OF 5

10

E. F. Johnson Plugs, Jacks, and Elect. Hardware

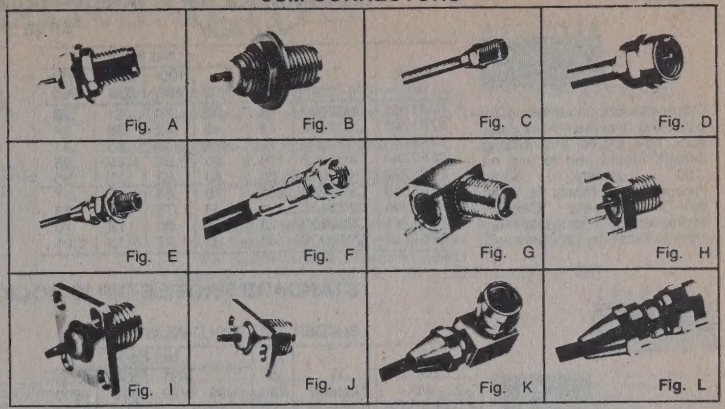
JCM CONNECTORS

JCM Connectors interface with SMA Connectors designed as low cost coaxial connectors for applications not requiring SMA military specifications.

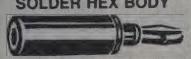
Stk. No.	Type	Fig.	1-49	50-99	100-249
81F4452	142-0321-001	F	2.44	2.20	2.04
81F4453	142-0299-001	G	3.94	3.55	3.29
81F4454	142-0299-006*	G	3.42	3.08	2.86
81F4455	142-0298-001	H	2.22	2.00	1.85
81F4456	142-0297-001	I	2.98	2.68	2.49
81F4457	142-0296-001	J	3.10	2.79	2.59
81F4458	142-0294-001	A	2.38	2.14	1.99
81F4459	142-0293-001	B	2.58	2.32	2.15
81F4460	142-0283-001	C	1.60	1.44	1.34
81F4461	142-0281-006	D	.62	.56	.52
81F4462	142-0233-001	E	3.12	2.81	2.61
81F4463	142-0222-001	K	5.34	4.81	4.46
81F4464	142-0221-001	L	2.82	2.54	2.35

*Nickel plated

JCM CONNECTORS



SOLDER HEX BODY



Wire can be soldered to brass tin plated stud or fastened to plug by feeding wire through stud flaring strands and screwing stud into plug.

Stk. No.	Type	Color	1-99	100-499	500-999
33F1877	108-1761-101	Wht	.80	.53	.48
33F1876	108-1762-101	Red			
33F1878	108-1763-101	Blk			
33F1879	108-1764-101	Grn			
33F1880	108-1767-101	Yel			
33F1881	108-1770-101	Blue			

SUB-MINIATURE TIP PLUG

For use with miniature jacks, .080" dia. tip. Nickel-plated machined brass body, solder lead connection. Current rating: 5 amps.

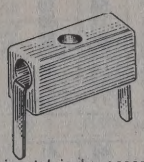
Stk. No.	Type	Color	1-99	100-499	500-999
39F1751	105-0773-001	Blk	.43	.28	.26

PC MOUNT VERTICAL TEST JACK SPRING LOADED

Current 5A. Breakdown voltage 5000VDC min. contact resistance .010 Ohms max.

Stk. No.	Type	Color	1-99	100-499	500-999
81F4439	105-2201-201	Wht	.35	.23	.20
81F4440	105-2202-201	Red			
81F4441	105-2203-201	Blk			
81F4442	105-2204-201	Grn			
81F4443	105-2207-201	Yel			
81F4444	105-2210-201	Blue			

HORIZONTAL JACKS



Horizontal jacks accept .080" dia. tip plug in either end, or from top or bottom. Cross-hole accepts hook-type oscilloscope probe. Channel on underside for airflow cooling during soldering. Silver-plated and irridited beryllium copper formed contact. Two common terminals.

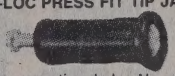
Stk. No.	Type	Color	1-99	100-499	500-999
39F1742	105-0751-001	Wht	.25	.17	.14
39F1743	105-0752-001	Red			
39F1744	105-0753-001	Blk			
39F1745	105-0754-001	Grn			
39F1747	105-0757-001	Yel			
39F1749	105-0760-001	Blue			

MINIATURE HORIZONTAL TEST JACK

Compact size fits Hi-density P.C. boards. Voltage breakdown: 3000 VDC max. Contact resistance .010 Ohm max. Current: 5A.

Stk. No.	Type	Color	1-99	100-499	500-999
81F4445	105-1101-001	Wht	.25	.17	.15
81F4446	105-1102-001	Red			
81F4447	105-1103-001	Blk			
81F4448	105-1104-001	Grn			
81F4449	105-1106-001	Orng			
81F4450	105-1107-001	Yel			
81F4451	105-1110-001	Blue			

RIB-LOC PRESS FIT TIP JACK



Press into mounting hole. No mounting hardware. Silver plated terminals. Current 5A. Breakdown voltage: 5000 VDC Contact Res: 005 Ohm max.

Stk. No.	Type	Color	1-99	100-499	500-999
81F4433	105-1041-001	Wht	.43	.28	.26
81F4434	105-1042-001	Red			
81F4435	105-1043-001	Blk			
81F4436	105-1044-001	Grn			
81F4437	105-1047-001	Yel			

VERTICAL JACKS

Mounts through single .052" hole, requires minimum mounting area. Accepts .080" dia. tip plug. Silver-plated machined beryllium copper contact. 5 amps.

Stk. No.	Type	Color	1-99	100-499	500-999
39F1752	105-0851-001	Wht	.40	.27	.24
39F1753	105-0852-001	Red			
39F1754	105-0853-001	Blk			
39F1755	105-0854-001	Grn			
39F1756	105-0857-001	Yel			
39F1757	105-0860-001	Blue			

DUAL SOLDERLESS BANANA PLUGS

Molded body incorporates polarity indication and strain relief for wire leads. Machined brass studs extend length of pins. Voltage breakdown: 10,000 volts DC. Capacity plug to plug: 1.3 pf. Current carrying capacity: 15 amps.

Stk. No.	Type	Color	1-99	100-499	500-999
39F895	108-0202-001	Red	2.65	1.77	1.56
39F896	108-0203-001	Blk			

Banana Plugs, Banana Jacks, and Binding Posts

Kit contains an assortment of 153 banana plugs, jacks and binding posts for plug sizes 3mm (.120") dia., 4.44mm (.175") dia., and 7mm (.300") diameter. Includes both insulated and uninsulated types. Mil-Spec type and UL type binding posts. 30 banana jacks, 75 banana plugs, and 48 binding posts.

81F4465 108-2299-001 ..... 80.78

Test Jacks, Tip Jacks, and Tip Plugs

Kit contains an assortment of 360 test jacks, tip plugs and tip jacks for plug sizes 2mm (.080") and 3mm (.125") diameter. Includes both insulated and uninsulated types. Military type, Rib-Loc® types, and test probes. 180 vertical and horizontal test jacks, 90 tip jacks, and 90 tip plugs.

81F4466 105-2299-001 ..... 81.15

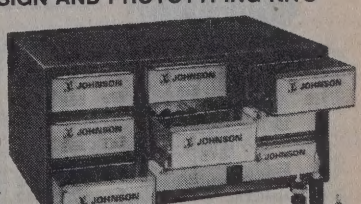
SPACER DESIGN AND PROTOTYPING KIT

Aluminum, Brass, Stainless steel, and Nylon spacers

Kit contains an assortment of 1080 spacers in 1/8"; 1/4"; 3/8"; 1/2"; 3/4"; and 1" lengths with thread sizes of 4-40 and 6-32 or clearance holes for #4 and #6 screws. 10 or 25 pieces of each part number. Includes round tubular and threaded, hex threaded, male/female and swage types. 435 brass spacers, 450 aluminum, 120 stainless steel and 75 nylon spacers.

81F4467 312-0009-001 ..... 128.25

HARDWARE DESIGN AND PROTOTYPING KITS



Each kit is a selection of the most popular standard plugs, jacks, binding posts, spacers and connectors.
Use for making custom patch cords, designing prototypes or other applications where banana plugs, tip plugs or spacers are required.

JCM DESIGNERS KIT

A connector kit that saves you design and replacement time. Contains an assortment of 45 miniature coaxial connectors in a nine drawer plastic cabinet. You can always be sure of having the parts you need.

81F4925 142-0000-01 ..... 98.40 Each

Texas Instruments

LOW PROFILE DIP IC SOLDER SOCKETS

Offers oxidation resistance by delivering hi-contact point pressure. Low profile, anti wicking design. Mount end to end on .100" centers. Body: thermoplastic—Meets UL Spec 94V-O. Contacts: Copper-Nickel alloy. Finish: Gold inlay 50 m.l. a tin inlay, 200 mi.

EDGE GRIP

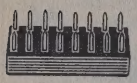
GOLD INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
57F1781	C930802	8	.37	.34	.31	.28
57F1782	C931402	14	.46	.42	.38	.34
57F1783	C931602	16	.54	.48	.45	.41
57F1784	C931802	18	.60	.55	.49	.45
57F1739	C932002	20	.68	.62	.57	.50
57F1740	C932202	22	.76	.68	.62	.57
57F1785	C932402	24	.88	.78	.70	.63
57F1741	C932802	28	1.03	.90	.78	.70
57F1742	C934002	40	1.37	1.27	1.13	1.01

TIN INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
57F1792	C840802	8	.27	.22	.19	.18
57F1793	C841402	14	.32	.26	.22	.21
57F1794	C841602	16	.37	.29	.25	.23
57F1795	C841802	18	.42	.34	.29	.28
57F1743	C842002	20	.46	.39	.35	.32
57F1796	C842202	22	.51	.42	.39	.34
57F1797	C842402	24	.55	.46	.41	.39
57F1798	C842802	28	.64	.54	.51	.46
57F1744	C844002	40	.92	.78	.72	.66

STANDARD PROFILE DIP IC SOCKETS



Closed entry cover facilitates automatic insertion—Protects IC heads Solder standoff standard. Accommodates .015" thru .021" rectangular or round leads. Open entry design available: Specify 5 instead of 0 for sixth figure in TI part number. Body: Glass filled nylon. Contact: Phosphor bronze (tin plate only) Copper nickel alloy (Gold plate only). Finish: Gold inlay .50" m.l. or tin plate 200 micro inches min. Available in wire wrap and solder tail.

SOLDER TAIL—GOLD INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
57F1754	C920800	8	.50	.46	.43	.38
57F1755	C921400	14	.67	.60	.56	.50
57F1756	C921600	16	.78	.72	.66	.59
57F1757	C921800	18	.86	.81	.77	.69
57F1758	C922000	20	1.60	1.07	.97	.88
57F1759	C922400	24	1.85	1.49	1.32	1.12
57F1760	C922800	28	2.34	1.85	1.59	1.35
57F1761	C923600	36	2.67	2.27	2.02	1.80
57F1787	C924000	40	2.89	2.45	2.17	1.92

WIRE WRAP—GOLD INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
57F1774	C910800	8	.58	.51	.44	.41
57F1775	C911400	14	.98	.88	.81	.69
57F1776	C911600	16	1.05	.95	.87	.77
57F1777	C911800	18	1.11	1.01	.94	.83
47F2494	C912000	20	1.97	1.64	1.40	1.24
57F1778	C912400	24	2.84	2.45	2.03	1.72
40F4031	C912800	28	3.35	2.71	2.26	1.89
57F1779	C913600	36	3.83	3.36	2.86	2.54
57F1780	C914000	40	3.98	3.55	3.18	2.84

SOLDER TAIL—TIN INLAY

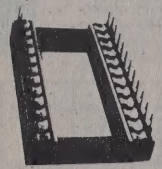
Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
40F4030	C820804	8	.75	.73	.68	.63
57F1767	C821404	14	1.07	.96	.91	.84
57F1768	C821604	16	1.20	1.12	1.06	.97
57F1769	C821804	18	1.34	1.26	1.20	1.11
47F2493	C822004	20	2.54	2.05	1.84	1.56
57F1770	C822404	24	2.74	2.26	2.03	1.76
57F1771	C822804	28	3.46	2.73	2.41	2.10
57F1772	C823604	36	3.88	3.35	3.04	2.73
57F1773	C824004	40	4.23	3.65	3.29	2.93

WIRE WRAP—TIN INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
57F1745	C810804	8	.42	.36	.32	.29
57F1746	C811404	14	.75	.68	.59	.53
57F1747	C811604	16	.82	.72	.65	.59
57F1748	C811804	18	.85	.75	.69	.63
57F1749	C812004	20	1.41	1.19	1.02	.91
57F1750	C812404	24	2.22	1.86	1.55	1.28
57F1751	C812804	28	2.61	2.03	1.69	1.36
57F1752	C813604	36	2.85	2.49	2.12	1.88
57F1753	C814004	40	2.98	2.65	2.34	2.09

SINGLE BEAM SOCKETS

SOLDER TAIL



Wide entry window, auto-insertability, anti-solder wicking design. Open frame construction. Accepts up to .025" probe. Lead-in tail campher. Body: Glass reinforced polyester. UL rating 94V-O. Contacts: 80 Series, Phosphor bronze, 89 Series—Copper alloy CA 688. 98 Series: Phosphor bronze. Contact finish: 88 and 89 Series tin plate 200 micro inch min. 98 Series: Gold inlay 30 micro inch min in contact area. Solderable alloy inlay on solder tail.

GOLD INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-249	250-499	500-999
76F1065	C8808-01	8	.23	.19	.16	.15
76F1066	C8814-01	14	.28	.23	.18	.17
76F1067	C8816-01	16	.31	.26	.21	.20
76F1068	C8818-01	18	.36	.30	.23	.22

GOLD INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
75F050	C9808-01	8	.36	.32	.29	.27
75F051	C9814-01	14	.44	.40	.36	.30
75F052	C9816-01	16	.51	.46	.42	.39
75F053	C9818-01	18	.57	.53	.46	.43
75F054	C9820-01	20	.65	.59	.54	.48
75F055	C9822-01	22	.73	.65	.59	.54
75F056	C9824-01	24	.84	.74	.67	.60
75F057	C9828-01	28	.98	.85	.74	.67
75F058	C9840-01	40	1.30	1.21	1.07	.96

TIN INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-249	250-499	500 999
76F1069	C8820-01	20	.40	.33	.26	.24
76F1070	C8822-01	22	.43	.36	.28	.27
76F1071	C8824-01	24	.47	.39	.31	.29
76F1072	C8828-01	28	.55	.46	.36	.34
76F1073	C8840-01	40	.78	.65	.51	.48

TIN INLAY

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-499	500-999	1000-4999
81F9363	C8908-01	8	.11	.10	.09	.08
81F9364	C8914-01	14	.14	.13	.12	.11
81F9365	C8916-01	16	.16	.14	.13	.12
81F9366	C8918-01	18	.18	.16	.15	.14
81F9367	C8920-01	20	.20	.18	.16	.15
81F9368	C8922-01	22	.22	.20	.18	.17
81F9369	C8924-01	24	.24	.21	.19	.18
81F9370	C8928-01	28	.28	.25	.23	.21
81F9371	C8940-01	40	.40	.35	.32	.30

HI RELIABILITY-MACHINED LO PROFILE SOCKETS

SOLDER TAIL

Open body construction and high standoffs provides improved cleaning and heat dissipation. Accepts I.C. lead lengths from .090" to .155. Body: Thermoplastic meeting UL 94V-O rating. Contact: Beryllium copper. Finish: gold over nickel. Sleeve: Brass. Finish: Gold over nickel or tin over nickel.

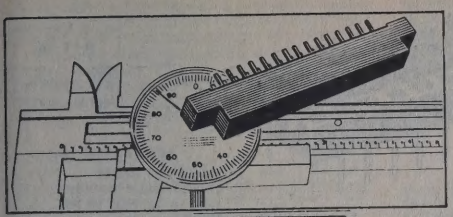
GOLD SLEEVE

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-249	250-499	500-999
76F1042	C7206-09	6	.88	.73	.65	.60
76F1043	C7208-09	8	1.16	.97	.88	.80
76F1044	C7214-09	14	1.66	1.38	1.24	1.14
76F1045	C7216-09	16	1.82	1.52	1.37	1.25
76F1046	C7218-09	18	2.18	1.82	1.84	1.40
76F1047	C7220-09	20	2.60	2.17	1.91	1.75
76F1048	C7222-09	22	2.71	2.26	2.03	1.87
76F1049	C7224-09	24	3.24	2.70	2.42	2.22
76F1050	C7228-09	28	3.97	3.31	2.91	2.60
76F1051	C7236-09	36	4.45	3.71	3.34	3.07
76F1052	C7240-09	40	4.99	4.16	3.73	3.43

TIN SLEEVE

Stock No.	TI Number	No. of Pins	Net Each 1-99	100-249	250-499	500-999
76F1053	C7206-59	6	.62	.52	.49	.45
76F1054	C7208-59	8	.88	.73	.65	.59
76F1055	C7214-59	14	1.16	.97	.87	.80
76F1056	C7216-59	16	1.26	1.05	.95	.87
76F1057	C7218-59	18	1.60	1.33	1.19	1.09
76F1058	C7220-59	20	1.87	1.56	1.41	1.29
76F1059	C7222-59	22	1.96	1.63	1.15	1.36
76F1060	C7224-59	24	2.34	1.95	1.76	1.62
76F1061	C7228-59	28	2.64	2.20	1.98	1.81
76F1062	C7236-59	30	3.25	2.71	2.44	2.23
76F1063	C7240-59	40	3.56	2.97	2.67	2.44

TEXAS INSTRUMENTS



.156″ x .200″, .125″ x .250″, & .100″ x .200″ Edgeboard Connectors

Edgeboard Connectors Featuring Gold Inlay Contacts

NOTE: Gold-bearing products subject to surcharge at time of shipment.

Ordering Guide Part Number Breakdown

H4 2 51 2 1 18
- 18 — No. of Positions
- 1 — Gold Inlay
- 2 — Termination: 1. Wire Wrap; 2. Solder Tail
- 51 — Mounting Styles: 10. No Ears; 11. Flush ears, clearance hole; 12. Flush ears, threaded insert; 51. Centered ears, clearance hole; 52. Centered ears, threaded insert
- 2 — Spacing: 1. .156″ x .200″; 2. .100″ x .200″; 3. .125″ x .250″
- H4 — Product Series

.156″ x .200″ GRID SPACING

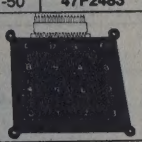
(TI Solder Tail Number)*	Stock Number	Position/ Contacts	Net Each 1-99	100-499	500-999
H411121-10	40F4050	10/20	1.88	1.71	1.59
H411121-12	40F4060	12/24	2.14	1.94	1.82
H411121-15	40F4051	15/30	2.23	2.02	1.89
H411121-18	40F4052	18/36	2.45	2.23	2.06
H411121-22	40F4053	22/44	2.74	2.49	2.31
H411121-28	40F4061	28/56	3.37	3.06	2.88
H411121-30	64F478	30/60	3.50	3.18	3.00

.125″ x .25″ GRID SPACING

(TI Solder Tail Number)*	Stock Number	Position/ Contacts	Net Each 1-99	100-499	500-999
H431121-10	64F471	10/20	2.71	2.04	1.63
H431121-15	64F472	15/30	3.17	2.38	1.91
H431121-18	64F473	18/36	3.42	2.57	2.06
H431121-22	47F2461	22/44	3.89	2.92	2.34
H431121-28	47F2462	28/56	4.52	3.39	2.71
H431121-30	64F467	30/60	4.63	3.47	2.78
H431121-31	47F2463	31/62	4.92	3.69	2.96
H431121-36	47F2464	36/72	5.64	4.23	3.38
H431121-40	47F2465	40/80	6.11	4.58	3.67
H431121-44	47F2466	44/88	7.42	5.57	4.45
H431121-50	47F2467	50/100	7.42	5.57	4.45
H435111-18	64F466	18/36	4.19	3.81	3.05
H435111-20	64F467	20/40	4.49	4.08	3.27
H435111-22	47F2468	22/44	4.64	4.22	3.38
H435111-28	47F2469	28/56	5.16	4.69	3.76
H435111-30	64F469	30/60	5.33	4.84	3.87
H435111-31	47F2470	31/62	5.55	5.04	4.03
H435111-35	64F470	35/70	6.34	5.76	4.61
H435111-36	47F2471	36/72	6.34	5.77	4.61
H435111-40	47F2472	40/80	6.84	6.22	4.98
H435111-44	47F2473	44/88	7.77	7.07	5.65
H435111-50	47F2474	50/100	8.45	7.68	5.86

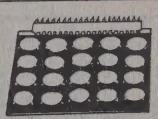
.100″ x 200″ GRID SPACING

(TI Solder Tail Number)*	Stock Number	Position/ Contacts	Net Each 1-99	100-499	500-999
H421121-10	64F457	10/20	2.67	2.00	1.60
H421121-15	64F458	15/30	3.10	2.32	1.86
H421121-17	64F459	17/34	3.27	2.45	1.96
H421121-18	47F2475	18/36	3.23	2.43	1.94
H421121-20	64F460	20/40	3.56	2.67	2.14
H421121-22	47F2476	22/44	3.85	2.89	2.32
H421121-25	47F2477	25/50	4.13	3.10	2.07
H421121-28	64F461	28/56	4.38	3.29	2.63
H421121-30	47F2478	30/60	4.59	3.45	2.76
H421121-35	64F462	35/70	5.34	4.01	3.21
H421121-36	47F2480	36/72	5.29	3.97	3.18
H421121-40	47F2481	40/80	5.88	4.41	3.53
H421121-43	47F2482	43/86	6.25	4.69	3.75
H421121-50	47F2483	50/100	6.87	5.15	4.12
H425111-10	64F450	10/20	3.58	2.69	2.15
H425111-15	64F451	15/30	4.14	3.10	2.48
H425111-17	64F452	17/34	4.37	3.28	2.62
H425111-18	47F2484	18/36	4.23	3.18	2.54
H425111-20	64F453	20/40	4.70	3.53	2.82
H425111-22	47F2485	22/44	5.10	3.82	3.06
H425111-25	47F2486	25/50	5.51	4.14	3.31
H425111-28	64F454	28/56	5.86	4.39	3.52
H425111-30	47F2487	30/60	5.96	4.47	3.58
H425111-35	64F455	35/70	7.26	5.45	4.36
H425111-36	47F2489	36/72	7.01	5.26	4.21
H425111-40	47F2490	40/80	8.01	6.01	4.81
H425111-43	47F2491	43/86	8.59	6.44	5.16
H425111-50	47F2492	50/100	9.37	7.03	5.62



STANDARD KEYBOARDS

Keyboards to fit almost any application 10 to 40 positions. Mask to fit any keyboard design: Tactil feel, audible feedback. Due to K Lexon® discs eliminates the need for a costly board by making electrical and physical matrix (x-y) coincide (11KS series). Copper alloy termination.



Keyboard Only

Stock No.	Pin	No. of Pins	Each 1-9	10-24	25-49	50-99
81F5416	1KS187-1	12	9.82	7.55	6.01	5.89
81F5417	1KS196-2	20	10.69	8.44	6.99	6.41
81F5418	1KS208-	10	9.49	7.20	5.71	5.77
81F5419	1KS212-2	20	10.69	8.44	6.99	6.41
81F5420	1KS231-2	25	11.84	10.67	9.72	8.90
81F5421	1KS232-2	16	11.28	10.15	9.23	8.45
81F5422	1KS237-2	12	9.82	7.55	6.01	5.89
81F5423	1KS243-2	16	11.28	10.15	9.23	9.72

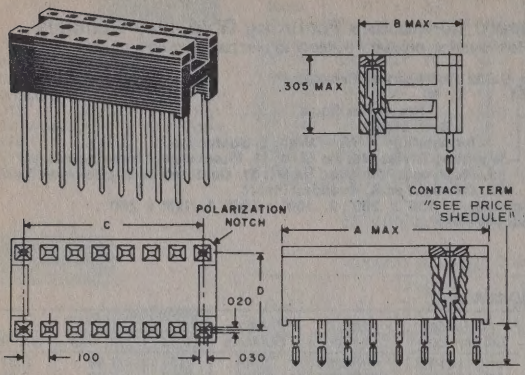
Stock No.	Pin	No. of Pins	1-9	10-24	25-99	100-499
81F5429	11KS121	20	3.36	2.23	2.06	1.79
81F5430	11KS131	24	3.52	2.39	2.19	1.88
81F5431	11KS119	40	4.14	3.07	2.60	2.22

With Bezel and Keytop

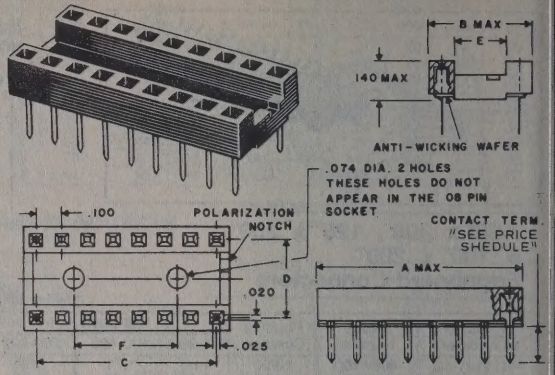
Stock No.	Pin	No. of Pins	Each 1-9	10-24	25-49	50-99
81F5424	6KS187	12	14.89	13.40	12.18	11.18
81F5425	6KS232	16	16.82	15.16	13.83	12.84
81F5426	6KS237	12	14.89	13.40	12.18	11.18
81F5427	6KS243	16	16.82	15.16	13.83	12.84
81F5428	6KS269	16	16.82	15.16	13.83	12.84

VOLTREX® brand Integrated Circuit Sockets

STANDARD PROFILE



LOW PROFILE



STANDARD PROFILE FEATURES

- **Edge wipe twin beam contacts provide optimum performance and insure years of trouble free service.**
- **Contact damage associated with testing and use is virtually eliminated by the closed entry insulator design.**
- **Sockets employ a snap-on cap which allow the user to replace contacts damaged during board assembly.**
- **Selected sockets are supplied with mounting holes which permit users to fasten them to the circuit board.**
- **Contact tails for solderless wrapping are available in three different lengths. The longest will accept up to three levels of #30 AWG wire.**

STANDARD PROFILE

Number of Contacts	Dimensions			
	A Max	B Max	C	D
14	.745	.395	.600	.300
16	.845	.395	.700	.300
18	.945	.395	.800	.300
24	1.245	.695	1.100	.600
28	1.445	.695	1.300	.600
36	1.845	.695	1.700	.600
40	2.045	.695	1.900	.600

LOW PROFILE

Number of Contacts	Dimensions					
	A Max	B Max	C	D	E	F
14	.700	.400	.600	.300	.200	.300
16	.800	.400	.700	.300	.200	.400
18	.900	.400	.800	.300	.200	.500

LOW PROFILE FEATURES

- **Sockets are end and side stackable for economy of board space and are visually polarized by a notch at one end.**
- **Miniature twin beam edge wipe contacts for maximum reliability and extended service.**
- **The low profile of this socket allows closer board spacing or increased air flow in equipment for more efficient operation.**
- **Sockets are supplied with anti-wicking wafers which protect the spring element of contacts from solder entrapment.**
- **Closed entry insulator design to minimize contact damage during testing and use.**

11

PERFORMANCE SPECIFICATIONS

Series	ELECTRICAL				MECHANICAL				MATERIAL		
	Contact Rating	Contact Resistance	Withstanding Voltage	Insulation Resistance	Temp. Range	Insertion Force	Withdrawal Force	Contact Push Out	Insulator	Wafer	Contact
Standard Profile Socket	1 Ampere	15 Milliohms Max.	1000 Vac RMS Sea Level	5000 Megohms	−65°C to +125°C	300 Grams Max per Contact	25 Grams Min. per Contact	7.5 lbs. Min. Solderless Wrap 1.0 lbs. Min. Solder Tail	Thermo-Plastic Polyester Per MIL-M-24519 Rated 94 V-O		Phosphor Bronze Per QQ-B-750
Low Profile Socket	1 Ampere	15 Milliohms Max.	1000 Vac RMS Sea Level	5000 Megohms	−65°C to +125°C	250 Grams Max. per Contact	15 Grams Min. per Contact	1.0 lbs. Min.	Thermo-Plastic Polyester per MIL-M-24519 Rated 94 V-O	Polyester Film	Copper Alloy Per ASTM B-592

STANDARD PROFILE

* P.C. Tail .005 x .024 x .145 lg.
** P.C. Tail .008 x .025 x .125 lg.
† Solderless Wrap .025 sq. x .630 lg.

Stock Number	Type	No. of Contacts	Termination	Contact Plating	1-9	10-49	50-99	100-499
31N2916	SP-14-5G†	14	Solderless Wrap	Gold	1.50	1.20	1.05	.90
31N2917	SP-14-5T†	14	Solderless Wrap	Tin	1.50	1.20	1.05	.90
31N2918	SP-14-2G**	14	Solder	Gold	1.35	1.08	.95	.81
31N2919	SP-14-2T**	14	Solder	Tin	1.35	1.08	.95	.81
31N2920	SP-16-5G†	16	Solderless Wrap	Gold	1.70	1.36	1.19	1.02
31N2921	SP-16-5T†	16	Solderless Wrap	Tin	1.70	1.36	1.19	1.02
31N2922	SP-16-2G**	16	Solder	Gold	1.35	1.08	.95	.81
31N2923	SP-16-2T**	16	Solder	Tin	1.50	1.20	1.05	.90
31N2924	SP-18-5G†	18	Solderless Wrap	Gold	1.95	1.56	1.37	1.17
31N2926	SP-24-5G†	24	Solderless Wrap	Gold	3.05	2.44	2.14	1.83
31N2927	SP-24-2T**	24	Solder	Tin	2.60	2.08	1.82	1.56
31N2928	SP-28-5G†	28	Solderless Wrap	Gold	4.20	3.36	2.94	2.52
31N2929	SP-28-2T**	28	Solder	Tin	3.00	2.40	2.10	1.80
31N2931	SP-40-5G†	40	Solderless Wrap	Gold	4.75	3.80	3.33	2.85
31N2932	SP-40-2T**	40	Solder	Tin	4.30	3.44	3.01	2.58

Precious metal surcharge may apply.

LOW PROFILE

31N2913	LP-14-1G*	14	Solder	Gold	1.20	.96	.84	.72
31N2914	LP-16-1G*	16	Solder	Gold	1.30	1.04	.91	.78
31N2915	LP-18-1G*	18	Solder	Gold	1.60	1.28	1.12	.96

For SPC Technology Catalogs of Tubing, Terminals and Connectors and for Price Quotes on Larger Quantities Contact Newark, the One Stop Source for All Your Electronic Needs.

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES

LOW PROFILE MACHINED PIN SOCKET

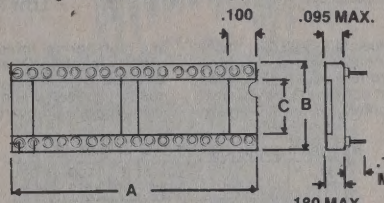
VOLTREX® brand

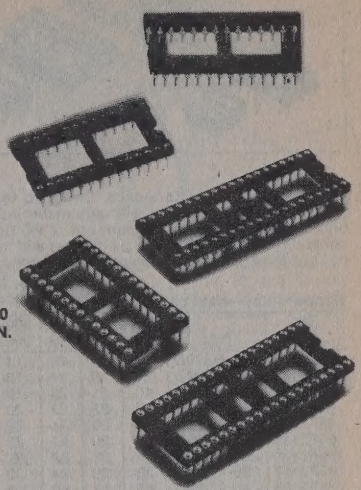
MP SERIES SOLDER TAIL SOCKETS

The MP Series is a machined pin, solder tail low-profile open-frame DIP socket. These sockets are designed to meet and exceed adverse environmental conditions including military requirements of high-vibration and shock conforming to MIL-S-83734.

This series of sockets is able to accommodate 8 through 40 flat lead DIP IC's, or 0.41/.016 to 0.51/.021 diameter round leads. Continuous grid spacing allows for optimum use of PC board. Available in tubes compatible with automatic insertion equipment, the closed end construction eliminates common solder or flux wicking problems. The two-piece tapered entry socket terminal with four leaf closed entry BeCu inner contact and machined outer sleeve will accept short IC leads.

The insulator is thermoplastic polyester, UL Rated 94V-O. The inner contact terminal is beryllium copper with gold over nickel plating (30 microinches per MIL-S-45204). The outer sleeve is brass, gold over nickel or tin plated.





Part Number	Socket Length (A)	Socket Width (B)	Pin Row (C)	No. of Contacts
MP-08	.400	.400	.300	8
MP-14	.700	.400	.300	14
MP-16	.800	.400	.300	16
MP-18	.900	.400	.300	18
MP-20	1.000	.400	.300	20
MP-22	1.100	.500	.400	22
MP-24	1.200	.700	.600	24
MP-28	1.400	.700	.600	28
MP-40	2.000	.700	.600	40

TIN SLEEVE PLATING

81N9132	MP-08-3T	1.09	.93	.80	.69
81N9133	MP-14-3T	1.45	1.29	1.10	.96
81N9134	MP-16-3T	1.59	1.41	1.21	1.05
81N9135	MP-18-3T	2.00	1.77	1.52	1.32
81N9136	MP-20-3T	2.34	2.02	1.73	1.50
81N9137	MP-22-3T	2.44	2.19	1.88	1.63
81N9138	MP-24-3T	2.94	2.44	2.09	1.81
81N9191	MP-28-3T	3.27	2.77	2.37	2.06
81N9192	MP-40-3T	4.44	3.73	3.20	2.77

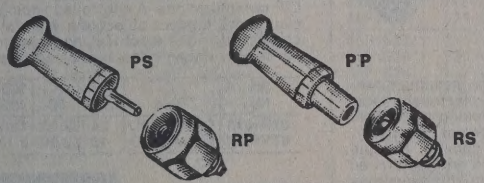
GOLD SLEEVE PLATING

Stk. No.	Type	1-24	25-99	100-499	500-999
81N9123	MP-08-3G	1.40	1.20	1.03	.89
81N9124	MP-14-3G	1.97	1.77	1.52	1.32
81N9125	MP-16-3G	2.19	1.98	1.70	1.47
81N9126	MP-18-3G	2.63	2.49	2.13	1.85
81N9127	MP-20-3G	3.12	2.86	2.45	2.12
81N9128	MP-22-3G	3.24	2.94	2.52	2.19
81N9129	MP-24-3G	3.87	3.42	2.93	2.54
81N9130	MP-28-3G	4.35	3.80	3.26	2.83
81N9131	MP-40-3G	5.97	5.20	4.46	3.87

Electrical Connectors — Superior Electric

11

SUPERCON ELECTRICAL CONNECTORS



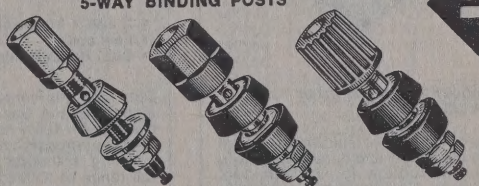
SUPERCON Electrical Connectors are designed to provide safe, rapid and positive panelboard connections. Nylon plastic parts; brass current carrying parts. Wiring connections to the same plug can be either soldered or solderless. 25, 50, and 100 ampere types are listed by UL. Socket and pin types of single-conductor plugs and receptacles are offered in 25, 50, 100 and 250 ampere capacities. 25, 50 and 100 ampere types are rated 125-250 volts a-c or d-c current interrupting; 600 volts unenergized connect or disconnect use only; 250 ampere types are rated 600 volts unenergized connect or disconnect use only. 25, 50, and 100 ampere types are CSA certified under file number LR-17812.

SUPERCON ELECTRICAL CONNECTORS

Price Key	1-19	20-99	100-199	200-Up
A	6.85	5.82	5.14	4.80
B	8.70	7.40	6.53	6.09
C	11.45	9.73	8.59	8.02
D	18.75	15.94	14.06	13.13

Color	Stk. No.	Type	Desc.	Stk. No.	Type	Desc.	Key
black	**06F054**	RP25GB	25 amp	**06F066**	PS25GB	25 amp	A
red	**06F056**	RP25GR	Recep.	**06F068**	PS25GR	Plugs	A
black	**06F048**	RS25GB	25 amp	**06F060**	PP25GB	25 amp	A
yellow	**06F049**	RS25GY	Socket	**06F061**	PP25GY	Pin	A
red	**06F050**	RS25GR	Recep.	**06F062**	PP25GR	Plugs	A
green	**06F052**	RS25GGN		**06F064**	PP25GGN		A
white	**06F053**	RS25GWT		**06F065**	PP25GWT		A
black	**06F024**	PS50GB	50 amp	**06F006**	RP50GB	50 amp	B
red	**06F026**	PS50GR	Plugs	**06F008**	RP50GR	Recep.	B
black	**06F000**	RS50GB	50 amp	**06F030**	PP50GB	50 amp	B
red	**06F002**	RS50GR	Recep.	**06F032**	PP50GR	Plug	B
black	**06F012**	RS100GB	100 amp	**06F042**	PP100GB	100 amp	C
red	**06F014**	RS100GR	Recep.	**06F044**	PP100GR	Plugs	C
white	**06F017**	RS100GWT		**06F047**	PP100GWT		C
black	**06F036**	PS100GB	100 amp	**06F018**	RP100GB	100 amp	C
red	**06F038**	PS100GR	Plugs	**06F020**	RP100GR	Recep.	C
white	**06F041**	PS100GWT		**06F023**	RP100GWT		C
black	**06F675**	RP250GB	250 amp	**06F672**	PS250GB	250 amp	D
red	**06F677**	RP250GR	Recep.	**06F674**	PS250GR	Plugs	D
black	**06F095**	RS250GB	250 amp	**06F097**	PP250GB	250 amp	D
red	**06F096**	RS250GR	Socket	**06F098**	PP250GR	Pin	D

5-WAY BINDING POSTS



Prevents accidental contact with current-carrying parts. Single assembly types are UL rec. Standard 1244 Hex and posts rated 36 A; miniature fluted, 15 A. 1000V working. Five ways connect; gold-plated brass and nylon or Lexan parts.

Color	Mini. Stk. No.	Mini. Type	Hex Nut Stk. No.	Hex Nut Type	Fluted Stk. No.	Fluted Type
red	**35F3000**	BP21R	**35F3006**	BP30R	**35F3012**	BP31R
white	**35F3001**	BP21WT	**35F3007**	BP30WT	**35F3013**	BP31WT
black	**35F3002**	BP21B	**35F3008**	BP30B	**35F3014**	BP31B
blue	**35F3003**	BP21BL	**35F3009**	BP30BL	**35F3015**	BP31BL
yellow	**35F3004**	BP21Y	**35F3010**	BP30Y	**35F3016**	BP31Y
green	**35F3005**	BP21GN	**35F3011**	BP30GN	**35F3017**	BP31GN

PRICES

5-20	25-100	105-500	505-995
1.06	.95	.80	.69

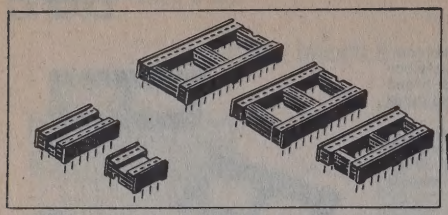
Double Assembly 5-WAY® Binding Posts

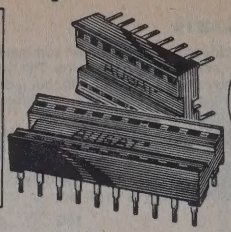
Binding posts mount on ¾-inch centers. Black and red thumbnuts. Rated 30 amps, 1000 volts working. Those prefixed BP are Limited Opening types.

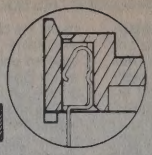
Stk. No.	Type	Thumbnut	1-19	20-99	100-Up
06F087	DF30-2BRC	Hex-Stand	2.90	2.18	1.60
35F3018	BP21-2BR	Fluted-Mini	2.75	2.06	1.51
35F3019	BP30-2BR	Hex-Stand	3.20	2.40	1.76

AUGAT®

Dip Sockets







SIDE WIPE
LOW PROFILE

200 SERIES DIP SOCKETS

- **High Normal force**
- **Automatic insertion capability**
- **Higher retention**
- **Lower insertion**
- **Gas tight performance**
- **Military approved MIL-S-83734**

Gas tight contact performance. Designed to meet MIL-S-83734. Packaged in tubes compatible with automatic insertion equipment. Continuous grid spacing for maximum use of PC board real estate. Side wipe contact for maximum electrical contact and most consistent mechanical performance. Computer designed low-profile contact for high retention and high normal force without the danger of damaging the IC lead or its plating. **Insulator:** thermoplastic polyester, UL rated 94V-0, color black. **Contact:** Copper-alloy (CDA688), tin-lead plating (-AG29D), or Beryllium copper, tin-lead plating (-AG39D); or Nickel-silver (CDA770), gold inlay in contact area, tin overlay on solder tail (-AG49D).

Copper-Alloy—Sold only in multiples of 10

Stk. No.	Type	Contacts	1-99	100-499	500-999
65F2130	208-AG29D	8	.16	.15	.14
65F2131	214-AG29D	14	.18	.17	.16
65F2132	216-AG29D	16	.21	.20	.18
65F2133	218-AG29D	18	.23	.22	.20
65F2134	220-AG29D	20	.26	.24	.22
65F2135	222-AG29D	22	.29	.27	.25
65F2136	224-AG29D	24	.31	.29	.27
65F2137	228-AG29D	28	.36	.34	.32
65F2138	240-AG29D	40	.51	.48	.44

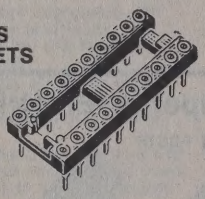
Beryllium copper—Sold only in mult. of 10

Stk. No.	Type	Contacts	1-99	100-499	500-999
13F179	208-AG39D	8	.24	.23	.21
13F180	214-AG39D	14	.30	.28	.26
13F181	216-AG39D	16	.33	.31	.29
13F182	218-AG39D	18	.38	.36	.33
13F183	220-AG39D	20	.42	.39	.36
13F184	222-AG39D	22	.46	.43	.40
13F185	224-AG39D	24	.51	.47	.44
13F186	228-AG39D	28	.59	.55	.51
13F187	240-AG39D	40	.84	.79	.73

Gold Inlay—Sold only in multiples of 10

Stk. No.	Type	Contacts	1-99	100-499	500-999
65F2139	208-AG49D	8	.31	.29	.27
65F2140	214-AG49D	14	.36	.33	.31
65F2141	216-AG49D	16	.41	.38	.35
65F2142	218-AG49D	18	.46	.43	.40
65F2143	220-AG49D	20	.51	.47	.44
65F2144	222-AG49D	22	.56	.52	.48
65F2145	224-AG49D	24	.60	.56	.52
65F2146	228-AG49D	28	.71	.67	.62
65F2147	240-AG49D	40	1.00	.94	.87

800 SERIES DIP SOCKETS



- **Continuous X-Y grid spacing**
- **Low Profile**

Four-finger screw machine inner contact for proven reliability and durability. Closed bottom construction for anti-wicking. Ladder type insulator for improved cooling, cleaning and inspection. Accommodates wide range of IC lead sizes and lengths as short as .100". **Insulator:** thermoplastic polyester, UL rated 94V-0. **Contact:** machined beryllium copper, gold-plated. **Sleeve:** machined brass, tin-lead solder plate (-AG11D) or gold (-AG10D).

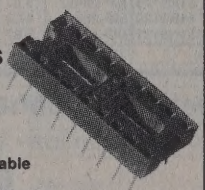
Gold Sleeve Plating

Stk. No.	Type	Contacts	1-99	100-499	500-999
67F1800	808-AG10D	8	1.20	1.03	.89
67F1801	814-AG10D	14	1.77	1.52	1.32
67F1802	816-AG10D	16	1.98	1.70	1.48
67F1803	818-AG10D	18	2.49	2.13	1.85
67F1804	820-AG10D	20	2.86	2.45	2.12
67F1805	822-AG10D	22	2.94	2.52	2.19
67F1806	824-AG10D	24	3.42	2.93	2.54
67F1807	828-AG10D	28	3.80	3.26	2.83
67F1808	840-AG10D	40	5.20	4.46	3.87

Tin Sleeve Plating

Stk. No.	Type	Contacts	1-99	100-499	500-999
67F1809	808-AG11D	8	.93	.80	.69
67F1810	814-AG11D	14	1.29	1.10	.96
67F1811	816-AG11D	16	1.41	1.21	1.05
67F1812	818-AG11D	18	1.77	1.52	1.32
67F1813	820-AG11D	20	2.02	1.73	1.50
67F1814	822-AG11D	22	2.19	1.88	1.63
67F1815	824-AG11D	24	2.44	2.09	1.81
67F1816	828-AG11D	28	2.77	2.37	2.06
67F1817	840-AG11D	40	3.73	3.20	2.77

400 SERIES DIP SOCKETS



- **X and Y Stackable**
- **Low cost**
- **Dual Beam Contacts**

Dual face grip contact for maximum contacting surface. Gas tight electrical performance with 100% non-wicking properties. .048" standoffs for better visibility, cleaning, soldering and cooling. Accepts full range of IC lead sizes and lengths as short as .075" in length. Anti-overstress protection. **Insulator:** thermoplastic polyester. UL rated 94V-0. Contact plating in selective gold and tin lead. **Contacts:** Beryllium copper.

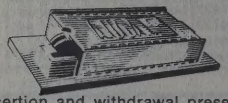
Gold Sleeve Plating

Stock No.	Type	Contacts	1-99	100-499	500-999
81F9313	406-AG49D	6	.27	.25	.23
81F9314	408-AG49D	8	.36	.33	.31
81F9315	414-AG49D	14	.41	.39	.36
81F9316	416-AG49D	16	.47	.44	.41
81F9317	418-AG49D	18	.53	.49	.46
81F9318	420-AG49D	20	.59	.55	.51
81F9319	422-AG49D	22	.65	.60	.56
81F9320	424-AG49D	24	.70	.66	.61
81F9321	428-AG49D	28	.83	.78	.72
81F4686	440-AG49D	40	1.17	1.09	1.01

Tin Sleeve Plating

Stock No.	Type	Contacts	1-99	100-499	500-999
81F9322	406-AG39D	6	.21	.20	.19
81F9323	408-AG39D	8	.28	.27	.25
81F9324	414-AG39D	14	.35	.33	.31
81F9325	416-AG39D	16	.39	.36	.34
81F9326	418-AG39D	18	.44	.42	.39
81F9327	420-AG39D	20	.49	.46	.42
81F9328	422-AG39D	22	.54	.50	.47
81F9329	424-AG39D	24	.59	.55	.51
81F9330	428-AG39D	28	.69	.64	.60
81F4687	440-AG39D	40	.98	.92	.85

"LIF" (LOW INSERTION FORCE) SOCKETS



Ease of insertion and withdrawal preserves lead integrity and hermeticity. .600" mounting center IC packages. Specially designed Tin-lead plated BeCu contacts provide insertion force of 1/10 or less of comparable standard DIP configurations. A controlled wiping action overcomes contact objections. Normal closed contact provides electrical performance similar to four-fingered machined contacts.

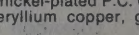
Stk. No.	Type	Contacts	1-99	100-499	500-999
67F1818	924-AG39D	24	2.23	1.91	1.66
67F1819	940-AG39D	40	3.68	3.15	2.73

CONTACT STRIP

Strips may be cut off on ends for continuous spacing on .100" centers for more than 25 contacts on one row. Accepts flat DIP IC leads or round leads to .025" diameter. Insulator: glass filled nylon. Wire Wrap Contact: phosphor bronze, gold-over nickel-plated P.C. Contact: spring temper beryllium copper, gold-over nickel-plated.

Stk. No.	Type	Termination	1-99	100-499	500-999
67F1820	325-AG1D	Prin. Cir.	4.82	4.13	3.58
67F1821	325-AG1F	Wire Wrap	6.97	5.97	5.18

SOCKET TERMINAL STRIPS



For microprocessor sockets, hybrid IC sockets, QIL sockets, component sockets, test points. Break into any desired lengths. Stackable for .100" grid spacing. Meets military requirements of high shock and vibration. Closed end construction eliminates solder or flux wicking problems. Two-piece, tapered-entry socket terminal features a four-leaf, machined, closed-entry inner contact and machined outer sleeve. Accept leads .015-.022 diameter. **Inner Contact:** machined, beryllium copper, gold-over nickel-plated. **Outer Sleeve:** machined, brass, gold-over nickel-plated or tin-over copper-plated. **Pins:** phosphor bronze, gold-over nickel-plated.

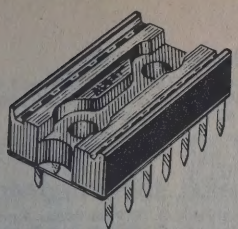
Stk. No.	Type	Contacts	Sleeve Plating	1-99	100-499	500-999
67F1822	510-AG90D	10	Tin	1.16	.99	.86
67F1823	510-AG91F	10	Tin	.89	.76	.66

11

DIP Sockets

AUGAT®

LOW PROFILE

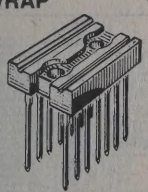


Terminal styles: Style A — any hole size down to 0.63/.025 diameter, Style B — recommended mounting hole 0.89 ± 0.05/.035 ± .002 diameter for good retention in PC board during wave soldering. Stands 4.14/.163 above PC board (IC seating plane). 308-318 are DIP; 322-340 are LSI.

Stk. No.	Type	Term. Style	Contacts	1-99	100-499	500-999
13F188	308-AG40D	A	8	.79	.68	.59
13F189	314-AG40D	A	14	1.25	1.07	.93
13F190	316-AG40D	A	16	1.43	1.23	1.06
13F191	318-AG40D	A	18	1.61	1.38	1.19
13F192	322-AG40D	A	22	1.96	1.68	1.46
13F193	324-AG40D	A	24	2.14	1.83	1.59
13F194	328-AG40D	A	28	2.51	2.15	1.86
13F195	340-AG40D	A	40	3.56	3.05	2.64
13F196	308-AG38D	B	8	.79	.68	.59
13F197	314-AG38D	B	14	1.25	1.07	.93
13F198	316-AG38D	B	16	1.43	1.23	1.06
13F199	318-AG38D	B	18	1.61	1.38	1.19
13F200	322-AG38D	B	22	1.96	1.68	1.46
13F201	324-AG38D	B	24	2.14	1.83	1.59
13F202	328-AG38D	B	28	2.51	2.15	1.86
13F203	340-AG38D	B	40	3.56	3.05	2.64

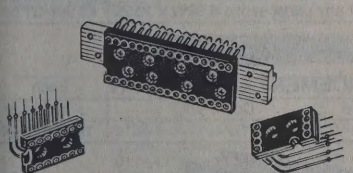
WIRE-WRAP

Contact: Copper alloy 725. Contact area only, gold-over nickel plated. 0.91 ± 0.03/.36 ± .001" mounting hole. Oper. temp: –55 to +125°C. Insulator: UL rated 94V-0 thermoplastic polyester.



Stk. No.	Type	Contacts	Term. Levels	1-99	100-499	500-999
13F204	314-AG35F	14	3	1.30	1.11	.97
13F205	314-AG36F	14	2	1.30	1.11	.97
13F206	316-AG35F	16	3	1.49	1.28	1.11
13F207	316-AG36F	16	2	1.49	1.28	1.11

LED SOCKETS

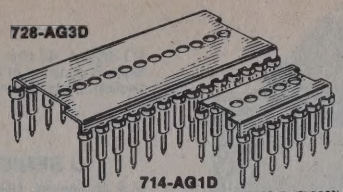


RA = right angle mounting; H = horizontal mounting; PC = printed circuit board mtg; WW = wire wrapping; and SP = solder pocket. UL rated 94V-0 socket, vinyl extrusion. Gold- over nickel-plated copper inner contact.

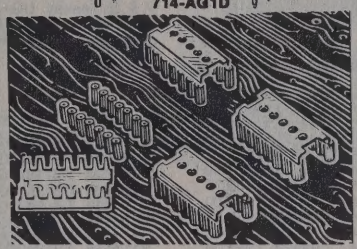
Stk. No.	Type	Contacts	Desc.	1-99	100-499
14F2725	508-AG8D	8	RA/PC	2.15	1.84
14F2726	508-AG4F	8	H/WW	1.29	1.10
14F2727	508-AG4A	8	H/SP	1.39	1.19
14F2728	514-AG7D	14	RA/PC	2.90	2.49
14F2729	514-AG11F	14	H/WW	1.58	1.36
14F2730	516-AG7D	16	RA/PC	3.33	2.85
14F2731	516-AG11F	16	H/WW	1.75	1.50

SOCKET TERMINAL CARRIER ASSEMBLIES

728-AG3D



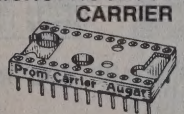
714-AG1D



Aluminum carrier provides patterns of lead sockets for easy group insertion into PC board. Remove after wave soldering and dispose. .300" spacing standard, (*).400" spacing, (†).600" spacing. Gold-plated contacts and sleeves.

Stk. No.	Type	Contacts	1-99	100-499
65F1613	706-AG1D	6	.82	.71
65F1614	708-AG1D	8	1.04	.89
65F1615	714-AG1D	14	1.64	1.41
65F1616	716-AG1D	16	1.82	1.56
65F1617	718-AG1D	18	2.02	1.73
65F1618	720-AG1D	20	2.28	1.95
65F1620	724-AG1D	24	2.75	2.36
65F1619	722-AG21D	22	2.28	1.95
65F1622	724-AG21D*	24	2.75	2.36
65F1623	724-AG3D†	24	2.75	2.36
65F1624	728-AG3D†	28	3.14	2.69
65F1625	732-AG3D†	32	3.50	3.00
65F1626	736-AG3D†	36	3.94	3.38
65F1627	740-AG3D†	40	4.45	3.81

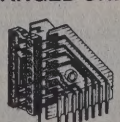
MICROPROCESSOR/PROM CARRIER



Type 524 is PROM carrier. Type 540 is microprocessor carrier. Two-piece, machined socket terminal: Inner contact — beryllium copper, gold – over nickel – plated. Outer sleeve — phosphor bronze, gold- over nickel-plated. Designed to protect fragile leads of expensive microprocessors and PROMs. Mating of carrier to microprocessor forms one unit facilitating mounting onto panels. Meets MIL requirements for shock and vibration. Closed end construction ends solder or flux wicking problems. Low profile.

Stk. No.	Type	Contacts	1-99	100-499	500-999
14F2721	524-AG70D	24	4.10	3.51	3.05
14F2722	540-AG70D	40	6.36	5.45	4.72

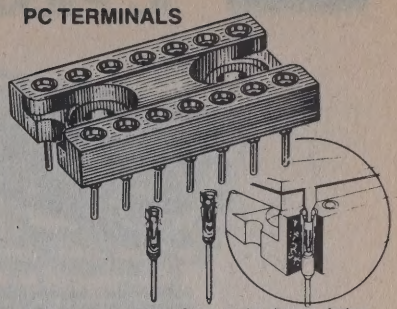
GANGED UNITS



Two-piece, machined socket terminal: Inner contact—beryllium copper, gold- over nickel-plated; Outer sleeve—brass, tin-plated. Board: glass epoxy, tin-plated copper circuitry. Terminal: phosphor bronze, solder-coated. Spacer: delrin. Permits gang mounting on PC board — .400" centers or greater.

Stk. No.	Type	Contacts	1-99	100-499	500-999
14F2723	514-AG21D	14	5.46	4.68	4.06
14F2724	516-AG21D	16	5.85	5.01	4.35

PC TERMINALS



Gold contact plating. Gold or tin sleeve plating. Space between rows: 8, 14, 16, 18, and 20 contacts — 7.62/.300"; 22 and 24 contacts — 10, 16/.400"; 24, 28, 32, 36 and 40 contacts — 15.24/.600". Insulator: thermoplastic polyester, UL rated 94V-0. Two-piece tapered entry socket terminal-four leaf machined closed entry inner contact and machined outer sleeve. Closed end construction eliminates any solder or flux wicking problems.

GOLD PLATED SLEEVE

Stk. No.	Type	Contacts	1-99	100-499	500-999
14F2700	508-AG10D	8	1.20	1.03	.89
14F2701	514-AG10D	14	1.78	1.53	1.32
14F2702	516-AG10D	16	1.98	1.70	1.47
14F2703	518-AG10D	18	2.49	2.13	1.85
14F2704	520-AG10D	20	2.86	2.45	2.12
14F2705	522-AG10D	22	2.52	2.36	2.19
14F2706	524-AG65D	24	3.56	3.05	2.64
14F2707	524-AG10D	24	3.42	2.93	2.54
14F2708	528-AG10D	28	3.80	3.26	2.83
14F2709	532-AG10D	32	4.40	3.77	3.27
14F2710	536-AG10D	36	4.75	4.07	3.53
14F2711	540-AG10D	40	5.20	4.46	3.87

TIN PLATED SLEEVE

Stk. No.	Type	Contacts	1-99	100-499	500-999
14F2712	508-AG11D	8	.93	.79	.69
13F703	514-AG11D	14	1.29	1.10	.96
13F704	516-AG11D	16	1.41	1.21	1.05
13F705	518-AG11D	18	1.77	1.52	1.32
14F2713	520-AG11D	20	2.02	1.73	1.50
14F2714	522-AG11D	22	2.19	1.88	1.63
14F2715	524-AG67D	24	3.45	2.96	2.57
14F2716	524-AG11D	24	2.44	2.09	1.81
14F2717	528-AG11D	28	2.65	2.27	1.97
14F2718	532-AG11D	32	3.10	2.66	2.31
14F2719	536-AG11D	36	3.42	2.93	2.54
14F2720	540-AG11D	40	3.73	3.20	2.77

500 SERIES—DIP SOCKETS, MACHINED PC TERMINATION, TIN/TIN PLATING

Stk. No.	Type	No. Pins	Spacing	1-99	100-499	500-999
14F3300	506-AG12D	6	.300"	.61	.52	.45
14F3301	508-AG12D	8	.300"	.79	.68	.59
14F3303	514-AG12D	14	.300"	1.09	.94	.81
14F3304	516-AG12D	16	.300"	1.19	1.02	.89
14F3305	518-AG12D	18	.300"	1.50	1.29	1.13
14F3306	520-AG12D	20	.300"	1.73	1.48	1.29
14F3307	522-AG12D	22	.400"	1.85	1.59	1.38
14F3308	524-AG12D	24	.600"	2.05	1.76	1.52
14F3309	524-AG13D	24	.400"	2.21	1.89	1.64
14F3310	528-AG12D	28	.600"	2.42	2.07	1.80
14F3311	532-AG12D	32	.600"	2.59	2.22	1.93
14F3312	536-AG12D	36	.600"	2.89	2.48	2.15
14F3313	540-AG12D	40	.600"	3.15	2.70	2.34

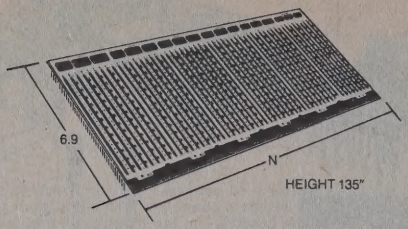
W/W 3-LEVEL, TIN/TIN PLATING

Stk. No.	Type	No. Pins	Spacing	1-99	100-499	500-999
14F3314	506-AG12F	6	.300"	.75	.64	.56
14F3315	508-AG12F	8	.300"	.99	.85	.73
14F3316	514-AG12F	14	.300"	1.43	1.23	1.07
14F3317	516-AG12F	16	.300"	1.61	1.38	1.20
14F3318	518-AG12F	18	.300"	1.95	1.67	1.45
14F3319	520-AG12F	20	.300"	2.24	1.92	1.67
14F3320	522-AG12F	22	.400"	2.37	2.03	1.76
14F3321	524-AG12F	24	.600"	2.65	2.27	1.97
14F3322	524-AG13F	24	.400"	2.75	2.36	2.05
14F3323	528-AG12F	28	.600"	3.00	2.57	2.23
14F3324	532-AG12F	32	.600"	3.47	2.97	2.58
14F3325	536-AG12F	36	.600"	3.70	3.17	2.75
14F3326	540-AG12F	40	.600"	4.08	3.50	3.03

For 2-Level Wrap, Add -2 to 3-Level Part Number

11

AUGAT® IC Packaging Panels, Racks and Hardware



NOTE: Drawer assemblies listed under P series also accommodate U series.

UNIVERSAL SERIES

I/O Style A: 42 pins per 9 row section. I/O Style B: 52 pins per 9 row section. Style B consists of two 26 pin I/O headers. I/O Style C: 80 pins per 9 row section. Style C consists of two 40 pin I/O headers.

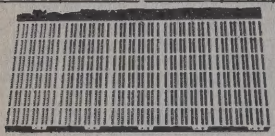
U SERIES UNIVERSAL SOCKET BOARDS

V & G sleeves. UG1: Socket terminal I.O. accepts three 14-pin plugs per nine-row section. UG6: Feed-thru pin I.O. accepts two 26-contact plugs per 9-rows. UG110: Hi-density socket terminal I.O. accepts three 28-pin plugs per 9-rows.

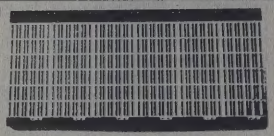
UNIVERSAL SERIES —HEIGHT 135"

Stock No.	Type	Rows	N	Style	1-4	5-9
14F2805	8136-UG1-9	9	2.675	A	83.00	79.00
81F4700	8136-UG1-9TG	9	2.675	A	77.50	70.50
14F2806	8136-UG1-18	18	2.675	A	167.25	159.75
81F4701	8136-UG1-18TG	18	5.375	A	158.00	139.00
14F2807	8136-UG1-27	27	8.075	A	269.75	257.25
81F4688	8136-UG1-27TG	27	8.075	A	238.75	208.00
14F2808	8136-UG1-36	36	10.75	A	333.00	319.00
81F4689	8136-UG1-36TG	36	10.775	A	315.00	277.25
14F2809	8136-UG1-45	45	13.475	A	416.75	398.50
81F4690	8136-UG1-45TG	45	13.475	A	393.75	344.75
14F2810	8136-UG1-54	54	16.175	A	502.00	479.50
81F4691	8136-UG1-54TG	54	16.175	A	473.75	414.00

Stock No.	Type	Rows	Length	Style	1-4	5-9
81F4692	8136-UG6-9TG	9	2.675	B	78.00	74.75
81F4693	8136-UG6-18TG	18	5.375	B	155.25	136.00
81F4694	8136-UG6-27TG	27	8.075	B	233.00	203.50
81F4709	8136-UG6-36TG	36	10.775	B	309.50	270.25
81F4710	8136-UG6-45TG	45	13.475	B	387.50	337.50
81F4711	8136-UG6-54TG	54	16.175	B	462.75	405.00
81F4715	8136-UG155-9TG	9	2.675	C	83.00	79.50
81F4716	8136-UG155-18TG	18	5.375	C	164.75	159.50
81F4717	8136-UG155-27TG	27	8.075	C	249.25	238.75
81F4718	8136-UG155-36TG	36	10.775	C	332.25	318.75
81F4719	8136-UG155-45TG	45	13.475	C	414.50	398.75
81F4720	8136-UG155-54TG	54	16.175	C	496.50	475.75



NOTE: Drawer assemblies listed under P series also accommodate U series.



P SERIES SOCKET TERMINAL BOARDS

16 + 2 SOCKETS PER PATTERN V+G SLEEVES

Accepts 14- and 16-lead dual in-line ICs. Double-sided board with power and ground plates connected to two contacts in each pattern. V and G positions are sleeves (no inner contact) for soldering in capacitors or other components.

Board is ⅛" thick glass epoxy. Inner contact, outer sleeve and pins are gold over nickelplated.

P SERIES

Stock No.	Type	No. Patterns	Lgth.	Style	Each 1-4	Each 5-9
81F4702	8136-PG13-30TG	30	2.675	A	86.75	73.25
81F4703	8136-PG13-60TG	60	5.375	A	180.75	172.50
81F4704	8136-PG13-90TG	90	8.075	A	253.75	221.75
81F4705	8136-PG13-120TG	120	10.775	A	337.50	294.75
81F4706	8136-PG13-150TG	150	13.475	A	422.25	367.25
81F4707	8136-PG13-180TG	180	16.175	A	503.00	439.75

Stock No.	Type	No. Patterns	Lgth.	Style	Each 1-4	Each 5-9
81F4708	8136-PG21-30TG	30	2.675	B	83.50	75.25
81F4695	8136-PG21-60TG	60	5.375	B	165.50	148.00
81F4696	8136-PG21-90TG	90	8.075	B	248.75	227.00
81F4697	8136-PG21-120TG	120	10.775	B	328.00	291.75
81F4698	8136-PG21-150TG	150	13.475	B	411.50	365.75
81F4699	8136-PG21-180TG	180	16.175	B	492.50	436.25
14F2744	8136-PG5-30	30	2.675	A	86.25	82.50
14F2745	8136-PG5-60	60	5.375	A	168.00	160.75

R SERIES BOARD AND RACK

R SERIES

Board

Rack

Accepts 14- and 16-lead dual in-line ICs, 60 patterns standard. Universal style 20 rows of 50-contacts accepts any combination 6- thru 40-lead dual in-line ICs.

Stock	Type	Style	Thickness	Each 1-4	Each 5-9
14F2799	8136-RG4	16 V & G	⅛"	207.00	197.75
81F4712	8136-RG10	16 V & G	1/16"	263.00	229.75
14F2825	8136-URGI	Universal	⅛"	220.25	214.25
81F4713	8136-URG-1TG	Universal	⅛"	218.25	193.50
81F4714	8136-URG-14TG	Universal	1/16"	219.25	189.75

VG SERIES

European standard—VME BUS compatible. Single panel size 100mm x 160mm. Double panel size 233.68mm x 160mm. Gold plated contacts.

Stock No.	Type	Style	Size	Each 1-4	Each 5-9
14F2831	8136-VG44	16 V & G	Single	181.50	159.00
10F7937	8136-UVG41	Universal	Single	187.50	164.00
14F2835	8136-VG50	16 V & G	Double	390.75	342.50
10F7938	8136-UVG42	Universal	Double	397.25	346.75

M SERIES

Stock No.	Type	Conn.	Each	
14F2742	8136-UMG1	Std universal-12 col/35 contacts	104.00	99.75

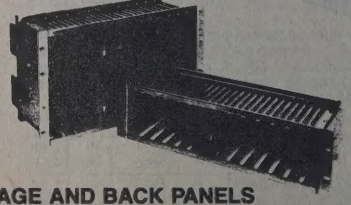
CAGE AND BACK PANEL W/CONN.

Fits 19" relay racks. Accepts ⅛" & 1/16" thick boards on 30.48"/1.200" centers. Edge connector type—will accept 13 boards.

Stock No.	Type	Desc.	Each 1-4	Each 5-9
80W495	8170-RG1	For use w/⅛" boards	523.75	466.00
81F9331	8170-RG14	For use w/1/16" boards	523.75	466.00
14F2788	8170-14GI	For any panel series 6.92W x 16.2L	42.00	37.50

REPLACEMENT CONNECTOR

Stock No.	Type	Conn.	Each 1-4	Each 5-9
14F2823	14005-1P1	⅛"	19.48	16.70



CAGE AND BACK PANELS

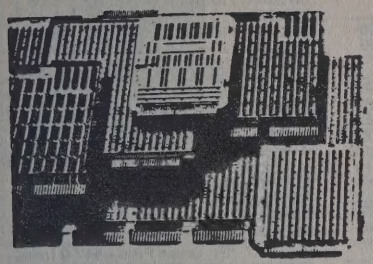
Fits 19" relay racks—will accept 13 boards

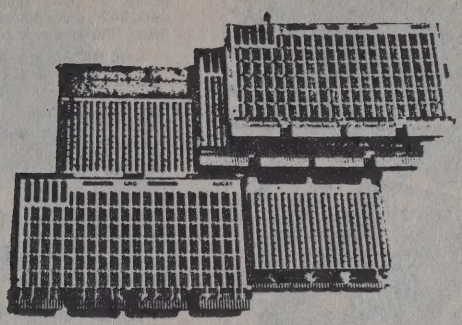
Stock No.	Type	Size	No. Rows	Each 1-4	Each 5-9
14F2850	8170-VG3	Single	3	487.00	418.25
14F2852	8170-VG6	Double	3	930.00	802.75

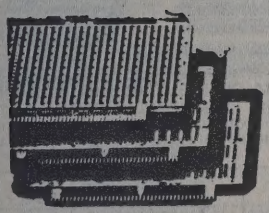
11

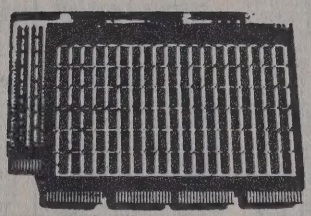
Computer Interface Panels–Wire Wrap™

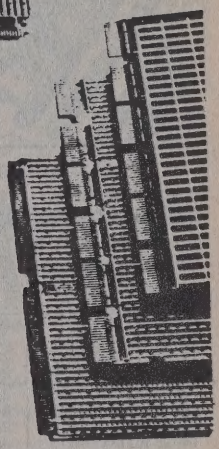
AUGAT®

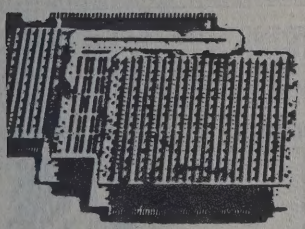


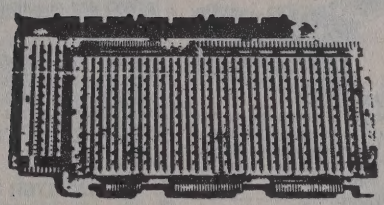












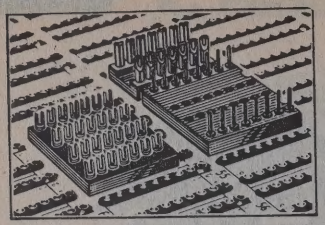
Panels for DEC, INTEL, MOTOROLA, ZILOG, IBM, TI990, DATA GENERAL, S100 and PROLOG. Pattern and universal style for most minicomputers and microprocessor systems.

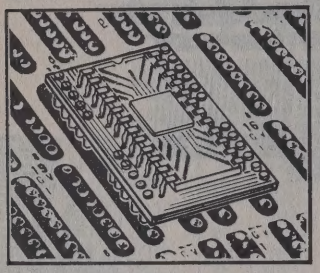
High planar density wire wrap* panels offsets pin extension—affords greater volume density. All boards listed are Tin/Gold—Gold plated contacts and sleeves are available upon request.

Stock No.	Type	Series	Description	Each 1-4	Each 5-9
81F4721	8136-LG412-2-TG	PDP 8 QUAD	6 26 Pin Connectors DEC*	394.25	344.00
81F4722	8136-LG434-2-TG	PDP 8 DUAL	6 26 Pin Connectors DEC	272.75	238.50
21F350	8136-LG498-332TG	PDP II QUAD	8 26 Pin Connectors DEC	457.00	400.25
81F4723	8136-LG627-2TG	PDP II HEX	8 26 Pin Connectors DEC	685.75	598.75
81F4724	8136-LG941-2TG	PDP II DUAL	6 26 Pin Connectors DEC	232.25	203.75
21F330	8136-LG912-2TG	MULTIBUS	2 25/50 Edge Card Conn. 1 13/26 Edge Card Conn. INTEL	487.00	410.00
21F331	8136-LG918-2TG	MULTIBUS	1 50/100 Edge Card Conn. INTEL	445.00	389.75
21F1030	8136-UG159-2TG	MULTIBUS	2 50 Pin Headers, 1 40 Pin Header INTEL	422.25	370.25
81F4725	8136-UG146-2TG	EXORCISER	2 50 Pin Headers, I/O MOTOROLA	343.50	300.40
81F4726	8136-UG321-2TG	VERSABUS	3 40 Contact Header I/O MOTOROLA	736.00	645.25
21F359	8136-LG937-2TG		1 40 Pin Header I/O ZILOG	221.00	193.50
81F4727	8136-LG936-2TG		2 Rows 56 Pins for .6" Devices ZILOG	238.00	208.50
81F4728	8136-LG913-2TG	SERIES 1	2 40 Pin Headers I/O IBM	414.25	363.00
81F4729	8136-UG322-2TG	990	3 50 Pin Header I/O TI	789.50	692.00
81F4730	8136-LG1048-2TG	TMS990	2 40 Pin Header—1 26 Pin header TI	455.25	398.75
81F4731	8136-LG914-2TG	MICRO NOVA	1 25/50 Edge Conn. I/O DATA GEN.	374.50	315.25
81F4732	8136-LG1072-2TG	HOBBY BUS	Accomodates 4 to 220 Reg. IEEC S100	311.75	273.50
81F4733	8136-LG915-2TG	STD. BUS.	12 Cols. 54 Pins PROLOG	176.25	154.25

*TM ® Gardner-Denver

AUGAT® Adaptors, Flat Cables, Header Assemblies





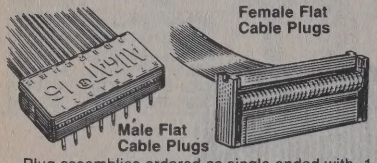
LSI ADAPTOR PLUGS

Interpose LSI packages to 14- and 16-pin IC patterned and (†)Universal style boards. 20 thru 40 (as listed) leads LSI devices on (*).300", (**).400" and (***).600" spacing. 1/16" thick glass epoxy board.

Stk. No.	Type	Max. No. Leads	1-99	100-499
14F2949	620-HG16	20*	6.11	5.70
14F2950	622-HG16	22**	6.30	5.88
14F2951	622-HG17†	22**	5.84	5.45
14F2952	624-HG17†	24**	6.27	5.86
14F2953	624-HG18	24**	7.55	7.05
14F2954	624-HG16	24***	7.55	7.05
14F2955	628-HG16	28***	8.66	8.08
14F2956	640-HG16	40***	11.99	11.19

11

FLAT CABLE PLUGS



Plug assemblies ordered as single-ended with -1 as type number suffix, or double-ended with -2 as type number suffix. 12" cable length except (*)24" cable length. Plugs and strain reliefs for plugs may be ordered separately.

Stk. No.	Type	Contacts	1-24	25-99
FEMALE				
56F1221	4P20-1R12-1	20	5.55	4.76
56F1222	4P20-1R12-2	20	9.87	8.46
56F1220	4P20-1	Plug only	3.78	3.24
56F1232	4P20-2P1	Str. Rel.	.49	.42
56F1224	4P26-1R12-1	26	6.85	5.87
56F1225	4P26-1R12-2	26	12.25	10.50
56F1223	4P26-1	Plug only	4.89	4.19
56F1233	4P26-2P1	Str. Rel.	.49	.42
56F1227	4P40-1R12-1	40	10.00	8.57
56F1228	4P40-1R12-	40	18.12	15.53
56F1226	4P40-1	Plug only	7.53	6.45
56F1234	4P40-2P1	Str. Rel.	.55	.47
56F1230	4P50-1R12-1	50	12.20	10.46
56F1231	4P50-1R12-2	50	22.25	19.07
56F1229	4P50-1	Plug only	9.38	8.04
56F1235	4P50-2P1	Str. Rel.	.55	.47
Male				
56F1211	2P14-1R12-1	14	3.98	3.41
56F1212	2P14-1R24-1*	14	4.40	3.77
56F1213	2P14-1R12-2	14	6.01	5.15
56F1214	2P14-1R24-2*	14	6.50	5.57
56F1210	2P14-1	Plug only	2.07	1.77
56F1216	2P16-1R12-1	16	4.03	3.45
56F1217	2P16-1R24-1*	16	4.50	3.86
56F1218	2P16-1R12-2	16	6.72	5.76
56F1219	2P16-1R24-2*	16	7.21	6.18
56F1215	2P16-1	Plug only	2.37	2.03

ADAPTOR PLUG ASSEMBLIES

Used for interposing discrete components. Slotted pin style except (*)round and (**) solder pocket pin styles. Insulated material either UL rated 94V-0 thermoplastic polyester or glass-filled nylon. Phospher bronze, gold over nickel-plated.

UL RATED 94V-0 THERMOPLASTIC POLYESTER

Stk. No.	Type	Pins	1-99	100-499
.300" Between Rows				
14F2935	614-AG1*	14	2.64	2.47
14F2936	614-BG1**	14	2.70	2.52
14F2937	614-CG1	14	2.70	2.52
14F2938	616-AG1*	16	2.93	2.73
14F2939	616-BG1*	16	2.99	2.79
14F2940	616-CG1	16	2.99	2.79
.800" Between Rows				
14F2941	614-CG2	14	2.91	2.72
14F2942	616-CG2	16	3.21	3.00
Double Pattern—.300" Between Rows				
14F2943	628-CG1	28	4.95	4.62
14F2944	632-CG1	32	5.64	5.27
Universal Style—.600" Between Rows				
56F1245	614-CG3	14	2.99	2.79
56F1246	616-CG3	16	3.21	3.00
Flat Plugs & Covers—.300" B/T Rows				
14F2945	614-DG5	14	1.00	.93
14F2946	616-DG5	16	1.03	.96
14F2947	614-2P1	(14) cover	.26	.24
14F2948	616-2P1	(16) cover	.46	.43

GLASS-FILLED NYLON INSULATOR

Stk. No.	Type	Pins	1-24	25-99
.300" Between Rows				
56F1239	614-AG16*	14	2.64	2.47
56F1240	614-BG16**	14	2.70	2.52
56F1241	614-CG16	14	2.70	2.52
56F1242	616-AG16*	16	2.93	2.73
56F1243	616-BG16**	16	2.99	2.79
56F1244	616-CG16	16	2.99	2.79

CROSSOVER HEADERS

Mates with standard .025 contact ribbon cable connectors. Thermoplastic latches provided for polarity and retention of connector in header.

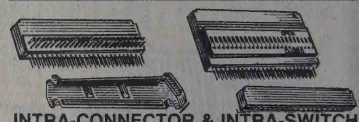
Stk. No.	Type	Pins	1-24	25-99
14F2981	110-20003-201	20	12.08	10.35
14F2982	110-26003-201	26	12.95	11.10
14F2983	110-34003-201	34	13.44	11.52
14F2984	110-40003-201	40	13.72	11.76
14F2985	110-50003-201	50	14.28	12.24

POLYESTER TIN-PLATED PINS

Stk. No.	Type	Pins	1-99	100-499
.300" Between Rows				
21F310	614-AG1-T	14	1.29	1.20
21F311	614-BG1-T	14	1.39	1.30
21F312	614-CG1-T	14	1.39	1.30
21F313	616-AG1-T	16	1.54	1.44
21F314	616-BG1-T	16	1.56	1.46
21F315	616-CG1-T	16	1.56	1.46
.800" Between Rows				
21F316	614-CG2-T	14	1.70	1.59
21F317	616-CG2-T	16	1.74	1.63
Double Pattern—.300" Between Rows				
21F318	628-CG1-T	28	2.54	2.37
21F319	632-CG1-T	32	2.91	2.72
Universal Style—.600" Between Rows				
21F320	614-CG3-T	14	1.70	1.59
21F321	616-CG3-T	16	1.74	1.63
Flat Plugs—.300" Between Rows				
21F322	614-DG6	14	.65	.61
21F323	616-DG6	16	.74	.69
Nylon Insulator—.300" Between Rows				
21F324	614-AG16T	14	1.29	1.20
21F325	614-BG16T	14	1.39	1.30
21F326	614-CG16T	14	1.39	1.30
21F327	616-AG16T	16	1.54	1.44
21F328	616-BG16T	16	1.56	1.46
21F329	616-CG16T	16	1.56	1.46

HEADER ASSEMBLIES

Stk. No.	Type	Pins	1-24	25-99
W.W. Rt. Angle Brass Pins—94V-0 Insul.				
14F2965	110-20001-602	20	5.08	4.35
14F2966	110-26001-602	26	6.46	5.54
14F2967	110-40001-602	40	8.74	7.49
14F2968	110-50001-602	50	10.22	8.76
W.W. St. Brass Pins—94V-0 Insul.				
14F2969	110-20001-601	20	5.08	4.35
14F2970	110-26001-601	26	3.29	2.82
14F2971	110-40001-601	40	8.74	7.49
14F2972	110-50001-601	50	10.22	8.76
P.C. Rt. Angle Brass Pins—94V-0 Insul.				
14F2957	110-20001-102	20	2.70	2.31
14F2958	110-26001-102	26	3.29	2.82
14F2959	110-40001-102	40	4.92	4.22
14F2960	110-50001-102	50	5.85	5.01
P.C. St. Brass Pins—94V-0 Insul.				
14F2961	110-20001-101	20	2.70	2.31
14F2962	110-26001-101	26	3.29	2.82
14F2963	110-40001-101	40	4.92	4.22
14F2964	110-50001-101	50	5.85	5.01

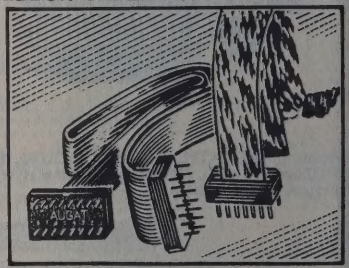


INTRA-CONNECTOR & INTRA-SWITCH

Insulator is glass-filled polyester. Contacts are nickel-silver alloy 770. Mates with standard dual row female flat cable plugs and header assemblies.

Stk. No.	Type	Contacts	1-24	25-99
INTRA-CONNECTOR				
14F2986	110-20006-301	20	7.50	6.42
14F2987	110-26006-301	26	8.61	7.38
14F2988	110-34006-301	34	10.12	8.67
14F2989	110-40006-301	40	11.20	9.60
14F2990	110-50006-301	50	13.15	11.27
INTRA-SWITCH				
14F2991	110-20005-301	20	14.91	12.78
14F2992	110-26005-301	26	17.15	14.70
14F2993	110-34005-301	34	20.08	17.21
14F2994	110-40005-301	40	22.32	19.13
14F2995	110-50005-301	50	26.04	22.32

RIBBON CABLE PLUG ASSEMBLIES

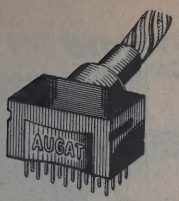


Type numbers beginning 7P14 are 14-pin, 7P1 are 16-pin; -2T = twisted pair, -3T = flat cable 12 = 12"lgth., 24 = 24", -1 = single ended -2 = double ended.

Stk. No.	Type	Pins	1-24	25-99	100-499
65F1530	7P14-2T12-1	14	10.75	9.21	7.99
65F1538	7P16-2T12-1	16	10.66	9.14	7.92
65F1531	7P14-2T24-1	14	11.33	9.71	8.42
65F1539	7P16-2T24-1	16	11.48	9.84	8.53
65F1534	7P14-2T12-2	14	20.48	17.55	15.21
65F1542	7P16-2T12-2	16	20.81	17.84	15.46
65F1535	7P14-2T24-2	14	21.07	18.06	15.66
65F1543	7P16-2T24-2	16	21.37	18.32	15.88
65F1532	7P14-3T12-1	14	4.83	4.14	3.59
65F1540	7P16-3T12-1	16	5.88	5.04	4.37
65F1533	7P14-3T24-1	14	5.64	4.83	4.19
65F1541	7P16-3T24-1	16	6.86	5.88	5.10
65F1536	7P14-3T12-2	14	8.54	7.32	6.35
65F1544	7P16-3T12-2	16	10.42	8.93	7.74
65F1537	7P14-3T24-2	14	9.28	7.95	6.89
65F1545	7P16-3T24-2	16	11.41	9.78	8.48

Plug Assemblies and Accessories

AUGAT®

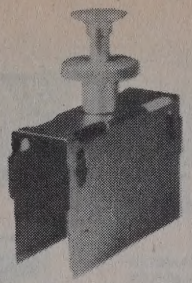


HIGH DENSITY PLUGS

28-pin plug assembly is compatible with I.C. socket panels or can be used for bulkhead mounting. Single and double ended plug assemblies as listed in 12" and 24" wire lengths. Gold-plated pins. Contact Newark for price quotes on larger quantities.

Stk. No.	Type	Description	1-99
Plug Assemblies			
65F1550	9P28-2S12-1	12" wire/sgl.	19.24
65F1551	9P28-2S24-2	24" wire/dbl.	34.83
Plug Components			
65F1546	8136-742P1	Hood	1.05
65F1547	9P28-2G1	Base w/pins	4.78
* **65F1548**	8136-741P2	Base (only)	.13
* **65F1549**	8136-32P6	Pin (only)	.16

* Sold only in modules of 100



MAXI PULL IC EXTRACTOR TOOL

Assures controlled aligned and absolute parallel withdrawal of IC's. Can be grounded to protect delicate MOS devices. Lead screw adjustment applies constant parallel axial force. Extractor removes soldered or socketed IC's from printed wiring boards.

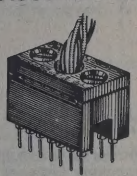
Stk. No.	Type	Description	1-99
81F1874	TX8136-14/20	14/20 pins .300 rows	23.50
81F1875	TX8136-22	22 pins .400 rows	24.50
81F1876	TX8136-24	24 pins .600 rows	25.50
81F1877	TX8136-40	40 pins .600 rows	27.00
81F1878	TX8136-64	64 pins .900 rows	70.00

MAC PAC

8" x 6" tool pack—contains 5 insertion and 4 extraction tools. Use with IC ranges of 14/16 pins on .300" row centers through 32/40 pins on .600" row centers.

Stock. No.	Type	Each
81F1873	TK8136-G1	235.00
81F1874	TX8136-14	23.50
81F1875	TX8136-22	24.50
81F1876	TX8136-24	25.50
81F1877	TX8136-40	27.00
81F1878	TX8136-64	70.00

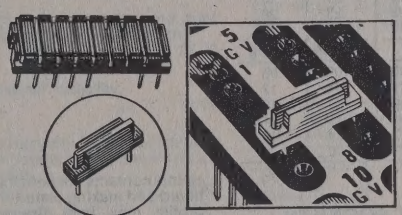
INTER-FACING PLUG ASSEMBLIES



Plug assemblies or plugs alone made of UL rated 94V-O. #26 AWG stranded tinplated copper wire, teflon insulated. Pins are gold-plated bronze. Type numbers beginning 1P14 are 14-pin, 1P16 are 16-pin; -3T=.018 pin diameter, -4T=.023 pin diameter; 12=12" length; -1=single ended, -2=double ended. Standard crimp type connection pins except (*) solder pocket.

Stk. No.	Type	Desc.	1-99	100-499	500-999
65F1560	1P14-3T12-1	14-pin	8.46	7.25	6.28
65F1561	1P14-3T12-2	14-pin	15.65	13.41	11.63
65F1562	1P14-4T12-1	14-pin	8.44	7.23	6.27
65F1563	1P14-4T12-2	14-pin	15.65	13.41	11.63
65F1558	1P14-1*	Plug	2.63	2.25	1.95
65F1559	1P14-3	Plug	2.14	1.83	1.59
65F1566	1P16-3T12-1	16-pin	9.91	8.49	7.36
65F1567	1P16-3T12-2	16-pin	17.85	15.30	13.26
65F1568	1P16-4T12-1	16-pin	9.91	8.49	7.36
65F1569	1P16-4T12-2	16-pin	17.85	15.30	13.26
65F1564	1P16-1*	Plug	3.07	2.63	2.28
65F1565	1P16-3	Plug	2.68	2.30	1.99

PROGRAMMING JUMPER PLUG



Jumper Pin Assembly spans 7.62mm/.300" centers to connect opposing contacts in IC patterns. Insulator (available separately in 1 or 9 units) is thermoplastic polyester, UL rated 94V-O. Pins are phosphor bronze, gold over nickel-plated.

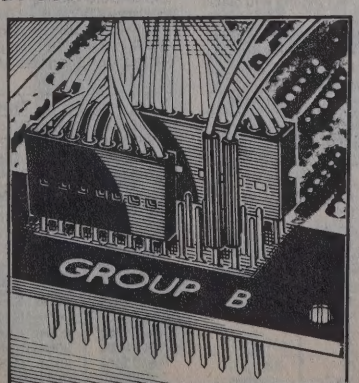
Stk. No.	Type	No. of Units	1-99	100-499	500-999
65F1584	8136-475G1	1	.43	.37	.32
65F1585	8136-475G2	2	.50	.43	.37
65F1586	8136-475G3	3	.56	.48	.42
65F1587	8136-475G4	4	.61	.52	.45
65F1588	8136-475G7	7	.93	.80	.69
65F1589	8136-475G8	8	1.00	.86	.75
65F1590	8136-475G9	9	1.07	.92	.80
65F1591*	8136-477P1	1(insul.)	.07	.06	.05
65F1592*	8136-652P5	9(insul.)	.11	.09	.08

* Sold only in multiples of 100.

FEMALE I/O PLUG ASSEMBLIES

Female I/O plugs (*) insulators, separate contacts, contact assemblies with 12- and 24-inch wire, single- and double-ended, and 2-contact jumper assemblies with 12-, 24-, and 36-inch wire. 12 in type number means 12", 24 is 24", and 36 is 36" wire length; -2 suffix in type number denotes double-ended otherwise assume single-ended. Contact Newark for price quotes on larger quantities.

Stk. No.	Type	Description	1-99
65F1570	6P8-1T12-1	8 con.	4.08
65F1571	6P8-1T12-2	8 con.	7.06
65F1572	6P26-1T12-1	26 cin.	12.71
65F1573	6P26-1T12-2	26 con.	21.49
65F1574	14008-5P1*	26 con.	.97
65F1575	14008-5P2*	26 con.	2.61
65F1576	14008-6P1	sep. con.	.19
65F1577	14008-6G1-12	con. assy.	.51
65F1578	14008-6G1-24	con. assy.	.53
65F1579	14008-6G1-12-2	con. assy.	.91
65F1580	14008-6G1-24-2	con. assy.	.96
65F1581	6P1-1T12-2	jum. assy.	.13
65F1582	6P1-1T24-2	jum. assy.	1.25
65F1583	6P1-1T36-2	jum. assy.	1.28



SOCKET TERMINAL REPLACEMENT KITS

Type 8136-23G4 2-level wqrap, gold/gold.
65F1593. NET 15.18

Type 8136-23G1 3-level wrap, gold/gold.
65F1594. NET 13.81

CIRCUIT PAD REMOVAL TOOL

65F1595. Type T8136-6. **NET** 54.60

DIP EXTRACTOR TOOL

65F1596. Type T114-1 **NET** ..... .88

DIP INSERTION TOOLS

Type T18136-14/20 Accepts 14-20 leads on .300" centers.
65F1597. NET 21.78

Type T18136-24/28 accepts 24 & 28 leads on .600" centers.
65F1598. NET 23.48

Type T18136-32/40 accepts 32-40 leads on .600" centers.
65F1599. NET 34.08

DIP WITHDRAWAL TOOLS

Type TW8136-14/20 accepts 14-20 leads on .300" centers.
65F1600. NET 21.78

Type TW8136-24/28 accepts 24 and 28 leads on .600" centers.
65F1601. NET 24.26

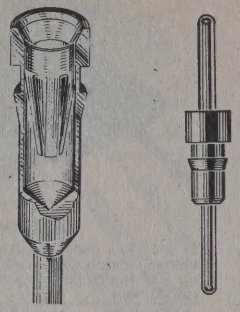
ASSEMBLY TOOLS FOR MALE 2P PLUGS

Type T2P1416-1 hand tool.
65F1602. NET 146.00

11

AUGAT® Contacts, Component Sockets

SOCKET AND PLUG TERMINALS

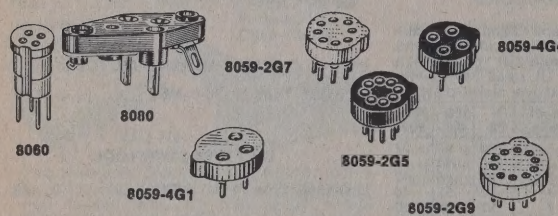


Socket Plug

Socket Terminal. Outer sleeve: brass—gold-over nickel-plated or (*) tin-over copper-plated. Inner Contact: gold- over nickel-plated beryllium copper.
Plug Terminal. Gold- over nickel-plated brass or phosphor bronze.

Socket Terminals					Each	
Stk. No.	Type	Lgth.	Contact	1-99	100-499	500-999
65F1898	LSG-1FG1-1	.703"	Copper	.32	.27	.24
65F1899	LSG-1FG1-14*	.703"	Copper	.24	.21	.18
65F1900	LSG-1AG2-1	.290"	Copper	.26	.23	.20
65F1901	LSG-1AG2-14*	.290"	Copper	.18	.15	.13
Plug Terminals				**1-99**	**100-499**	**500-999**
65F1607	314-17P2	.670"	Bronze	.10	.09	.08
65F1608	8128-17P2	.672"	Brass	.16	.14	.12
65F1609	8128-23P2	.798"	Brass	.20	.17	.15
65F1610	8128-41P2	.477"	Bronze	.14	.12	.11
65F1611	8128-39P2	.416"	Bronze	.17	.14	.13
65F1612	8150-6P10	.923"	Bronze	.11	.10	.08

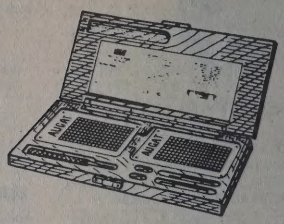
MISCELLANEOUS COMPONENT SOCKETS



Minature Transistor Sockets with 3 or 4 contacts come in 3 termination styles: turret, solder pocket, and printed circuit. Those with type numbers beginning 8058 have a pin circle diameter of .200" (5.08mm), and 8060 have diameter of .100" (2.54mm).
Power Transistor Sockets for TO-3 outline come with one or two solder lugs. They come with electro tin contact plating and black phenolic insulation, silver contact plating and diallyl phthalate insulation, or gold-nickel contact plating and black phenolic insulation.
Transistor and IC Sockets come with red, blue, green, orange, or yellow insulators and with 3, 4, 8, or 10 contacts. They have gold-plated contacts and sleeves.

Miniature Transistor Sockets				
Stk. No.	Type	Description	1-99	100-499
65F1867	8060-1G8	PC/4 cont.	1.44	1.35
65F1868	8060-1G3	PC/3 cont.	1.11	1.04
65F1869	8060-1G4	PC/4 cont.	1.44	1.35
Power Transistor Sockets				
65F1870	8080-1G1	E.T./2 lug	.65	.61
65F1871	8080-1G2	Sil./2 lug	.93	.87
65F1872	8080-1G3	E.T./1 lug	.65	.61
65F1873	8080-1G4	Sil./1 lug	.93	.87
65F1874	8080-1G7	G-N/2 lug	.84	.79
Transistor and IC Sockets				
65F1875	8059-4G1	Red/3 cont.	.77	.66
65F1876	8059-2G1	Red/3 cont.	.77	.66
65F1877	8059-4G4	Blu/4 cont.	.98	.84
65F1878	8059-2G3	Blu/4 cont.	.98	.84
65F1879	8059-2G5	Grn/8 cont.	1.67	1.43
65F1880	8059-2G7	Org/8 cont.	1.67	1.43
65F1881	8059-2G9	Yel./10 cont.	2.05	1.76

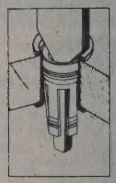
HOLTITE® PRINTED Wiring Contacts



With gold-plated contacts. Includes: card with 1008 small contacts and one with 196 large contacts; combination loading tool and no-go gauge for small contacts and one for large contacts; seating tool for small contacts and one for large contacts; spring-loaded seating tool handle.

Stock No.	Type	Cont. Ptg.	1-Up
14F2868	398-HK-001	Gold	107.61

PRINTED WIRING CONTACTS



Holtite contacts press-fit into plated-thru holes using existing space within board and making plated-thru holes into sockets. Features: lowest socket profile, max. heat dissipation, 30,000 contact installations per hour, solderless gas tight insertion. Gold over nickel-plated beryllium contacts available in small, large and modified large.

Stk. No.	Type	Description	1-99	100-499	500-999
14F2869	8134-HC-5P2	Small	.11	.08	.06
14F2870	8134-HC-6P2	Large	.15	.11	.08
14F2871	8134-HC-8P2	Mod. Lg.	.15	.11	.08

CRYSTAL SOCKET ASSEMBLIES

8000 PC Mount 8004 Horizontal Mount 8004 PC Mount

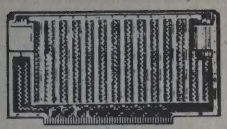
Standard. P.C. mounting with or without Anti-Rotate tabs. Copper holding clips. Gold-plated (*) copper or (**) bronze contacts. **Sub-Miniature.** Horizontal Mounting (HM) or Printed Circuit (PC) mounting with or without Anti-Rotate tabs. (#) Gold-plated contacts w/copper holding clip and teflon insulator or (##)cadmium-plated w/steel holding clip and nylon insulator. Type suff x-5denotes MIL STD 242E.

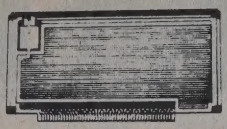
Crystal Socket Assemblies				
Stk. No.	Type	Description	1-99	100-499
65F1882	8000-DG1*	PC w/A-R tab	2.78	2.59
65F1883	8000-DG2-5*	PC w/o A-R tab	2.90	2.71
65F1884	8000-DG3**	PC w/A-R tab	2.28	2.13
65F1885	8000-DG4**	PC w/o A-R tab	2.28	2.13
Sub-Miniature Crystal Socket Assemblies				
65F1886	8004-1G16#	HM w/A-R tab	2.16	2.02
65F1887	8004-1G17#	HM w/o A-R tab	2.16	2.02
65F1888	8004-1G23-5#	HM w/o A-R tab	2.90	2.71
65F1889	8004-1G1#	HM w/A-R tab	1.40	1.31
65F1890	8004-1G5##	HM w/A-R tab	1.03	.87
65F1891	8004-1G2#	HM w/o A-R tab	1.63	1.40
65F1892	8004-1G21-5#	HM w/o A-R tab	1.47	1.38
65F1893	8004-1G6##	HM w/o A-R tab	1.02	.87
65F1894	8004-1G3#	PC w/A-R tab	1.63	1.40
65F1895	8004-1G7##	PC w/A-R tab	1.02	.87
65F1896	8004-1G4#	PC w/o A-R tab	1.63	1.40
65F1897	8004-1G8##	PC w/o A-R tab	1.02	.87

Microprocessor Interfacing Boards

Micro Vectorboard®

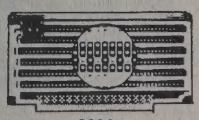
S100 BUS PACKAGING SYSTEM


8800V


8801

8801-1

8802-1


8804

Type 8800V. Front and back power and ground planes, one heat sink, mounts 52 16-pin DIPs, or 26 24-pin DIPs or 10 40-pin DIPs plus 6 24-pin DIPs plus 4 power regulators.
38F1132 NET 24.50

Type 8801. "Pad-Per-Hole" board has individual tinned pads round most holes for tack soldering sockets or components; includes one heat sink.
65F690. NET 25.20

Type 8801-1. Bare board with contacts for maximum flexibility.
65F691 NET 17.08

Type 8802-1. Main area of board filled with rectangular tinned pads around pairs of holes. Large peripheral buses and two rows of pads at top for ribbon I/O connectors. Best suited for solder construction.
65F692. NET 32.62

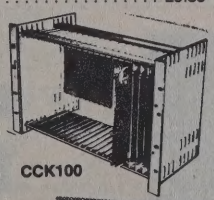
Type 8804. "Any DIP"® bus pattern on front and back accepts DIPs with leads spaced 0.1" by 0.3", 0.4" or 0.9". Holds 70 16-pin DIPs or any combination of devices.
65F693. NET 26.89

Type 8801-6. Plated thru hole pad-per-hole board. Isolated pads around each hole. Provides easier soldering. Front-to-back bus connections.
81F4769. NET 26.80

Type 3690-12. Card extender provides 7.5" long extension to facilitate testing. Mounted connector.
65F694. NET 29.33

RACK MOUNTING CAGE

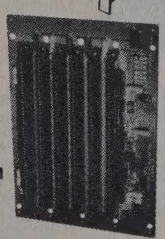
Type CCK100. Especially designed to accommodate S100, Exorciser and Micromodule Plugbords. 19"W x 12.2"H x 8.9"D. Furnished with 21 pairs of guides. Adjustable rear struts mount mother boards or connectors.
10F8216. NET 56.45


CCK100

MOTHER BOARDS

Hi speed—up to 10MHz, shielded, two-sided, plated thru holes, FR4 epoxy glass, .000050" gold plated connector contacts, liberal decoupling capacitors, "reset" switch wiring pads, fully assembled.

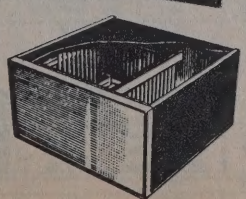
Stk. No.	Type	Position	Net
81F4770	8803-6-1	6	126.00
81F9337	8803-18-1	18	230.00


8803-61

ASSEMBLED CASE

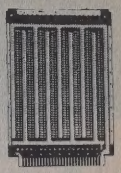
Sturdy blue vinyl finished aluminum, fully assembled, with card guides, mounting for mother board or connectors. Power supply chassis plate, and I/O rear connector panel with 10 cutouts for DB255 connectors included. Model VP1 case is arranged for cards to mount from side to side. VP2 case mounts cards from front to back.

Stock No.	Type	1-4	5-24	25 & UP
79W130	VP1	177.84	160.06	151.16
79W131	VP2	173.63	156.27	147.59



STD BUS PACKAGING SYSTEMS

Type 4610. STD BUS Plugboards are 4½" x 6¼" x ⅛" thick and have 28/56 contacts on 0.125" centers with power and ground pin terminations per STD-BUS convention. Model 4610 has two heavy etched tinned buses plus groups of 3-hole pads on one side and can be soldered or wire-wrapped. It will accommodate 20.16 pin DIPs.
10F8207. NET 20.66



Model 4610-2 is built for wire-wrapping and has two heavy tinned buses on one side and will accommodate 35 16-pin DIPs. Model 4610-1 is bare except for etched contacts and will hold 59 16-pin DIPs compactly, or 47 16-pin DIPs spaced.

Stock No.	Type	1-4	5-9	10-24
10F8208	4610-2	20.66	18.59	16.53
10F8209	4610-1	17.39	15.65	13.91

S100 PLUGBORDS

For interface, memory expansion, breadbording. Nickel/gold plated contacts, 50 each side on 0.125" centers. 0.042" holes on 0.10" grid for DIP sockets, push-in terminals and socket pins. Fire retardant epoxy glass composite material.

PAD-PER-HOLE BOARD

Type 4610-3. Plated thru hole. Isolated pads around each hole. Provides easier soldering. Power and ground buses terminated per STD Bus convention.
81F4774. NET 26.80

STD BUS MOTHER BOARDS

Hi speed—up to 10MHz, shielded, 2-sided, plated thru holes, FR4 epoxy glass, .000050" gold plated connector contacts, liberal decoupling capacitors, "reset" switch wiring pads. Fully assembled.

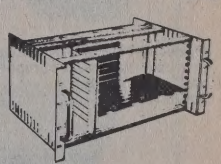
Stock No.	Type	Positions	Net
81F4771	4610-8-1	8	135.00
81F4772	4610-16-1	16	175.00

DROP IN CARD PACK

Type CCK19S. All aluminum, 5¼" h. x 8½" w. x 8⅛" d. 20 nylon card guides supplied for card mounting on .250" increments, rear cross members for mother board or connector mounting.
81F4773. NET 43.06

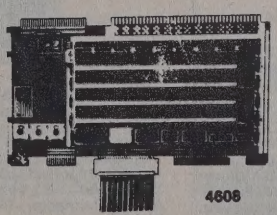
TYPE CCK80 HORIZONTAL CAGE

For S100 Bus-Multibus-Motorola Exorcisor, Micromodule-Rockwell AIM65 Expansion. 10 card positions. Fully assembled.
10F8017. NET 89.55

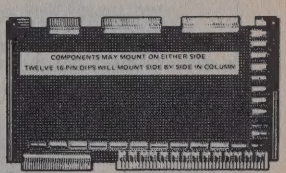


Type 3690-16 extender board has nickel/gold contacts connected to mounted receptacle. Connectors with 18/56 gold/plated contacts on .125" centers, 2 rows spaced .250".
34F1243. NET 23.35

STD BUS PACKAGING SYSTEM


4608

4608-1



MULTIBUS PACKAGING SYSTEM

4608 Plugbord: Series 80 size, shape, and connectors. Solder or wrap wire. .042" dia. holes on 0.1" grid. Prewired for regulator. Dual bus for power and ground. 4608-1: Same size and connectors as 4608 but no other etched circuitry.

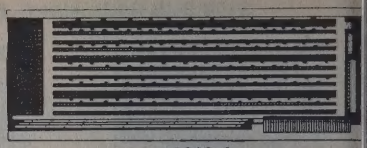
Stock No.	Type	Each		
		1-4	5-9	10-24
65F695	4608	64.56	58.10	51.65
65F696	4608-1	43.62	39.26	34.90

11

Micro Vectorboard® Microprocessor Interfacing Boards

4613

4613-1



4613-2

PLUGBOARDS FOR THE IBM PERSONAL COMPUTER

Features: Drilled Plated-Thru Holes, FR4 Expoxy Glass, Gold-Plated Contacts, Tinned Buses and Pads.

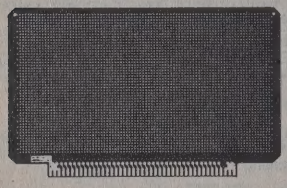
- Accept any width DIP ICs
- 4613 and 4613-2 from computer generated (CADCAM) Artwork and Drilling for high precision and top quality
- Full size boards: 13.3 x 4.2 x .062
- 31/62 gold plated contacts on 0.10" centers
- Buses terminate to connector per IBM standard
- Card guide & universal mounting bracket included
- .042" dia. holes on 0.1" grid
- Layout paper & instructions included

81F4775. Type 4613. 3 hole pads, buses for soldering
1-4.....59.00 5-24.....53.10
81F4776. Type 4613-2. W.W. model
1-4.....59.00 5-24.....53.10
81F4777. Type 4613-1. Bare except for contacts and peripheral buses
1-4.....37.00 5-24.....34.30

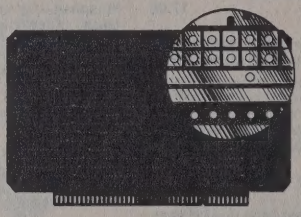
PLUGBOARDS FOR MOTOROLA EXORCISER, ROCKWELL AIM65 (Expansion)

All plugboards are 6"h x 9.75"w from 1/16" thick FR4 epoxy glass composite material with 43/86 nickel plated gold-flashed contacts on 0.156 inch centers. Contacts are identified and terminated per Motorola's standard. An overall pattern of .042" holes on 0.1" grid allows mounting any size DIP, discrete components, solder or W.W. terminals.

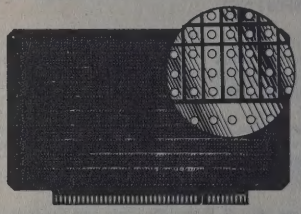
Universal plugboards for Motorola's M6800 based module system allow the user to make custom wired cards which are compatible with Motorola's plugin boards. Using the boards and connectors shown users can build custom interface special circuits and expand memories for systems using the following buses: S100, SBC80/10 or 20, or DEC, LSI11, PCP8 or 11, Motorola Exorcisor, STD, or Apple. Maximum flexibility is provided by card designs offered with overall hole patterns for user mounted DIP sockets and circuit components. Card interconnection can be easily made with conventional soldering and wire wrapping tools and with listed motherboard. All plugboards are 6"h x 9.75"w from 1/16" thick FR4 epoxy glass composite material with 43/86 nickle-plated gold-flashed contacts on 0.156 inch centers. Contacts are identified and terminated per Motorola's standard. An overall pattern of .042" holes on 0.1" grid allows mounting any size DIP, discrete components, solder or w.w. terminals. Additional I/O capability is available by installing .025" square header pin blocks in the .1" spaced tinned pads on the board top edge on models 4611 and 4611-2.



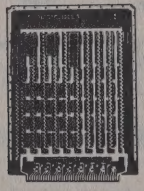
Model 4611-1 is bare except for contacts and provides maximum component density, wiring and layout flexibility.
10F8215 NET 21.75



Model 4611-2 accepts up to 78 16-pin DIPs or smaller number of other mixed sizes and has two heavy buses on one side for power and ground. Designed for wrapped wire construction.
10F8214 NET 32.65



Model 4611 accepts up to 43 16-pin DIPs and has groups of 3 hole tinned pads, 2 heavy buses on one side and is designed for soldering or wire-wrapped construct.
10F8213 NET 32.65



4305

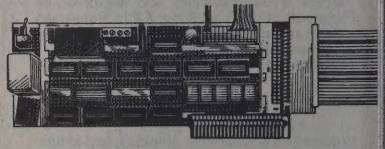
Type 4350 compatible with TI980-series computer. Holds 63 (14- or 16-pin DIPs) over power and ground buses; 6 (24-pin) and 45 (14- or 16-pin DIPs); or 40-pin DIPs by cutting one etched lead per location. Extra zig-zag power bus on each side of board. Mating Connectors: R680, R680-1 type has reversed numbering than the R680 type.

Stk. No.	Type	1-4	5-24	25-99
38F1133	4350	26.09	23.48	20.87

Additional I/O capability is available by installing .025" square header pin blocks in the 1" spaced tinned pads on the board top edge on models 4611 and 4611-2

4607

Type 4607 Plugboard measures 5.19"w x 8.43"h x 1.16" thick and has two sets of nickle plated, gold flashed 18/36 etched contacts on 0.125" centers. Overall grid pattern of 0.1" with .042" dia. holes for max. layout flexibility. Solder tail or wrap post sockets readily fit pre-punched holds. Board Mat. FR4 epoxy glass G-10 laminate. Mating Connector - R680.
65F697 ....., NET 18.61



Type 4609. Plugboard fits Apple II and similar systems and has combination of heavy 2 oz. copper etched tinned buses and 2-hole pads for easy mounting of 16, 18, or 40-pin DIPs. Extra 20/40 .1" spaced connector pattern provides additional I/O capability. Overall size 2.75" by 7.4" without connector projections and 3.125" by 7.7" with connector.
10F8210 NET. 25.07

Receptacle For Microprocessor Plugboards

Stk. No.	Type	Plug bd.	Each	Stk. No.	Type	Plug bd.	Each
65F698	R681-1	8803 Series	12.14	38F1142	R680-1	4350, 4607	8.63
65F699	R681-2	8800 Series	12.24	38F1141	R680	4350, 4607	12.87
65F700	R681	8800 Series	13.23	10F8212	R656-1	4610 Series	8.82

Plugbords and Connectors

Vector

Plugbords listed with the "WE" suffix indicates that the board material is FR-4 grade glass epoxy per MIL-P-18177. Boards without the "WE" suffix are FR4 type glass composite material. All plugbords are 1/16" thick and have nickel gold plated contacts. On boards with buses and/or pads, solder tinning is provided for faster and easier connections.

DIP PLUG-IN BOARDS FOR WIRE WRAPPING CONSTRUCTION

Boards listed have .042" dia. holes on 0.1" grid and Models 4493 and 4494 accept DIP's with leads spaced .1 by .3", .4", .6", or .9", without overlapping bus lines.

Stock No.	Type	Size	No Contacts and Spacing		Ground Plane	Mating Connector Soldertail	Mating Connector WW Tail	1-19	20-99	100-199
38F1369	3682	4.5 x 9.6	44	.156"	No	R644	R664-3	14.86	13.37	11.89
38F1370	3682-2	4.5 x 6.5	44	.156"	No	R644	R644-3	12.85	11.32	10.06
38F1371	3682-4	4.5 x 6.5	44	.156"	Yes	R644	R644-3	14.38	12.94	11.50
38F1130	4066-5	4.5 x 4.5	72	.100"	Yes	R636-2	R636-1	21.15	19.04	16.92
38F1131	4066-4	4.5 x 6.5	72	.100"	Yes	R636-2	R636-1	14.50	13.05	11.60
38F1099	3795-1	2.73 x 4.5	44	.156"	No	.....	R644-2	12.49	11.24	9.99
34F1231	4493	4½ x 6½	72	.100"	Yes	R636-2	R636-1	21.11	19.00	16.89
34F1232	4494	4½ x 6½	44	.156"	Yes	R644	R644-3	17.45	15.71	13.96

DIP PLUGBORDS WITH ETCHED MATRIX

Boards listed have .042" dia. holes on .1" grid and etched vertical lines (X) or horizontal (Y) lines on one or both sides. Models will hold 12, 14, or 16 pin DIPs, or more by cutting strips to make additional pads.

Stock No.	Type	Size	Matrix	No. Contacts	Mating Connector WW Tail	Soldertail	1-19	20-99	100-199
38F1094	3719-2	4.5 x 6.5	Y	72	R636-1	R636-2	21.12	19.01	16.90
38F1095	3719-3	4.5 x 6.5	X-Y	72	R636-1	R636-2	17.79	16.01	14.23

DIP PLUG-IN BORDS—NO MATRIX OR ETCHED BUSES

Max component layout flexibility is provided by these boards with overall grid of .042" dia holes on .1" grid and no etched bus pattern or pads except at contact tab termination.

Stock No.	Type	Size	No. Contacts	Spacing	Ground Plane	Mating Connector Soldertail	Mating Connector WW Tail	1-19	20-99	100-199
38F1103	3719-1	4.5 x 6.5	72	.100	.....	R636-2	R636-1	10.71	9.64	8.57
38F1104	3719-4	4.5 x 9.6	72	.100	.....	R636-2	R636-1	13.20	11.88	10.56
38F1366	3662	4.5 x 6.5	44	.156	.....	R644	R644-3	10.96	9.86	8.77
38F1105	3662-2	4.5 x 9.6	44	.156	.....	R644	R644-3	11.83	10.65	9.46
38F1106	848PWE	4.5 x 6.5	35	.100	.....	R635	.....	19.53	17.58	15.62
38F1135	3673	7.88 x 9.6	80	.125	.....	.....	R680/R680-1	21.39	19.25	17.11
38F1134	3662-5	4.5 x 4.5	44	.156	.....	R644	R644-3	8.37	7.53	6.70
38F1136	3719-5	4.5 x 4.5	72	.100	.....	.....	R636-1	11.22	10.10	8.98
34F1233	3662WE	4½ x 6½	44	.156	.....	R644	R644-3	12.58	11.32	10.06

DIP PLUG-IN BORDS FOR SOLDER CONSTRUCTION

38F1368	3677-2	4.5 x 6.5	44	.156	No	R644	R644-3	12.93	11.64	10.34
38F1367	3677	4.5 x 9.6	44	.156	No	R644	R644-3	14.53	13.08	11.62
34F1238	3677WE-2	4.5 x 6.5	44	.156	No	R644	R644-3	14.54	13.09	11.63
38F1138	4112-4	4.5 x 6.5	44	.156	Yes	R644	R644-3	17.11	15.40	13.69
38F1137	4112-5	4.5 x 4.5	44	.156	Yes	R644	R644-3	13.61	12.25	10.89
34F1239	4112WE-4	4.5 x 6.5	44	.156	Yes	R644	R644-3	21.82	19.64	17.46

PAD-PER-HOLE PLUGBORDS

Drilled and plated .043" holes with isolated pads on 0.1" grid for easy solder mounting of component. Peripheral power and ground buses.

Stock No.	Type	Size	No. of Contacts	Spacing				1-19	20-99	100-199
81F4779	3662-9	4.5 x 6.5	44	.156	—	R644	R644-3	26.80	24.12	21.45
81F4780	3719-6	4.5 x 6.5	72	.100	—	R632-2	R636-1	26.80	24.12	21.45

CARD EXTENDERS

Allow extension of operating cards beyond cages for tests. Quality epoxy glass or glass composite, with nickel plated gold flashed plug tips and high quality top mounted connector.

Stock No.	Type	Fits Plugboard Series	Size	Contacts	Spacing	Net
34F1240	3690	3682, 3795, 4494, 3662, 3677-2, 4112, 838	6.5H x 4.5W	44	.156	17.41
34F1241	3690-2	4066, 4493, 3719	11.0H x 4.5W	72	.100	26.39
34F1242	3690-6	3682, 3795, 4494, 3662, 3672-2, 4112, 838	11.0H x 4.5W	44	.156	20.55
34F1243	3690-16	4610	7"H x 4.48W	56	.125	23.35
65F694	3690-12	8800	8"H x 10.0"W		.125	29.33

PLUG-BORDS WITH HOLES ON ALTERNATE CENTERS

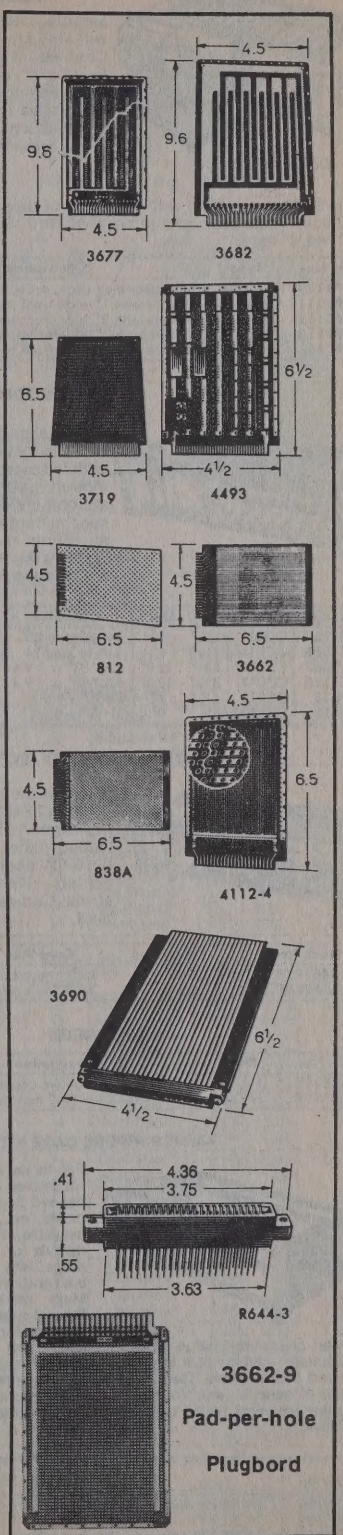
Contacts etched on .156 in. centers or installed Elco Varicon types. .062" holes on alternate .1" centers. Nickel plated gold contacts.

Stock No.	Type	Size	Contact Type	No. Contacts	Spacing	Connector	1-19	20-99	100-199
38F482	837WE	3 x 4.5	Varicon	12	.2	R612-1	7.20	6.48	5.76
38F483	812WE	4.5 x 6.5	Varicon	16	.2	R616-1	9.49	8.54	7.59
38F395	848WE	4.5 x 6.5	Varicon	35	.1	R635	22.40	20.16	17.92
38F1080	838WE	4.5 x 6.5	Etched	43	.156	R644	10.19	9.17	8.15
38F1082	838WE-1GN	4.5 x 6.5	Etched	43	.156	R644	12.95	11.66	10.36
38F1081	838AWE-1GN	4.5 x 6.5	Etched	22	.156	R644	13.78	12.40	11.02

RECEPTACLES FOR VECTOR PLUGBOARDS

Stock No.	Type	Contact	O/A Lgth.	Mtg. Hole Ctrs.	1-24	25-49	50-99
38F397	R612-1	Solder	3.15	2.88	13.35	12.02	10.68
38F396	R616-1	Solder	3.95	3.68	13.68	12.31	10.94
38F1107	R635	Solder	4.21	3.93	22.19	19.97	17.75
38F487	R644	Solder	4.36	4.03	4.97	4.47	3.98
38F1139	R644-2	WW	3.11	2.85	5.35	4.82	4.28
38F1141	R680	WW	5.85	5.55	12.87	11.58	10.30
38F1142	R680-1	WW	5.85	5.55	8.63	7.77	6.90
38F1143	R636-1	WW	4.44	4.175	7.77	6.99	6.22
81F4778	R636-2	Solder	4.48	4.18	9.55	8.60	7.64

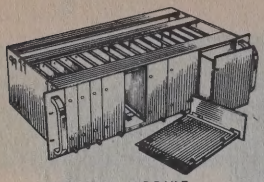
Stock No.	Type	Contact	O/A Lgth.	Mtg. Hole Ctrs.	1-49	50-199	200-499
38F1140	R644-3	WW	4.36	4.03	5.08	4.57	4.06



11

Vector-Pak Packaging System

MODEL CCM-14A

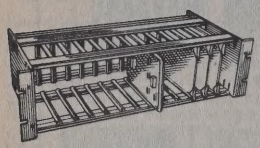


CCM-14A MODULE CAGE ASSEMBLY

Mounts intermixed circuit sizes without any guide adjustment. Card mount front panels are multiples of 1", and easily detachable for punching switch and indicator light holes in the flat. Four sizes of L-brackets may be intermixed in any order in rack mounted card cage and are provided with single jack screw for positive retention and easy installation and removal of card. Size 5¼"H x 19"W. For 4½" x 6½" cards.

Stk. No.	Type	Description	Each
38F1110	CCM-14A	Fully assembled cage, accepts modules below	77.83
38F1111	CM45A65-1	Module with 1" wide front panel	6.88
38F1112	CM45A65-2	Module with 2" wide front panel	7.15
38F1113	CM45A65-3	Module with 3" wide front panel	7.71
38F1114	CM45A65-4	Module with 4" wide front panel	8.08

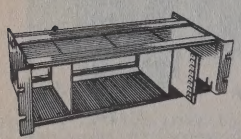
MODEL CCK CAGES



Discrete guide, all aluminum for 19" rack mounting. Supplied completely assembled with adjustable mounting struts for easy connector attachment without hole drilling or special hardware. Have 21 pairs of aluminum riveted guides, except types with "P" in part number which have ABS plastic guides.

Stk. No.	Type	Hght.	Dpth.	Card Size	1-9	10-49
38F1180	CCK13	5½"	9"	3-4¼" w x 6.5"	56.68	51.01
65F1066	CCK13P	5¼"	9"	3-4" w x 6.5" L	56.68	51.01
65F1067	CCK17P	8¾"	12.0"	6.5-7.98" w x 9.6	82.35	74.12
38F1116	CCK17	8¾"	12.0"	6.5-7.98" w x 9.6	82.35	74.12
83F616	CCK14	5¼"	9"	3-4½" x 9.6	65.33	58.80
83F617	CCK14P	5¼"	9"	3-4½" x 9.6	65.33	58.80

CONTINUOUS PLATE TYPE



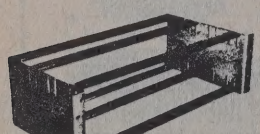
For maximum card density and position flexibility. 19" rack mounting cage in all aluminum with extruded plates having 0.075" wide by 0.10" deep grooves on 0.150" centers riveted to heavy cross struts. Comes completely assembled.

Stock No.	Type	Card Size	EACH
38F1179	CCK3	3-4" w x 6.5" L	54.35
65F1065	CCK4	3-4½" w x 9.6" L	64.14

ACCESSORIES

Stk. No.	Type	Description	Each
38F1117	HA-12	Handles for all above cages (Pkg. of 2)	4.88
38F1118	FP52-2	Filler panels for 5¼" high cages	1.35

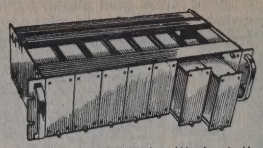
MULTI-PURPOSE CAGE KITS



For those applications where pre-assembled units lack the versatility needed due to special size requirements, etc., multi-purpose kits are available. These adjust to all card, module or receptacle size within range. Kits are supplied unassembled and have all required hardware. Major parts include 2 aluminum flanged side walls formed and slotted for standard rack mounting, 6 extruded aluminum T-struts (cross members) with mounting brackets and printed scale marking plus large assortment of required and extra screws, nuts, and lock washers. Card guides must be ordered separately. Special features of these kits are: slotted side walls for maximum mounting versatility —bracket mounting for all cross members (T-struts) for forward-backward positioning.

Stock No.	Type	Hght.	Depth	Max. Mod.	Max. Card	1-9
81F5730	CA-52-HP-89	5.23	8.97	4.62	4.50	43.31
81F4761	CA-52-HP-119	5.23	11.97	4.62	4.50	43.72
81F4762	CA-87-HP-119	8.73	11.97	8.10	8.00	47.22

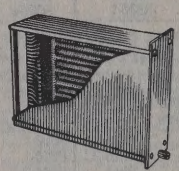
STRUT MODULE CAGES



Vector Strut module cages provide an easy way to rack mount modular aluminum cases containing circuit boards. Cages are all anodized aluminum with heavy side walls, extruded cross members and are shipped completely assembled with installed guides, ready to accept eight 2 inch or ten 1.6 inch wide aluminum EFP cases described below. Special extruded cross members at rear have preloaded 4-40 nuts for connector mounting and adjust 1.75" laterally and 1.70" vertically to accept different length connectors.

Stk. No.	Type	Description	Each
38F1356	CMA3A20	5¼"H x 19"W x 8.9" Dp assmbld. cage for 8-2.0" wide modules	71.32
38F1358	CMA3A16	5¼"H x 19"W x 8.9" Dp assmbld. cage for 10-1.6" wide modules	78.27
38F1184	CMA4A20	5¼"H x 19"W x 12" Dp assmbld. cage for 8-2.0" wide modules	73.24

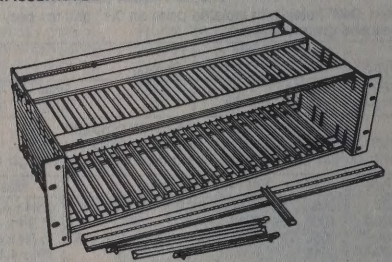
EFP MODULES FOR VECTOR STRUT CAGES



Modules accommodate 4.5"W x 6.5" or 9.6"L, or 7.98"W x 11.3"L circuit cards completely inside which mount in .150" spaced extruded grooves running lengthwise in cases. 1.6"W modules have 6 circuit card grooves; 2"W modules have 9 grooves. Module front panels are .080" thick and furnished with captive 10-32 thumb screw. Provide about 80 db of shielding.

Stock No.	Type	Description	Each
38F1185	EFP164-A66	Case, 1.6" wide by 6.6" long accommodates cards 4½" wide by 6½" long within unit. Fits CMA3-16.	11.82
38F1361	EFP204-A66	Case 2" wide by 6.6" long. Accommodates cards 4½" wide by 6½" long within unit. Fits CMA3-20.	12.15
38F1186	EFP204-A97	Case 2" wide by 9.7" long. Accommodates cards 4½" wide by 9.6" long within unit. Fits CMA4-20.	13.94
38F1360	EFP104-A66	Case 1.0" wide x 6.6" long x 4.6" high for max. card size 4½" x 6½" x 1/16".	11.53

UNASSEMBLED CARD CAGES WITH SNAP-IN GUIDES



Lower priced and more flexible. All-aluminum 19-inch rack mounting side walls and extruded cross members with holes for snap-in guides plus 4-way adjustable rear struts, pre-loaded with hardware for attaching connectors. Furnished molded snap-in nylon guides for 1/16" thick circuit cards. Cages accept 6½" long cards 3" to 4½" wide. Card spacing—any multiple of .25.

Stk. No.	Type	Pos.	Width	Depth	1-9	10-49
83F618	CCK13S	21	19"	9	46.48	41.83
83F615	CCK13AS	10	10.25"	9	46.48	41.83

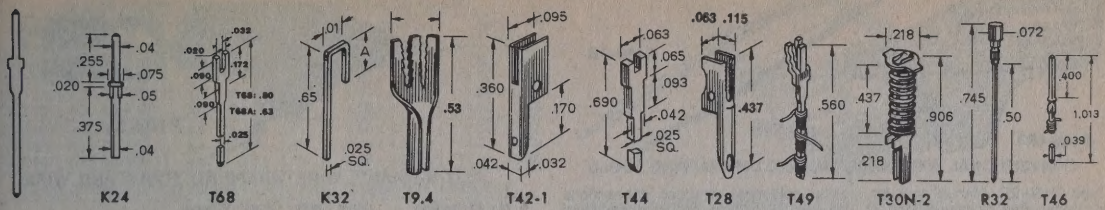
SNAP-IN GUIDES

Snap-In Guides for creating non-rack mounted card carriers. Mount in .156" diameter holes (5/32" drill size) in metal thickness 0.060" to 0.125".

Stock No.	Type	O/A Length	Mounting Hole Pitch Distance	Each
38F1236	BR20-19S	8.42"	7.50	.39
38F1237	BR20-17S	6.92"	6.00	.39
38F1240	BR20-6S	5.42"	4.50	.36
38F1241	BR20-13S	3.17"	2.25	.32

Printed Circuit Boards, Terminals

Vector



TERMINALS

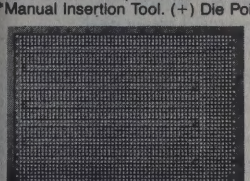
K24 Terminals. Knurled center body flange which holds pins. T45-4 Solderless Strip Klip. For IC Breadboarding. K32 "J" Pin. For use in .042" diameter holes. T9.4 Zip Terminals. Fits "A" and "AA" pattern. T42-1 Push-In Terminals. Fits "P" pattern. T44 & T68 Mini-Wrap Terminals. Press to fit into .042" hole. T28 Push-In Terminals. Fits "G" and "H" patterns. T49 Push-In Terminals. Fits "P" pattern. T30N-2 Solderless Springclip Terminal. Fits "A" or "AA". R32 Socket Pins. Fits "P" pattern for DIP or transistor leads. T46 Terminal. .028" Square wrapposts.

Type	For Hole	O/A Lgth.	Pkg. 50 Stk. No.	Pkg. 50 Pkg.	Pkg. 100 Stk. No.	Pkg. 100 Pkg.	Pkg. 1000 Stk. No.	Pkg. 1000 1-4	Pkg. 1000 5-9
T46-3-9	.042	1.06	.....	....	38F1242	3.49	38F1243	26.51	23.86
T46-4-9	.042	.46	.....	....	38F1245	3.02	38F1246	19.36	17.42
T46-5-9	.042	.88	.....	....	.....	.....	38F1248	23.59	21.23
K24C	.042	.650	38F400	2.38	.....	.....	38F401	25.96	.....
K32	.042	.650	.....	....	38F1362	3.31	38F1326	21.99	.....
T9.4	.093	.546	.....	....	38F1327	2.09	38F1059	15.47	.....
T28	.062	.437	.....	....	38F465	1.91	38F1061	11.84	10.66
T42-1	.042	.360	.....	....	38F1363	1.91	38F1328	12.30	11.07
T44	.042	1⅛	.....	....	38F1364	2.55	38F1329	15.64	14.08
T49	.042	.835	.....	....	38F1330	3.59	38F1331	29.32	26.39
T30N-2	.093	.906	.....	....	38F1332	24.21	38F1065	200.93	.....
R32	.042	.745	.....	....	38F1040	23.08	38F1039	215.54	.....
T46	.042	.74	.....	....	34F1213	4.65	38F1214	34.32	30.89
T68	.042	.80	.....	....	34F1215	3.27	34F1216	20.61	18.55
T68A	.042	.63	.....	....	34F1217	2.91	38F1218	17.49	15.74
T44-1*	.042	1⅛	.....	....	34F1219	4.09	34F1220	27.25	24.53
T46-1*	.042	.74	.....	....	34F1221	8.16	34F1222	58.42	52.28

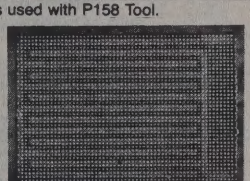
TERMINAL INSTALLING TOOLS

Stock No.	Type	Use With	Each
34F1211	A13*	T44	5.36
34F1212	A13-1*	T68	5.23
38F1337	P122B*	T9.4	2.32
38F1338	P91A*	T28	3.89
38F1339	P149A*	T42-1	5.01
38F1340	P156*	T49	4.48
38F1341	P92A*	T30N-2*	1.46
38F1382	D9+	R32	5.13
38F412	P133A*	T46	3.65
38F406	D8+	T49	5.13
38F407	D7-2+	K24	10.46

*Manual Insertion Tool. (+) Die Points used with P158 Tool.



8001



8002

CIRCBORDS

Have the advantages of plugboards without expense of plug-in connectors. All boards listed are 0.042" diameter holes on 0.1" grid and measure 4½ inches by 6½ inches by ⅛". Material is FR4 type epoxy glass composite with 2 oz. tinned copper patterns as indicated on one board side; back side of boards is bare.

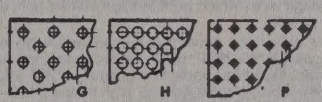
Model 8001 is designed primarily for soldered construction and can mount up to 20 16 pin DIPS using one hole of each 3-hole pad per lead. At one end, 238 square tinned pads on .1 inch (2.54mm) spacing surround each hole for tack soldering discrete components or I/O headers.

Stock No.
38F1249. Net 10.85

Model 8002 is designed primarily for wrapped wire construction with interdigitated buses for two voltage levels. Up to 35 16 pin DIPS can be mounted. Use of WW sockets is recommended with Vector push-in wrap post terminals being used for soldered bus connections and WW interconnection points. At one end 238 square tinned pads on 0.1 inch spacing around each hole for tack soldering discrete components or I/O header.

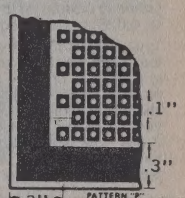
38F1250. Net 10.85

Vectorbord® & Micro Vectorbord®



BOARD PATTERNS

Patterns	G	H	P
HOLE SIZE	.062	.062	.042
HOLE CENTERS	.1x.2	.1	.1



Phenolic-MIL Spec PBE-P per L-P-513 NEMA gr. FR2. Copperclad phenolic meets NEMA FR2, 1 oz. Paper Epoxy-MIL Spec P-22324 type PEE NEMA gr. FR3. Copperclad FL-PX per Mil-P-13949 NEMA gr. FR3. Epoxy Glass—for P pattern boards with WE suffix Unclad: MIL Spec MIL-P-18177 type GEE NEMA grades FR4, GLO. Color: Green. Best mechanical characteristics. For other glass epoxy boards—FR4 type, max. temp. 130°C. Color: Blue, best hole quality in epoxy glass. *1 side copper clad. **2 sides copper clad.

XXXP PHENOLIC

Stock No.	Type	Pattern	Size	1-19	20-99	100-199
38F410	64P44XXXP	P	6.5x4.5x1⅛"	1.70	1.53	1.36
38F411	169P44XXXP	P	17x4.5x1⅛"	4.02	3.62	3.22

EPOXY PAPER

Stock No.	Type	Pattern	Size	1-19	20-99	100-199
38F426	85F24EP	F	1⅛x4 13⁄16x17"	4.08	3.67	3.26
38F427	85G24EP	G	1⅛x4 13⁄16x17"	3.46	3.11	2.77
38F459	85G42EP	G	1⅛x17x8½"	5.98	5.38	4.78
38F1372	64P44-EP	P	1⅛x4½x6½"	2.34	2.11	1.87
38F1373	169P44-EP	P	1⅛x4½x17"	5.31	4.78	4.25
38F1374	64P44-EPC1*	P	1⅛x4½x6½"	3.04	2.74	2.43

EPOXY GLASS

Stk. No.	Type	Pattern	Size	1-19	20-99	100-199
38F391	42G22WEC1*	G	1⅛x4½x8½"	4.02	3.62	3.22
38F390	42G22WEC2**	G	1⅛x4½x8½"	4.39	3.95	3.51
38F1050	42G24WE	G	1⅛x4.8x8.5"	2.71	2.44	2.17
38F464	85G24WE	G	1⅛x4 13⁄16x17"	6.00	5.40	4.80
38F1051	85G42WE	G	1⅛x8.5x17"	8.53	7.68	6.82
38F1053	169P59/032	P	1⁄32x17x6"	7.41	6.67	5.93
38F1336	85H85WE	H	1⅛x8.5x8.5"	6.45	5.81	5.16
38F1383	170H85WE	H	1⅛x17x8.5"	12.08	10.87	9.66
38F1019	170H48/032	H	17x4 13⁄16x1⁄32"	4.94	4.45	3.95
38F1070	170H48WE	H	17x4 13⁄16x1⅛"	6.45	5.81	5.16
38F1384	59P19-032	P	1⁄32x6x2"	1.21	1.09	.97
38F1385	59P44-032	P	1⁄32x6x4½"	2.02	1.82	1.62
38F1386	169P59-047	P	3⁄64x6x17"	7.76	6.98	6.21
38F1376	64P44	P	6½x4½x1⅛"	1.99	1.79	1.59
38F1377	169P44	P	17x4½x1⅛"	5.61	5.05	4.49
38F1378	169P44C1*	P	17x4½x1⅛"	6.95	6.26	5.56
38F1379	169P44C2**	P	17x4½x1⅛"	8.46	7.61	6.77
38F408	85H48WE	H	8.5x4.8x1⅛"	2.92	2.63	2.34
38F409	169P84	P	17x8.5x1⅛"	9.90	8.91	7.92
34F1223	64P44WE	P	1⅛x6.5x4.5"	2.42	2.18	1.94
34F1224	84P44WE	P	1⅛x8.5x4.5"	2.99	2.69	2.39
34F1225	169P44WEC1*	P	1⅛x17x4.5"	7.95	7.16	6.36
34F1226	169P44WE	P	1⅛x17x4.5"	5.89	5.30	4.71
34F1227	169P79WE	P	1⅛x17x8"	9.41	8.47	7.53
34F1228	169P84WE	P	1⅛x17x8.5"	11.42	10.28	9.14
34F1229	169P84WEC1*	P	1⅛x17x8.5"	13.99	12.59	11.19

Pad-per-hole Vectorboard has P-pattern holes with etched and turned 2 oz copper pads on both sides around each hole.

Stock No.	Type	Pattern	Size	1-19	20-99	100-199
81F5767	45P80-1	A	8.08x4.5x1⅛	13.50	12.15	10.80
81F5768	106P106-1	A	10.60x10.6x1⅛	25.73	23.16	20.58

11

Vector Circuit Builders Tools

CONVENTIONAL WIRE-WRAPPING AND UNWRAPPING TOOLS

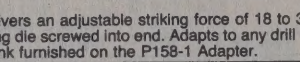
Type P160-2B. Manual tool for making solderless wrapped connections. Hardened steel bit insures long life. Will wrap 26 to 30 gauge pre-stripped wire on 0.025" to 0.028" square wrap posts (Standard terminals or WW DIP sockets). May be used for wrapping bare wire point to point. Effective radius of 0.070" permits working on terminals spaced 0.1" apart, and its 0.56 minimum post hole depth permits multi-level wrap capability. For power wrapping, insert tool in P160-4R3 driver unit.

Type P160-1B. Dual Way Manual Unwrap tool slips over terminal and is turned to unwrap 26 to 30 gauge wires which were wrapped either right or left on 0.025" or 0.028" square posts.

Type P160-4R3. Convenient right hand turning rechargeable Electro driver tool. Light weight (9 oz.) accepts P160-2B, P160-9 manual wrapping/unwrap tool or P180 or P184 manual Slit-N-Wrap tools in its chuck. (P207 adapter required on Slit-N-Wrap tools). Sturdy shock-resistant high torque P160-4R is shaped in straight line configuration for working on horizontal as well as vertical planes. Just a touch of the switch on the pistol-type grip provides 6 to 8 gas tight wraps. Supplied with ni-cad rechargeable batteries and 110V recharger. May be used remotely without cord for many hours without recharging, or may be used with cord to extend its working time.

Stk. No.	Type	Description	1-4	5-9
38F367	P160-2B	Manual Wrapping Tool	9.27	8.34
38F368	P160-4R3	Power Driver Tool	82.84	74.56
38F369	P160-1B	Manual Unwrapping Tool	13.63	....
38F370	P160-9	Combination Wrap/Unwrap	30.04	....

SPRING IMPACT TOOL & ACCESSORIES



Spring loaded installing tool delivers an adjustable striking force of 18 to 34 lbs. to a terminal anvil or installing die screwed into end. Adapts to any drill or arbor press accepting a ½" shank furnished on the P158-1 Adapter.

Stk. No.	Type	Description	Each
38F1380	P158	Spring Impact Insertion Tool	26.43
38F375	P96C-2	Holder To Adapt Die Point	5.72
38F376	P96C-1	Anvil Base	14.44
38F377	P168-1	Holder To Adapt P158	12.18

UNIVERSAL RIBBON CABLE TERMINATING FIXTURE

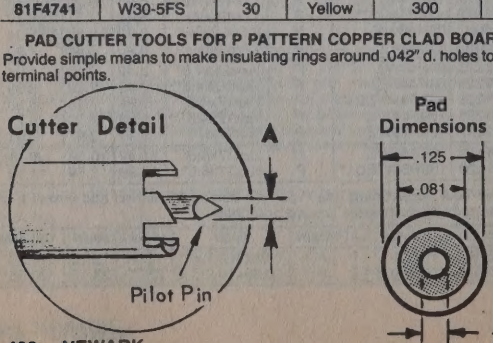
Type P187. Connects ribbon cable to female IDC plugs made by Alpha, AMP, Ansley, Berg, CW, JAE, 3M, SAE (Excluding Alpha and CW strain relief cover types and Berg 65484 with strain relief) Ideal for lab or prototype use.
35F025. NET 60.82

SPOOLS OF KYNAR INSULATED WIRE, SILVER PLATED, SOLID CONDUCTOR, EASY STRIPPING

Stock No.	Type	Wire AWG	Color	Feet Per Spool	Each
38F374	2323A28-4	28	White	50	2.27
81F4751	W30-5A	30	Green	75	2.70
81F4752	W30-5AS	30	Green	300	7.98
81F4753	W30-5B	30	Red	75	2.70
81F4927	W30-5BS	30	Red	300	7.98
81F4754	W30-5E	30	White	75	2.70
81F4755	W30-5ES	30	White	300	7.98
81F4756	W30-5F	30	Yellow	75	2.70
81F4741	W30-5FS	30	Yellow	300	7.98

PAD CUTTER TOOLS FOR P PATTERN COPPER CLAD BOARDS

Provide simple means to make insulating rings around .042" d. holes to isolate terminal points.



SLIT-N-WRAP™ WIRE WRAPPING TOOLS AND WIRE

- **No Stripping**
- **No Precutting**
- **No Premeasuring**
- **No Loading**
- **Daisy Chain Wraps**
- **Quick Change Bits**
- **Reliable Wraps Meet MIL-STD 1130A, par. 5.6**
- **U.S. & Foreign Patents**

Specially designed tip slits the wire insulation just before it is wrapped on a post. Wire feeds from a spool making "daisy chain" connections with single level wraps.

P184-3 AC MODEL (110V AC) has 300' spool of Tefzel 28 ga. wire with tension regulator spring to reduce wire breakage, stationary wire gripper to avoid need to hold wire end at start of wrap, wrap bit shaft set-screw mounted, power transformer.
76F1112. 1-4 pcs 136.25

P180-3 Power (110V AC) for Polyurethane Wire. Same features as P184-3 except has 2 100' spools of polyurethane nylon insulated wire instead of Tefzel.
81F4744. 1-4 pcs 136.25

P184-2 DC Model. Features same as above P184-3 except is nickel cadmium battery powered. AC recharging unit included.
76F1110. 1-4 pcs 136.25

P-180-2 Same features as P184-2 except has 2 100' spools of polyurethane nylon wire.
76F1105. 1-4 pcs 136.25

P184-5 Manual Tool. Includes two 50' spools of Tefzel 28 ga. wire, tension regulator spring to reduce wire breakage, wire gripper sleeve at tip to avoid need to hold wire end at start of wrap.
81F4745. 1-4 pcs. 47.9

P180-5 Same features as P184-5 except has 2 100' spools of polyurethane wire.
81F4746. 1-4 pcs. 47.9

P184-1 Same as P184-5 except that it is supplied with 1-pc. wrap bit housing (no wire grip tip) for reduced cost.
76F1107. 1-4 pcs. 42.5

P180-1 Same as P180-5 except that it is supplied with 1-pc. wrap bit housing (no wire grip tip) for reduced cost.
76F1103. 1-4 pcs. 42.5

P184-7 For 28 ga. Tefzel Wire. 110V AC power Slit-N-Wrap tool with electronic turns counter. Assures uniform number of turns for each pull of trigger. Other features same as for P184-3.
81F4734. 1-4 pcs. 215.8

P180-7 For 28 ga. polyurethane nylon wire. Similar to P184-7 except for 2 ga. polyurethane wire on 100' spool (2 spools supplied). Other features same as for P180-3.
81F4747. 1-4 pcs 215.8

REPLACEMENT WIRE

AWG 28 Tefzel Insulated Silver Plated Wire

Stock No.	Type	Color	Feet Per Spool	Spools Per Pkg.	Each
34F1205	W28-6A	Green	50	2	5.6
34F120	W28-6B	Red	50	2	5.6
81F4748	W28-6D	Blue	50	2	5.6
34F1207	W28-6E	White	50	2	5.6
34F1208	W28-6F	Yellow	50	2	5.6
81F4749	W28-6H	Black	50	2	5.6
81F4735	W28-6AS	Green	300	1	15.7
81F4736	W28-6BS	Red	300	1	15.7
81F4737	W28-6DS	Blue	300	1	15.7
81F4738	W28-6ES	White	300	1	15.7
81F4739	W28-6FS	Yellow	300	1	15.7
81F4740	W28-6HS	Black	300	1	15.7

AWG 28 Polyurethane-Nylon Insulated Wire, 100' Spools

Stock No.	Type	Each
38F387	W28-2-A-Pkg. 3, green	3.8
38F388	W28-2-B-Pkg. 3, red	3.8
38F366	W28-2-C-Pkg. 3, clear	3.8
38F389	W28-2-D-Pkg. 3, blue	3.8

SET SCREW MOUNTED WRAPPING BITS FOR EASY LOW COST REPLACEMENT

Stock No.	Type	Description	Each
76F1109	02	For Tefzel Wire	24.3
76F1106	01	For Polyurethane Wire	24.3

PAD CUTTER TOOLS FOR P PATTERN COPPER CLAD BOARDS

Stock No.	Type	Description	Each
81F4741	P138A	Hand operated tool with handle	9.4
81F4743	P138C	.250" shank type tool for use in hand or electric drill.	8.6

Vector-Pak Packaging System

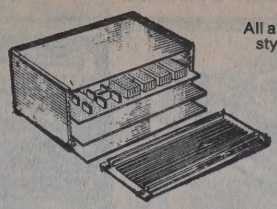
MULTI-MOD CASES

CLEAR ANODIZED ASSEMBLED MULTI MOD CASES

Stk. No.	Type	Wd. In.	Lgth. In.	Hght. In.	Holds Card or Chassis Plate	Each 1-49	Each 50-199
38F1391	W20-46-31B	2.0	4.61	3.10	4.50 x 2.98	6.62	5.96
38F1392	W20-66-46B	2.0	6.61	4.61	6.50 x 4.50	8.09	7.28
38F1393	W30-66-46B	3.0	6.61	4.61	6.50 x 4.50	9.85	8.87
38F1394	W30-86-46B	3.0	8.61	4.61	8.50 x 4.50	10.98	9.88
38F1395	W45-66-46B	4.5	6.61	4.61	6.50 x 4.40	12.86	11.57
38F1396	W45-86-46B	4.5	8.61	4.61	8.58 x 4.50	14.51	13.06
38F1397	W45-10-46B	4.5	10.0	4.61	9.88 x 4.50	17.00	15.30

DUAL TONED ASSEMBLED MULTI-MOD CASES WITH BEZELS

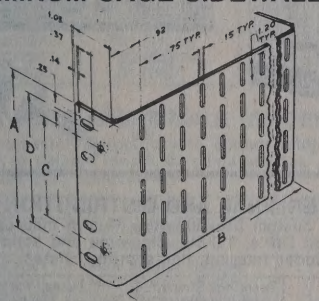
Stock No.	Type W20-	Wd. In.	Lgth. In.	Wt. In.	Hold Card	Frame Color	Side Panel Finish	Bezel Color	Bezel 1-49	Each 50-199
38F1396	46-31-1	2.0	4.61	3.10	4.50 x 2.98	Gold Anod.	Gold Anld.	Alum.	11.75	10.58



All aluminum handsome styling, grooved inside to accomodate different applications

Made from sleek extruded aluminum with four grooved interior surfaces which hold 1/16" circuit card chassis plates without need of additional fasteners. One surface is fastened with four screws. Two side panels may be punched for meters, switches, etc.

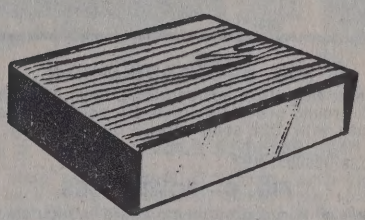
ALUMINUM CAGE SIDEWALLS



SERIES "P" side walls have multiples of 3, 4 or 5 rows of slots with equal spacing. Slots are positioned to mount struts flush top and bottom, or in from top and bottom to a max of 1.04 each edg.

Stk. No.	Rows of Slots Equally Spaced	Type	Hgt. A	Dpth. B	Mtg. Holes	1-9
81F4757	3	SW-52-P-89	5.23	8.97	4.25	6.34
81F4758	5	SW87-P-89	8.73	8.97	4.25	9.05
81F4759	3	SW-52-P-119	5.23	11.97	4.25	6.23
81F4760	5	SW-87-P-119	8.73	11.97	4.25	8.59

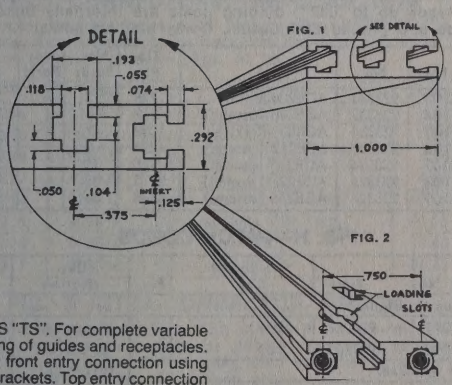
CONO SERIES INSTRUMENT CASES



Quick Access. Sturdy 0.062 inch thick aluminum cases with vinyl finished covers. Smartly styled desk top enclosures for electrical and electronic assemblies. Two sets of oval ventilation holes across rear chassis bottom and on upper area of back panel provide excellent convection cooling. Furnished completely assembled with four adhesive mounting bump feet.

Stk. No.	Type	Stock Cover Finish	Overall Wth.	Assem. Dep.	Dimen. Ht.	1-49
81F9335	WA1-4V	Dark Blue Vinyl	11"	8"	4"	24.55
81F9336	WA2-12V	Walnut Grain Vinyl	14"	11"	4"	30.21

"T"-STRUTS AND MOUNTING HARDWARE

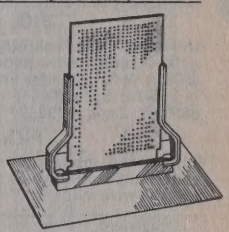


SERIES "TS". For complete variable mounting of guides and receptacles. Normal front entry connection using BR16 brackets. Top entry connection uses BR16B/90 brackets.

Stk. No.	Type	Length	End Insert	Fastening Method	Refer to Figure	1-9
81F9332	TS169	16.85	None	Brackets for end inserts	Fig. 1	3.35
81F9333	TS169-4	16.85	4 Brass	Direct 6-32 Screw Mounting	Fig.2	4.19
81F9334	TS209	20.85	None	Brackets for end inserts	Fig. 1	4.31

Fig. 1. Use BR16 Mounting Brackets. Nut slots also accept plastic inserts NT6-3.
Fig. 2. As Fig. 1 except has threaded 6-32 inserts at each end.

RECEPTACLE MOUNTED CARD GUIDES



SERIES "BR" guides provide rugged support for 1/16" Free standing circuit boards. Ideal on mother boards and in units where space is at a premium.

Stk. No.	Type	For Recptacle	1-9 Packages
81F4766	BR27D	22/44 contacts .156" spacing	1.79
81F4767	BR27-1	36/72 contacts .1" spacing	2.93
81F4768	BR27-5	28/56 contacts .125" centers	2.11

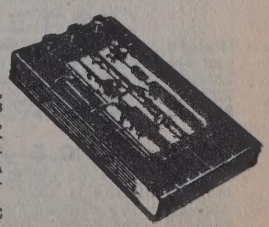
SCREW MOUNTED CARD GUIDES

Aluminum zinc card guides, 1/8" wide are supplied drilled and with mounting hardware. Funnel entry.

Stk. No.	Material	Material	Lgth.	For Card Lgth.	Pkg. Qty.	Each
81F4763	BR20-6-H	Zinc	5.42"	6½"	12	7.56
81F4764	BR20-10-H	Aluminum	8.52"	9½	12	9.52

Type NT6-3/24. Pack of 24 plastic inserts and screws to fasten strut to side walls.
2081F4765 ..... 2.00

KLIP-BLOK KIT



51X KLIP-BLOK KIT. Accepts up to 12 DIPs, has 970 tie points. Has 4½" x 8" x 1/16" glass epoxy premarked Micro-Vectorbord® base, eight 24-quad (T66-96) Klip-Bloks, four 48-contact Klip-Buses installed. 3 5-way binding posts at one end. Incl. stick-on MS9A and MS10A DIP contact Marker Strips, T49-1 Adapter Pins for Klip-Bloks/Strips.
38F1123. Net 39.93

Integrated Circuit Accessories

BREADBOARDS, TERMINAL STRIPS AND TEST CLIPS

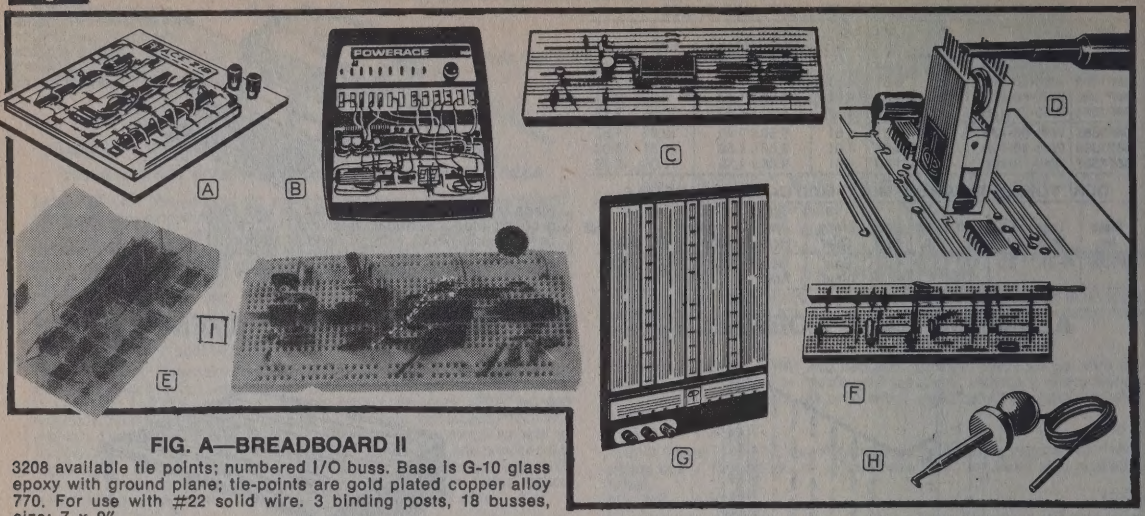


FIG. A—BREADBOARD II

3208 available tie points; numbered I/O buss. Base is G-10 glass epoxy with ground plane; tie-points are gold plated copper alloy 770. For use with #22 solid wire. 3 binding posts, 18 busses, size: 7 x 9".

65F110. Type 923605. **NET** 150.00

FIG. B—POWERACES

PA 101 general purpose prototype board w/regulated +5 to +15 volt power supply at 600ma and built in meter. **PA 102** for designing digital circuitry contains a one-shot pulse generator, clock generator with 1, 10, 100 Hz, 1, 10, and 100 KHz; 4 data switches; 2 logic switches w/debounce; pulse detection and 3 logic indicators. **PA 103** has +5V at 750ma, +15V and −15V at 250ma w/-15-0-+15V meter; 2 logic indicators; 2 logic switches and 2 data switches. Size: 7.5"W x 11.5"D x 4"H at rear but only 0.75"H at front. Wt: approximately 2.5 lbs.

Stock No.	Part No.	Model	EACH
65F100	923101	PA 101	96.95
65F101	923102	PA 102	149.95
65F102	923103	PA 103	149.95

FIG. C—SUPER-STRIPS

Universal breadboarding element with 128 five-tie-point terminals. Accepts all components to .032" dia. and jumper wires to #20 A.W.G. Includes integral, non-shorting, instant-mount backing. Size: 6.5 x 2.25".

65F120. Type 923252. **NET**..... 18.50

FIG. D—TEST CLIPS

Gold-plated phosphor bronze spring contacts. Designed for wiping action. Pin rows are offset on standard clips, same length on long-wire clips.

Standard		Long-wire		No. Pins	Row-to-Row Dimension	Each
Stock No.	Type	Stk. No.	Type			
65F126	923695	65F2301	923690- 8	8	0.3	8.50
65F127	923698	65F2302	923690-14	14	0.3	5.15
65F128	923700	65F2303	923690-16	16	0.3	5.40
65F129	923702	65F2304	923690-16LSI	16	0.5/.6	10.15
65F130	923703	65F2305	923690-18	18	0.3	11.35
65F131	923704	65F2306	923690-20	20	0.3	13.00
65F132	923705	65F2307	923690-22	22	0.4	14.45
65F133	923714	65F2308	923690-24	24	0.5/.6	14.95
65F134	923718	65F2309	923690-28	28	0.5/.6	16.50
65F135	923720	65F2310	923690-36	36	0.5/.6	21.00
65F136	923722	65F2311	923690-40	40	0.5/.6	21.95
81F1384	923724	81F1386	923090-48	48	0.5/.6	25.00
81F1385	923726	81F1387	923690-64	64	0.9	32.70

FIG. I —CIRCUIT STRIP

Molded in alpha-numeric grid. Fast and easy identification of each tie-point in your ci rcuit. Ideal for electronic training programs. Components plug in—use 22AWG solid hook up wire. Accepts all components up to .032" dia. Size: 2.25" x 4.90" x .32".

81F1388. Type 923253. NET 14.00

FIG. E—JUMPER WIRE KIT

Contains 350 wires cut to 14 different lengths from 0.1 to 5.0 inches. All wire is solid, tinned, copper 22 awg, PVC insulated. Pre stripped and pre-bent at 90°.

65F2290. Type 923351. **NET**..... 13.95

FIG. F—TERMINAL AND DISTRIBUTION STRIPS

For building custom breadboards. Plug-in matrices on .1 x .1" centers for all DIP's, TO-5's, discretes and solid wire jumpers to .032". Includes integral, non-shorting, instant mounting back.

Stk. No.	Type	Terminal Strips, Distrib. Strips	Buses, Term. and Tie Points	Each
65F111	923273	217L Term. strip	34 5-tie-point term.	5.35
65F112	923269	234L Term. strip	68 5-tie-point term.	9.55
65F113	923265	248L Term. strip	96 5-tie-point term.	11.20
65F228	923261	264L Term. strip	128 5-tie-point term.	14.00
65F114	923291	*154R Term. strip	54 4-tie-point term.	6.75
65F115	923289	264R Term. strip	128 4-tie-point term.	11.20
65F116	923285	206R Dist. strip	2 buses of 24 tie pts.	2.40
65F117	923281	209R Dist. strip	2 buses of 36 tie pts.	2.80
65F118	923277	212R Dist. strip	2 buses of 48 tie pts.	3.50
65F119	923293	606R Dist. strip	6 buses of 24 tie pts.	3.95

*Models 154R are single strips of terminals; all other strips are dual-row for DIP's. Gold-plated copper alloy terminals. Height of all strips is .32 inches.

FIG. G—ACE ALL-CIRCUIT EVALUATORS

ACE All-Circuit Evaluators breadboards accept all components with leads up to .032"; binding posts are internally bussed to voltage and ground distribution. 5-way binding posts.

Stk. No.	No.	Type	Tie-Pts.	No. Buses	No. Posts	Each
65F103	923333	ACE200-K (kit)	728	2	2	22.75
65F104	923332	ACE208 (assem.)	872	8	2	31.30
65F105	923334	ACE201-K (kit)	1032	2	2	29.95
65F106	923331	ACE212 (assem.)	1224	8	2	37.80
65F107	923326	ACE218 (assem.)	1760	10	2	51.50
65F108	923325	ACE227 (assem.)	2712	28	4	66.00
65F109	923324	ACE236 (assem.)	3648	36	4	89.00

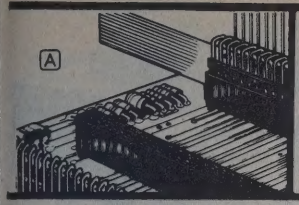
FIG. H—PATCH CORDS

Stock No.	Type	Pin/Socket Size	Fig.	Description	Each
Pin plug to pin plug					
65F2291	924961	.019	1	Assort. A	23.95
65F2292	924962	.030	1	20 pieces	23.95
Socket to socket				(9)-2"-YEL	
65F2293	924963	.019/.028	2	(6)-4"-BLU	31.95
65F2294	924964	.028/.035	2	(3)-6"-RED	31.95
Pin plug to socket				(2)-9"-BLK	
65F2295	924965	.019-(.019/.028)	3		25.95
65F2296	924966	.030-(.028/.0353)	3		25.95
Pin plug to E-Z Hook					
65F2297	924967	.019	4	Assort. B	25.95
65F2298	924968	.030	4	10 pieces	25.95
Socket to E-Z Hook				(5)-15"-RED	
65F2299	924969	.019/.028	5	(5)-15"-BLK	28.95
65F2300	924970	.028/.035	5		28.95

Integrated Circuit Accessories

AP PRODUCTS INCORPORATED

JUMPERS, DIP CONNECTORS, PC CORDS AND HEADERS



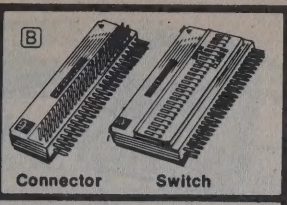


FIG. D TIE POINT BLOCK

.1" matrix of solderless, plug-in, 4-tie-point terminals for adding additional circuits to breadboards, etc. LED block accepts 3/16" dia. bulb (not included). All models have solder tails with press-fit legs for mounting on PC boards.

Stk. No.	Type	Tie-point Blocks	Tie-Points	Each
65F121	923297	TB1 (single)	4	4.35
65F122	923299	TB2 (double)	8	6.95
65F125	923305	LB1 (LED)	1	6.75

FIG. A MALE AND FEMALE HEADERS

Thermoplastic polyester dielectric with copper alloy 770 terminals. Can be cut to desired length, 36 posts per row. .1" spacing ideal for breadboarding applications.

Stk. No.	Type	Headers	Rows	Each
65F222	929974	Female header	1	1.49
65F223	929975	Female header	2	3.09
65F224	929834-01	Male header, straight	1	1.09
65F225	929836-01	Male header, straight	2	2.29
65F226	929835-01	Male header, rt. angle	1	1.29
65F227	929838-01	Male header, rt. angle	2	2.99

FIG. F LOGICAL CONNECTIONS

Molded 16, 24 or 40-pin IC test clip with 18" of cable terminated with socket or DIP plug connector. Socket connector mates with .025 dia. posts on .1" centers, dual-row.

Stk. No.	Type	Description	Each
65F208	923881-16	Log. Conn. w/Skt.	15.20
65F209	923884-16	Log. Conn. w/DIP Plug	15.20
65F210	923881-24	Log. Conn. w/Skt.	29.75
65F211	923884-24	Log. Conn. w/DIP Plug	29.75
65F212	923881-40	Log. Conn. w/Skt.	40.40
65F213	923884-40	Log. Conn. 2/DIP	39.55

FIG. C CONNECTORS, PINS & SOCKETS

8 conductor sockets have gold plated pins. #923625 fits AP Test Clips. Connector pins and sockets come in two sizes, are practically indestructible. In pkgs. of 100

Stk. No.	Type	Description	Each
65F218	923625	8-pin conn. .028"/.035" (F)	7.15
65F219	923626	8-pin conn. .030" (M)	4.35
65F220	923627	8-pin conn. .019"/.028" (F)	7.15
65F221	923628	8-pin conn. .019" (M)	4.35
65F214	923610	Conn. sockets .019"/.028"	50.95
65F215	923612	Conn. sockets .028"/.035"	50.95
65F216	923614	Conn. pins .019"	34.45
65F217	923616	Conn. pins .030"	34.45

FIG. B INTRA-CONNECTOR/SWITCH

Intra-Connector mates in-line with standard double-row socket connectors and has pins along its side to allow easy probing of ribbon cable. Intra-Switch has integrated switches to allow on/off switching of circuits with ribbon cable.

Stk. No.	Part No.	Model	Description	Fig.	Each
65F198	922576-20	IC-20	20 Contact Intra-Connector	B	7.45
65F199	922576-26	IC-26	26 Contact Intra-Connector	B	8.55
65F200	922576-34	IC-34	34 Contact Intra-Connector	B	10.00
65F201	922576-40	IC-40	40 Contact Intra-Connector	B	11.10
65F202	922576-50	IC-50	50 Contact Intra-Connector	B	13.00
65F203	922578-20	IS-20	20 Contact Intra-Switch	A	14.80
65F204	922578-26	IS-26	26 Contact Intra-Switch	A	17.00
65F205	922578-34	IS-34	34 Contact Intra-Switch	A	20.00
65F206	922578-40	IS-40	40 Contact Intra-Switch	A	22.25
65F207	922578-50	IS-50	50 Contact Intra-Switch	A	25.90

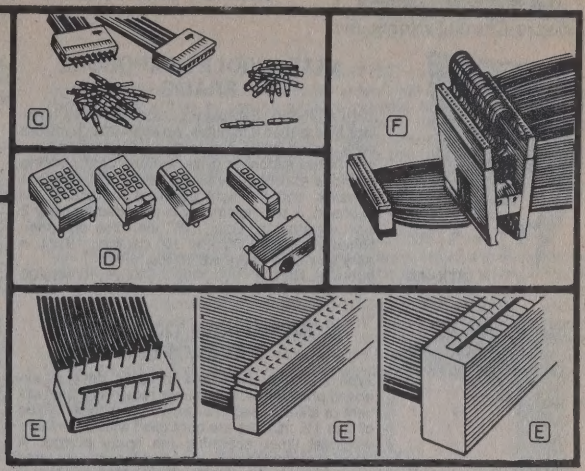


FIG. E RIBBON CABLE ASSEMBLIES

DIP Jumpers mate with standard IC sockets; each has probe holes on the back of each connector. Contacts are spring temper copper alloy 770; conductors are #28 A.W.G. tin coated stranded copper rated at 150 volts max. Cable is color coded in standard 10-color sequence.

Stk. No.	Description	Part No.	Description	Each
65F145	Single-end DIP Jumpers	924102-36	14 Pin, 36" Long	4.45
65F146		924112-36	16 Pin, 36" Long	4.90
65F147		924122-36	24 Pin, 36" Long	7.95
65F148		924132-36	40 Pin, 36" Long	13.05
65F149	Double-end DIP Jumpers	924106-6	14 Pin, 6" Long	5.00
65F150		924106-12	14 Pin, 12" Long	5.20
65F151		924106-18	14 Pin, 18" Long	5.40
65F152		924106-24	14 Pin, 24" Long	5.60
65F153		924106-36	14 Pin, 36" Long	6.05
65F154		924116-6	16 Pin, 6" Long	5.20
65F155		924116-12	16 Pin, 12" Long	5.45
65F156		924116-18	16 Pin, 18" Long	5.70
65F157		924116-24	16 Pin, 24" Long	6.00
65F158		924116-36	16 Pin, 36" Long	6.50
65F159		924126-6	24 Pin, 6" Long	8.20
65F160		924126-12	24 Pin, 12" Long	8.65
65F161		924126-18	24 Pin, 18" Long	9.05
65F162		924126-24	24 pin, 24" Long	9.50
65F163		924126-36	24 Pin, 36" Long	10.35
65F164		924136-6	40 Pin, 6" Long	14.05
65F165		924136-12	40 Pin, 12" Long	14.75
65F166		924136-18	40 Pin, 18" Long	15.40
65F167		924136-24	40 Pin, 24" Long	16.10
65F168		924136-36	40 Pin, 36" Long	17.50
65F169	Double-end Socket Terminated Jumpers	924002-06	20 Contact, 6" Long	6.50
65F170		924002-18	20 Contact, 18" Long	7.05
65F229		924002-36	20 Contact, 36" Long	7.85
65F171		924003-06	26 Contact, 6" Long	8.70
65F172		924003-18	26 Contact, 18" Long	9.35
65F175		924003-36	26 Contact, 36" Long	10.30
65F173		924004-06	34 Contact, 6" Long	11.20
65F174		924004-18	34 Contact, 18" Long	12.05
65F176		924004-36	34 Contact, 36" Long	13.30
65F177		924005-06	40 Contact, 6" Long	12.75
65F178		924005-18	40 Contact, 18" Long	13.85
65F180		924005-36	40 Contact, 36" Long	15.40
65F179		924006-06	50 Contact, 6" Long	14.30
65F182		924006-18	50 Contact, 18" Long	15.60
65F181		924006-36	50 Contact, 36" Long	17.50
65F185	Single-end Socket Terminated Jumpers	924012-36	20 Contact, 36" Long	6.15
65F186		924013-36	26 Contact, 36" Long	7.65
65F187		924014-36	34 Contact, 36" Long	9.85
65F188		924015-36	40 Contact, 36" Long	11.50
65F189		924016-36	50 Contact, 36" Long	14.20
65F192	Double-end Card-edge Terminated Jumpers	924055-06	40 Contact, 6" Long	17.15
65F193		924056-06	50 Contact, 6" Long	18.60
65F190	Single-end Cord-edge Terminated Jumpers	924062-36	20 Contact, 36" Long	8.25
65F194		924063-36	26 Contact, 36" Long	9.90
65F195		924064-36	34 Contact, 36" Long	12.45
65F196		924065-36	40 Contact, 36" Long	13.65
65F197		924066-36	50 Contact, 36" Long	16.60

kepro Bench Top Printed Circuit Components

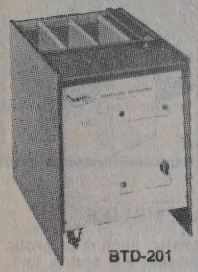
Kepro Circuit Systems, Inc.

BTX-200

ULTRA-VIOLET EXPOSURE FRAME

Type BTX-200. Exposure of photosensitive coatings in less than 2 minutes. An adjustable 5 minute timer extinguishes high output UV lamps at the end of the exposure cycle. Heavy foam padding provides excellent contact pressure between the negative and the light sensitive surface to be exposed. A pin registry rail is provided for easy 2 side registration. Four .125" dia. pins are positioned on 0", 4", 6", and 10" centers. 19½"L x 16½"W x 6"H. Shpg. wt. 30 lbs.

80W476. NET 435.00



BTD-201

CONTROLLED TIME SPRAY DEVELOPER

Type BTD-201. Designed to spray develop exposed photosensitive coatings requiring either solvent or alkali based chemistry. Developing cycles of 1 to 1½ minutes are controlled with a 5 minute electrical timer activating the spray pumps. A metal chemical tank is used and the exterior case construction is of P.V.C. plastic. 22"L x 15"W x 20"H. Shpg. wt. 60 lbs.

79W103. NET 640.00

BTE-202

DOUBLE SIDE SPRAY ETCHER

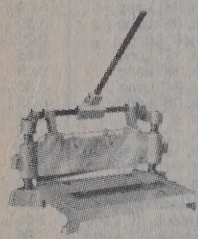
Type BTE-202. Single or double clad P.C. boards may be etched in less than 3 minutes. A 1000 watt grounded titanium heater maintains the four gallon etchant sump at a constant temperature of 120°F. Twin side manifolds distribute a random etch spray pattern against both sides of the vertically held panel. Construction materials compatible with commonly used etchants. 22"L x 14½"W x 20"H. Wt. 60 lbs.

80W475. NET 715.00

PRECISION MULTI-6 SHEARS

Type MS-6. Hand operated tool designed to cut circuit board laminates through .093" thick and sheet metal up to a thickness of .063". Cutting widths of 12.125" are possible. Accessory tooling described below. 11½"L x 18"W x 9"H. Shpg. wt. 24 lbs.

78F150. NET 355.00



MS-6

ACCESSORIES FOR MS-6

Type PS-2. Random 2-Hole Punch. Punches two randomly located .125" dia. holes.

78F151. NET 60.00

Type NA-1. Corner Notcher. Cuts 90° corner notches up to 1" x 1".

78F152. NET 77.00

Type PB-1. Press Brake. Makes 90° bends in soft aluminum or sheet steel.

78F153. NET 60.00

Type DA-2. Drilling-Routing. Holds .030" thru .125" drill bits or routing cutters.

79W102. NET 114.00

COPPER CLAD — PHOTOSENSITIZED

All materials are photosensitized with Eastman Kodak® KPR type 4 and are ready to shear to size using a KEPRO MS-6 shear. 24 sq. ft. of copper clad laminate sheared to convenient 12" x 24" size and packaged 12 pieces per package.

Stock No.	Type	Description	Wt./Pkg. (Lbs.)	1 PKG.
79W120	S1-1224G	1/16" Glass Epoxy, 1 Side	19	182.15
79W121	S2-1224G	1/16" Glass Epoxy, 2 Side	20	212.20
79W122	S12-1224G	1/16" Glass Epoxy, 1 Side	21	190.00
79W123	S22-1224G	1/16" Glass Epoxy, 2 Side	23	251.85

CALL OR WRITE NEWARK FOR A COMPLETE CATALOGUE OF KEPRO ETCHED CIRCUIT PRODUCTS

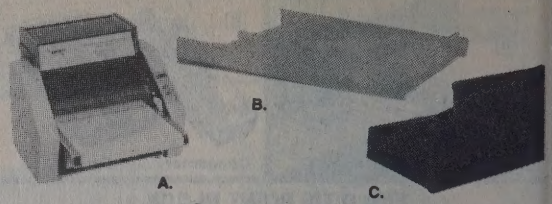


Fig. A — HOT ROLL DRY FILM LAMINATOR

Model BTL-121 Dry Film photo resist, 12" wide can be laminated to the top surface of copper clad panels at a constant speed of 5.4 FPM. Requires eight minutes pre-heat time for pre-set laminating rollers. Combination vent hood/film cover protects against light strikes of emulsion and provides collector for user venting. Supplied with 125 ft. roll of Dry Film and roll of 13" wide backing paper. PVC, stainless steel, anodized aluminum, and baked enamel finishes. Requires 115 VAC, 12 A, 60 Hz. 18 x 20 x 16". min. thick. .062". 65 lbs. shipping.

21F363 NET 1680.00

Fig. B — STAINLESS STEEL SOAK TANK

MODEL BTT-210 Two handle 12x12" panel in solvent type soak. Three quart capacity. 2 x 13 x 16". 4 lbs. shipping.

21F364 NET 60.00

Fig. C — TANK STAND

MODEL BTT-211 Tank stand for stainless steel soak tank BTT-210. 4 lbs. shipping.

81F9010 NET 15.00

SUPPLIES AND CLEANING CHEMICALS

Stk. No	Type	Description	Vol.	Each
21F372	DFR-3015	Photo Resist 1½ Mil.		119.10
21F373	DFD-12G	Developer, dry conc for DFR-305	12 gal	6.10
21F374	AZK-F-1QT	Defoamer for Spray Dev.	1 qt.	14.95
21F375	DFS-12G	Stripper, dry conc for DFR-3015	12 gal	9.05
21F376	CU3-1QT.	Copper clad chemical cleaner	1-Qt.	9.60

DRY FILM PHOTOSENSITIZED

Dry Film pre-laminated to photosensitized copper clad panels, requires no solvents. 12 x 12" glass epoxy.

Stk. No.	Type	Sizes	Ounces	5 Pcs. Pkg. 1-4	5-9	10-up
21F367	DF2-12125G	2	1	116.65	95.65	87.49
21F369	DF22-12125G	2	2	133.50	109.45	100.13
21F370	DF1-12125B*	1	1	76.45	62.69	57.34

*CEM-1 Epoxy Composite Laminate Panel

PRINTED CIRCUIT BOARD

G-10 glass epoxy circuit boards, 1 oz. copper clad, 1/16" thick. Meet standard NEMA grade tolerances. Supplied unsensitized (Unsen.) or photosensitized (Sen.). Photosensitized materials are ready for exposure with no other sensitizing required.

1 OZ. COPPER CLAD GLASS EPOXY BOARDS 5 PIECES PER PACKAGE

Stk. No.	Type	Description	Inches	Per Pkg. 1-4	5-9	10-up
19F3220	S1-365G	Sen. 1 side	3x6	11.10	9.10	8.33
78F161	S1-465G	Sen. 1 side	4x6	14.80	12.14	11.10
19F3221	S1-665G	Sen. 1 side	6x6	22.20	18.20	16.65
19F2037	S1-7105G	Sen. 1 side	7x10	40.65	33.33	30.49
19F3222	S1-12125G	Sen. 1 side	12x12	79.05	64.82	59.29
19F3223	S2-365G	Sen. 2 sides	3x6	13.55	11.11	10.16
78F162	S2-465G	Sen. 2 sides	4x6	18.05	14.80	13.54
19F3224	S2-665G	Sen. 2 sides	6x6	27.05	22.18	20.29
19F3225	S2-12125G	Sen. 2 sides	12x12	96.55	79.17	72.41

2 OZ. COPPER CLAD LAMINATED G-10 GLASS EPOXY 5 PIECES PER PACKAGE

Stk. No.	Type	Description	Inches	Per Pkg. 1-4	5-9	10-up
78F185	S12-365G	Sen. 1 side	3x6	11.85	9.72	8.89
78F186	S12-465G	Sen. 1 side	4x6	15.75	12.92	11.81
78F187	S12-665G	Sen. 1 side	6x6	23.65	19.39	17.74
78F188	S12-7105G	Sen. 1 side	7x10	43.15	35.38	32.36
78F189	S12-12125G	Sen. 1 side	12x12	84.25	69.08	63.18
78F190	S22-365G	Sen. 2 sides	3x6	16.05	13.16	12.04
78F191	S22-465G	Sen. 2 sides	4x6	21.40	17.55	16.05
78F192	S22-665G	Sen. 2 sides	6x6	32.10	26.32	24.08
78F193	S22-12125G	Sen. 2 sides	12x12	114.70	94.05	86.03

Kepro P.C. Kits & Materials

Kepro Circuit Systems, Inc.

1/16" (.062) EPOXY COMPOSITE LAMINATE— 1 OZ. (.00135) COPPER FOIL

An epoxy composite laminate (CF or FR-4) type, with superior shearing, drilling, and punching normally associated with FR-3 type materials and electrical and mechanical properties approaching FR-4 glass epoxy including flame resistance.

UNSENSITIZED MATERIAL

Stk. No.	Type	Wt. Per Pkg. lbs.	Wt. Per Pkg. oz.	Net Price Per 5 Pack 1-4	5-9	10-up
78F050	P1-465B	1	10	9.10	7.46	6.83
78F051	P1-7105B	2	5	22.35	18.33	16.73
78F052	P1-12125B	3	6	43.40	35.59	32.55
78F054	P2-465B	1	11	10.20	8.36	7.65
78F055	P2-7105B	2	6	24.90	20.42	16.86
78F056	P2-12125B	3	10	48.60	39.85	36.45
PHOTOSENSITIZED MATERIAL						
78F058	S1-365B	1	2	8.90	7.30	6.68
78F059	S1-465B	1	10	13.35	10.95	10.01
78F060	S1-7105B	2	5	32.75	26.86	24.56
78F061	S1-12125B	3	6	65.50	53.71	49.13
78F062	S2-365B	1	3	11.65	9.55	8.74
78F063	S2-465B	1	11	17.50	14.35	13.13
78F064	S2-7105B	2	6	42.85	35.14	32.14
78F065	S2-12125B	3	10	83.60	68.55	62.70

BULK PACKAGED COPPER CLAD

24 sq. ft. of copper clad laminate sheared to convenient 12" x 24" size and packaged 12 pieces/package. Size 1/16".

Stk. No.	Type	Description	Net Price Per 12 Pack
Photosensitized with KEPRO DFR-3015 dry film			
78F100	DF1-1224G	1 oz. 1 side	158.20
Unsensitized			
78F104	P1-1224G	1 oz. 1 side	152.00
78F105	P2-1224G	1 oz. 2 side	159.45
78F106	P1-1224B	1 oz. 1 side	116.65

PROFESSIONAL KIT

Type P-101A. An etching kit designed to custom fabricate your own circuit board utilizing a photo engraving process. A sensitized sheet of XXXP Phenolic copper clad is exposed through your prepared negative, then developed and etched. Contents: 3 sheets 3 x 6 x 1/16" photosensitized copper clad phenolic, 3 sheets Mech. Neg. 1-Print Frame Glass, 2-Print Frame Clamps, 1-Bottle Developer, 2-Bottles Etching Solution. 1-Aluminum developing Tray, 1-Plastic Etching Tray, 1-Cleaning Pad. With complete instructions. Shpg. wt. 3 lbs.
19F2002. NET 12.30
Type P-101A-C. As above except base is G-10 Glass Epoxy. Copper Clad.
19F2003. NET 13.35

ETCHED CIRCUIT LAB

Type L-505A. A complete lab which contains all materials required for circuit board development. Uses high quality photo processing. Contains: 1-8½ x 12 Developing Tray, 1-8½ x 12 Etching Tray, 1-Printing Frame, 1-Photo Flood Lamp, 1-40-10 Mech. Neg. 1-Etching Solution (1 Pint), 1-Developing Solution (1 Quart), Resist. Marking Pen. 1-3⅛ x 7⅛ x 00, 1-Cleaning Pad, 1-Set of Instructions. Shpg. wt. 19 lbs.
80W125. NET 68.10
Type L-505A-G. Identical to L505A, except, base material is G-10 Glass Epoxy, Copper Clad. Shpg. wt. 20 lbs.
80W126. NET 75.65

PHOTO REVERSING KIT

Type FK-701. Simple two-step process prepares line negatives and positive from taped or inked artwork or reverses existing negatives or positives. No darkroom needed. Includes two pieces 10" x 24" reversing film, chemicals and instructions. Shpg. wt., 2 lbs.
19F2010. NET 16.25
Type RF-1024. 2 mil. green reversing film, 10" x 24". Shpg. wt. 8 oz.
19F2045. NET 7.85
Type RF-2024. 2 mil. green reversing film, 20" x 24". Shpg. wt. 1 lb.
19F2046. NET 17.65

ETCHED CIRCUIT PROCESSING CHEMICALS

Stk. No.	Type	Description	Weight	EACH
00Z310	PRSK-1G	1 gal. Photo Resist Stripper	15 lbs.	39.00
00Z307	RFD-1G	1 gal. Reversing Developer	13 lbs.	14.15
00Z305	D-1G	1 gal. Developing Solution	16 lbs.	22.30
00Z301	E-1G	1 gal. Etching Solution	16 lbs.	9.80
00Z302	SP-1G	Dry Etching Crystals	2½lbs.	9.70
00Z303	SP-4G	Dry Etching Crystals	11½ lbs.	26.80
00Z309	PRSK-1QT	1 qt. Photo Resist Stripper	4 lbs.	12.90
00Z304	D-1QT	1 qt. Developing Solution	4 lbs.	8.65
00Z010	E-1QT	1 qt. Etching Solution	4 lbs.	5.60

Prices subject to change. See page 4.

PHOTO LAYOUT KIT

Type PL-2A. For preparing camera-ready artwork without inking and lettering. Reduced layout time by use of pressure-sensitive tapes, dots, letters and numerals. Contents: 96¼" Tape Dot Terminations. 108"-1/8" Tape Conductor Strips. 216"-1/16" tape Conductor Strips. 1-translucent-type (letters and numerals, assorted sizes) sheet. 1-Acetate Sheet (8" x 10"). 1-Mech. Neg. (8" x 10"). 2-Sheets of Graph paper, 1/10" grid 8 x 10". 1-Instruction sheet. Wt., 1 lb.
19F2006. NET 5.75

MASTER PHOTO LAYOUT KIT

Type PL-200A. This package includes all necessary materials to make Master artwork on stable base drafting films. Utilizes the same time saving methods as the PL-2A. Contents: 2 pcs. 18"x24" Matte Surface Mylar, 1 pc. 1/10" grid. 432-1/8" tape dot termination. 567-¼" dot termination. 252-½" dot terminations. 18 yds.-1/16" tape conductor strips. 21 yds, -1/8" tape conductor strips. 18 yds. ¼" tape conductor strips. 1 sheet—8½"x11" translucent (letters and numerals, assorted sizes) sheet. 1-Bow Compass (with knife cutters) 1-Center Dot Cutter, 1-Cutting Knife Set, 1-Peeling, 1-instruction and Data Sheet. Shpg. wt. 4 lbs.
19F2007. NET 107.15

NAMEPLATE & PANEL KIT

Type NP-303A. Kit permits you to prepare name-plate by a simple photographic process. Plates are exposed to light source through artwork made from supplied materials. Panels are then dev., no fixing nec. Finished plates are aluminum and contrasting dk. blue. Contents: 2-8"x10" Aluminum Sheet, 1-8"x10" Acetate Sheet, ¼-Sheet translucent-type. 1-8"x10" Print Glass, 1-1oz. Bottle developer, 2-2x2x¾" Appls. (sponges). 2-(8x10") pressure sensitive adhesive. Shpg. wt. 1 lb. 1 oz.
19F2008. NET 19.10

ETCHED ANODIZED NAMEPLATE & PANEL KIT

Type NP-404. Produces etched nameplates and panels using anodized aluminum stock. Processed by exposing, developing, and etching plates. Finished plates are black anodized aluminum and natural color aluminum finish. Contents: 3-3x6" Aluminum Panels. 3-3x6" Acetate Sheets, ¼-Sheet translucent type. 1-Print Glass, 2-3" Clamps, 1-4 oz. Bottle Developer, 1-2 oz. Package Etchant, 1-Dev. Tray, 1-Etch Tray. 3-(3x6") pressure sensitive adhesive. 1½ lbs.
19F2009. NET 12.65

SILK SCREEN KIT

Tyep SC-601A. Professional materials and equipment for producing lacquer resistant film type photo stencils with print area up to 7"x9" and to use these stencils to screen-print 1000 or more impressions per day. No dark room needed. Kit includes screen printing frame with one stretched silk in place plus silk and emulsion for two additional patterns, mounting hinges, squeegee, black and white inks, film printing frame, photo-flood lamp, trays and all necessary chemicals and solutions. Shpg. wt., 13 lbs.
80W127. NET 97.20

ELECTROLESS PC BOARD TIN PLATING KIT

Model ITP-801A. Simple immersion process deposits thin coating of essentially pure tin to etched copper circuit to protect from oxidation and to provide exceptional solderability. Immersion tin plating is a chemical process and requires no expensive electroplating equipment. Immerse solution at room temperature. Board is removed from tray, rinsed 3 minutes under running hot water, then another 3 minutes under running cold water. Kit includes high-temperature glass tray, accommodating board sizes up to 7" x 10"; board handling rack; 1 qt. immersion tin solution (sufficient for plating patterns on approx. 25 sq. ft. of etched panels) and complete instructions. Shpg. wt., 5½ lbs.
78F086. NET 23.20

EXTRA MATERIALS FOR ITP-801A KIT

Stk. No.	Type	Description	Weight	Net
78F083	ITP1QT	Immersion Tin Solution	4 lbs.	13.75
78F088	ITP1G	Immersion Tin Solution	11 lbs.	42.40

SOLID CARBIDE CIRCUIT BOARD DRILLS

Specially designed for smooth, burr-free drilling in circuit boards and all laminates tapered web, straight shank.

Stk. No.	Type	1-4	5-9	10-up
78F066	SCD-125 (⅛)	8.95	7.34	6.71
19F2051	SCD-064 (#52)	6.65	5.45	4.99
19F2052	SCD-052 (#55)	6.65	5.45	4.99
19F2053	SCD-040 (#60)	6.50	5.33	4.88
19F2054	SCD-035 (#65)	6.50	5.33	4.88
78F067	SCD-032 (#67)	6.95	5.70	5.21
19F2055	SCD-023 (#70)	6.95	5.70	5.21

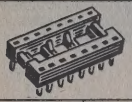
MIDLAND ROSS / Cambion Division IC Sockets & Accessories

TYPE 703 IC SOCKETS

One-piece molded diallyl insulators withstand high temp. and provides excellent mechanical stability (Nos.-3777 and -3778 are one piece molded glass-filled nylon with anti-moisture bosses). Phosphor, bronze contacts accept flat or round pins up to .024" dia. Standard terminal plating is -03 gold for all Wire-Wrap; -04 electro-tin for all solder tab sockets. Sockets can be supplied with electro-tin plating on Wire-Wrap pins or with gold plating on solder tab pins—May be permanently mounted individually (rivet or screw) or press-mounted in PC boards or panels for production or breadboarding.
*Reg. Gardner-Denver Co.™

Stock No.	Type	No. Contacts	Terminals	Net Each 1-99	100-499	500-999
13F3160	703-3771-01-04-16	6	Solder tab	2.56	2.27	2.04
13F3161	703-3881-01-03-16	6	Wire-Wrap	.41	.37	.33
13F3162	703-3772-01-04-16	8	Solder tab	.51	.46	.41
13F3163	703-3882-01-03-16	8	Wire-Wrap	.55	.49	.44
13F3164	703-3777-01-04-12	14	Solder tab	.90	.80	.72
40F4014	703-3788-01-04-16	14	Solder tab	.90	.80	.72
40F4020	703-3897-01-03-16	14	Wire-Wrap	.96	.86	.77
13F3165	703-3778-01-04-12	16	Solder tab	1.02	.90	.81
40F4015	703-3789-01-04-16	16	Solder tab	1.02	.90	.81
40F4009	703-3898-01-03-16	16	Wire-Wrap	1.11	.98	.89
13F3166	703-3787-01-04-16	18	Solder tab	1.14	1.02	.91
13F3167	703-3895-01-03-16	18	Wire-Wrap	1.24	1.10	.99
13F3168	703-3785-01-04-16	22	Solder tab	1.40	1.25	1.12
13F3169	703-3892-01-03-16	22	Wire-Wrap	1.52	1.35	1.22
40F6016	703-3790-01-04-16	24	Solder tab	1.54	1.37	1.23
40F4019	703-3896-01-03-16	24	Wire-Wrap	1.66	1.47	1.32
13F3170	703-3783-01-04-16	28	Solder tab	1.78	1.58	1.43
13F3171	703-3890-01-03-16	28	Wire-Wrap	1.93	1.71	1.54
40F4017	703-3791-01-04-16	36	Solder tab	2.30	2.05	1.84
13F3172	703-3766-01-04-16	40	Solder tab	2.56	2.27	2.04
13F3173	703-3885-01-03-16	40	Wire-Wrap	2.75	2.44	2.20

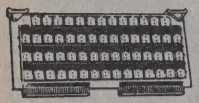
*No. of terminals



LOW PROFILE SOLDER-TAB SOCKETS

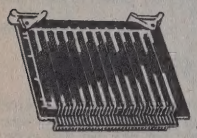
Inverted pin design provides good lead-in, secure gripping, reduces wicking possibility .159" above board. Red glass-reinforced nylon bodies. Electro-tin contact finish. Kapton strip prevents solder wicking.

Stk. No.	Type 703	No. Contacts	Net Each 1-99	100-499	500-999	1000-2499
65F1822	703-5308-01-04-12	8	.39	.32	.26	.20
65F1823	703-5314-01-04-12	14	.69	.57	.46	.36
65F1824	703-5316-01-04-12	16	.75	.62	.50	.39
65F1825	703-5318-01-04-12	18	.85	.70	.57	.44
65F1826	703-5322-01-04-12	22	1.04	.85	.70	.54
65F1827	703-5324-01-04-12	24	1.13	.93	.76	.59
65F1828	703-5340-01-04-12	40	1.89	1.55	1.27	.98
65F1829	703-5364-01-04-12	64	5.15	4.20	3.45	2.68



HIGH DENSITY WIRE-WRAP CAMBI-CARDS

714



715

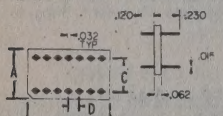
PC boards accept dual-in-line IC sockets, in-line IC's and discrete components. Wire-Wrap interconnections. Each socket position on 715 Series (on every other row on 714 Series) has two auxiliary pins to permit connecting each C to power and ground planes. Cards with sockets affixed with sockets and spaces for discretes; for all discretes; copper-clad and blank cards, card extenders and general purpose cards without sockets but with grid patterns. All cards have edge connectors. Board material—.062" thick, double clad copper, epoxy glass cloth type FL-GE per MIL-P-13949. Pin plating, gold over phosphor bronze material. 715 Cards, 4.5" wide. 714 Cards, 9.75" wide.

714 SERIES—140 PIN INPUT/OUTPUT

Stock No.	Type 714	Cord Lgth.	No. Sockets Per Card	Net Each 1-4	5-9	10-24
65F1808	714-1015-01-00	4.5	Gen'l purpose	110.00	99.00	88.00
65F1809	714-1018-01-03-00	4.5	Gen'l purpose	163.00	147.00	140.00
10F7989	714-1100-01-00-00	9.25	Card extender	172.00	155.00	138.00
65F1810	714-1118-01-03-00	9.25	Gen'l purpose	217.00	195.00	174.00
65F1811	714-1125-01-03-00			316.00	284.00	253.00

715 SERIES—70 PIN INPUT/OUTPUT CONNECTORS

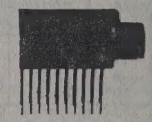
13F3200	714-1000-01-00-00	4.5	Card extender	68.50	61.70	54.80
13F3208	714-1100-01-00-00	9.25	Card extender			
13F3214	714-1115-01-00-00	9.25	Gen'l purpose (w/o sockets)			



COMPONENT SOCKET ADAPTERS

Plug into standard 14, 16, 24 or 36 pin dual in-line sockets or Cambion integrated socket strip. Larger width sizes for wider components straddle two sockets or socket strips. Terminal pairs are on .100" or .200" grid centers. Terminal is phosphor bronze, spring tempered per QQ-B-750; Comp. A. Finish is hard gold plate. Board material, .062" type GEE glass epoxy per MIL-P-18177. Also available with tin plating.

Stock No.	Type 702	Dimensions, In. Board A	Board B	Term. C	Ctr. D	•	Net Each 10-99	100-499	500-999
13F3184	702-3723-01-03-00	.450	.750	.300	.200	8	1.61	1.13	1.02
13F3185	702-3724-01-03-00	.950	.750	.800	.200	8	1.61	1.13	1.02
13F3186	702-3725-01-03-00	.450	.750	.300	.100	14	2.34	1.63	1.49
13F3187	702-3726-01-03-00	.950	.750	.800	.100	14	2.34	1.63	1.49
13F3188	702-3728-01-03-00	.450	.850	.300	.100	16	2.85	1.99	1.81
13F3189	702-3730-01-03-00	.950	.850	.800	.100	16	2.85	1.99	1.81
13F3190	702-3732-01-03-00	.750	1.235	.600	.200	12	2.08	1.45	1.32
13F3191	702-3734-01-03-00	.750	1.835	.600	.200	18	3.35	2.35	2.14

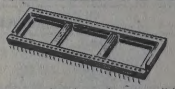


70 PIN CARD CONNECTOR

Stock No.	Type 706-	Terminals	Net Each 1-9	10-24	25-49
40F1452	706-7029-01	Solder lug	9.05	8.50	8.15
40F1451	706-7015-01*	Wire-Wrap	8.95	8.40	8.05

*For use with CAMBION Power Planes.

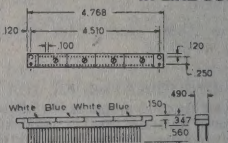
REINFORCED SOLDER TAB SOCKETS



Black reinforced thermoplastic polyester (UL 94 V-O rated). Open ends of socket body allow for air circulation. Tin plated pins.

Stock No.	Type 703	Contacts	1-99	100-499	500-999	1000-2499
81F9267	703-4206	6	.28	.23	.19	.15
10F7959	703-4208	8	.38	.31	.25	.20
10F7960	703-4214	14	.69	.57	.46	.36
10F7961	703-4216	16	.75	.62	.50	.39
10F7962	703-4218	18	.85	.70	.57	.44
10F7963	703-4220	20	.95	.78	.64	.49
10F7964	703-4222	22	1.04	.85	.70	.54
10F7965	703-4224	24	1.13	.93	.76	.59
10F7966	703-4228	28	1.32	1.08	.88	.69
10F7967	703-4240	40	1.89	1.55	1.27	.98
81F9268	703-4264	64	5.15	4.20	3.45	2.68

80 PIN DUAL IN-LINE SOCKET STRIP



Molded diallyl body .025" sq., Wire-Wrap posts and spring contacts. Electro-tin plated contacts standard. Mounts all dual in-line devices without a PC board for independent mounting or into Cambion mounting frame or relay rack drawers. Pins are replaced by removing the screw down covers. Socket strips accept five 14 pin DIP's, four or five 16 pin DIP's. Wider MSI or LSI DIPs can be mounted by bridging between two properly-spaced grips.

13F3192 Type 703-1000-01-04-000, Net Each.

1-9 ..... 5.30. 10-99 ..... 4.75
100-499 ..... 4.25 500-999 ..... 3.80

PRECUT AND STRIPPED WIRE KIT

For wire-wrapping. Solid copper 30 AWG white insulated Kynar® wire, silver plated, ends stripped to tolerance. Kit contains 13 pkgs. of varied lengths from 1" thru 9". Per pkg.: 1" thru 4.5", 100 pcs.; 5" thru 9", 50 pcs. Also available 1.0" thru 25.0" lengths in black, red and white insulation on request.

13F3174. Type 718-1010-01-01-19 Net. . . 36.00

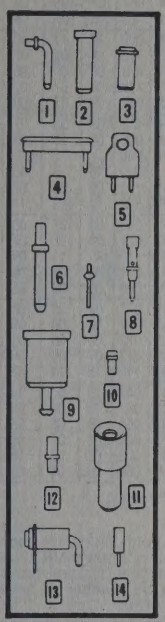
11

Boards, Connectors, Battery Holders and Handles

MIDLAND ROSS / Cambion Division

MINIATURE PLUG/JACK CONNECTORS

Gold plating. Types listed are most commonly used items. Ask Newark for Cambion Plug-Jack brochure for complete listing of many other types. (*) Jack I/D- .016/.019. **Order Series 450 and 461 in multiples of 50. Order Series 460 in multiples of 100.**



Stock Number	Type	I/D	Fig	JACKS Description	Board Thk.	Each 50	100-450	Each 500-up
40F6102	450-3230-01-03-00	.025	11	PC Jack for .025 Pin	.031/.062	.43	.33	.31
39F2919	450-3286-01-03-00	.040	3	PC Jack for .040 dia. pin	.031/.125	.39	.30	.28
65F1791	450-3366-01-03-00	.040	12	High Silhouette Soldermount Jack	.031/.094	.68	.52	.48
40F6119	450-3388-01-03-00	.040	3	PC Jack-Dip Sold.	.031/.156	.43	.33	.31
40F6122	450-3394-02-03-00	.025	.....	PC Jack Closed Entry Printed circ.	.062	.82	.63	.58
40F6125	450-3703-01-03-00	.025	.....	PC Jack-Dip Sold.	.031/.094	.39	.30	.28
40F6303	450-3704-01-03-00	.040	2	PC Jack for .040 dia. pin	.031/125	.39	.30	.28
65F1793	450-3752-01-03-00	.040	10	PC Jack, Soldermount	.062/.125	.39	.30	.28
39F2922	450-3772-01-03-00	.016/.019	2	PC Jack for .018x.011 Rect. pin	.031/.188	.39	.30	.28
40F6130	450-4352-01-03-10	.040	9	Teflon Insulated Jack	.031/.094	.95	.73	.67
10F7940	450-3310-05-03-00	.040	.....	PC Jack for .040 Pin	.188	1.13	.87	.80
10F7941	450-3326-01-03-00	.060/.062	2	PC Jack for .062 Pin	.031/.125	.71	.55	.50
10F7942	450-3422-01-03-00	.040	13	PC Jack for .062 Pin, Rt. ang. Solder	.031/.062	1.16	.89	.82
81F3824	450-1804-01-03-00	.060/.062	3	Self Retaining Ribbed Jack	.124	.64	.49	.45
81F3825	450-3381-01-03-10	.080	.....	MS39024	.062	1.31	1.01	.93
81F3829	450-3381-01-03-12	.090	.....	Nylon Insulator for .08 Dia. Pins		1.31	1.01	.93
81F3826	450-3729-01-03-00	.040	3	Self Retaining Ribbed Jack	.125	.39	.30	.28
81F3827	450-3954-01-03-00	.040	.....	Knurl Mounting Jack	.125	.55	.42	.35

WIDE COMPLIANCE JACK

Stock No.	Type	Description	1-50	100-450	500-up
81F3828	450-1810-01-03-00	PC Jack for .018 thru .04 Pins	.30	.23	.21

Stock Number	Type	O/D	Fig.	PINS-PLUGS Description	Length	Board Thk.	Each 100-900	Each 1000-up
39F2967	460-2970-02-03-00	.040	6	PC Pin-.040" Mtg. Dia	.300"	1/16"	.14	.11
39F2968	460-2970-03-03-00	.040	6	PC Pin-.040" Mtg. Dia.	.300"	3/32"	.14	.11
39F2935	460-2971-02-03-00	.040	6	PC Plug, Swage Mount	.....	1/16"	.12	.09
39F2940	460-3231-02-03-00	.025	6	PC Pin-.040" Mtg. Dia.	.125"	1/16"	.21	.16
65F1800	460-3308-01-03-00	.040	8	PC Pin	.....	.....	.35	.27
40F6308	460-3889-01-03-00	.025	7	PC Pin-.031" Mtg. Dia	.....	1/32	.16	.12
10F7943	460-1521-02-03-00	.040	1	Rt. Angle Pin .040	.257	.....	.31	.24
39F2965	460-1521-03-03-00	.040	1	PC pin .040" dia. pin	.257	.29	.31	.24
10F7944	460-3231-01-03-00	.025	6	Connector Pin .025"	.125	.....	.21	.16

Stock Number	Type	O/D	Fig.	SHORTING PLUGS Description	Pin Spacing	Each 50	100-450	Each 500-up
39F2985	461-2871-01-03-10	.040	5	Black Shorting Plug	.200	.40	.31	.28
65F1795	461-2871-01-03-12	.040	5	Red Shorting Plug	.200	.40	.31	.28
65F1797	461-2872-01-03-10	.040	4	Black Shorting Plug	.200	.40	.31	.28
65F1798	461-2872-01-03-12	.040	4	Red Shorting Plug	.200	.40	.31	.28
10F7945	461-2871-02-03-10	.040	5	Blk. Shorting Plug, 25 Centers	.250	.40	.31	.28
10F7946	461-2871-02-03-12	.040	5	Red Shorting Plug .25 Centers	.250	.40	.31	.28
10F7947	461-3771-01-03-10	.040	.....	Blk. Shorting Plug, .40 Centers	.400	.54	.42	.38
10F7948	461-3771-01-03-12	.040	.....	Red Shorting Plugs, .40 Centers	.400	.54	.42	.38

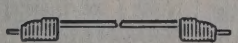
*Many jacks available with tin (.04) plating or with dual plating (.06) . . . tin bodies, gold inserts.

MOLDED BATTERY HOLDERS

New 2800 through 2802 are glass-filled nylon molded holders. Shock and vibration retainers, tinned phosphor bronze contacts. Sold in multiples of 10.

Stock No.	Type 400-	Battery Type and Size	Each 10-90	100-500
13F3155	2800-01-00-20	"C" size, 1.19 x 1.19 x 2.40"	.77	.68
13F3156	2801-01-00-20	"D" size, 1.60 x 1.38 x 2.90"	.77	.68
65F1801	2802-01-00-20	"AA" size, .778 x .739 x .739 x 2.40"	.77	.68
81F3822	2800-01-00-20	PP3-9V Rect.	.79	.70
81F3823	2803-01-00-20	"AA" size with PC solder mt. pins	.79	.70

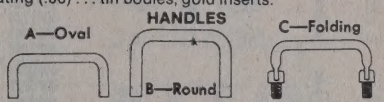
PATCH CORDS



Designed for patching breadboards with .040" diameter jacks for patch cord interconnections. Each patch cord has a combination .040" dia. plug/jack on each end.

Stk. No.	Type 445-3705	Color	Length (in.)	10-99	100-499	500-999	1000-2499
10F7952	05-03-10	Black	12	3.10	2.66	2.33	2.11
10F7953	05-03-16	White	12	3.10	2.66	2.33	2.11
10F7954	02-03-14	Yellow	4	2.86	2.45	2.14	1.94
10F7955	01-03-12	Red	2	2.86	2.45	2.14	1.94
10F7956	04-03-12	Red	8	3.10	2.66	2.33	2.11
10F7957	03-03-16	Blue	6	2.86	2.45	2.14	1.94

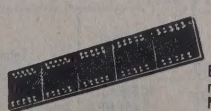
HANDLES



All handle types meet or exceed military and federal specifications. Brass and nickel finish, except (*) aluminum with black oxide. **ORDER IN MULTIPLES OF 10.**

Stk. No.	Type	Mtg.	Ht. (in.)	Fig.	10-90	100-500
40F2313	415-1220-03-02-00	3.0	1	B	4.30	3.80
65F1802	415-1276-02-18-00	4.0	1.50	*	4.30	3.75
65F1803	415-1290-02-14-00	3.0	1.50	B	2.45	2.14
65F1804	415-1290-04-18-00	6.0	1.50	B	3.30	2.90
40F2204	415-1075-01-02	4.56	1	B	4.20	3.65
40F2311	415-1220-01-02	1.25	1	B	3.90	3.45
40F2181	415-1280-03-02	4.0	1.50	B	3.70	3.25
40F2527	415-1900-01-02	4.0	1.85	C	9.95	8.70
40F2220	415-2062-01-02	4.0	1.85	C	9.60	8.40
40F2208	415-2111-01-02	3.0	1.281	A	5.85	5.10
40F2211	415-2111-02-02	4.56	1.50	A	6.50	5.70
40F2316	415-2111-03-02	6.43	1.75	A	7.35	6.45
65F1805	415-2385-02-14-00	4.562	1.50	A	4.30	3.75
65F1806	415-2385-03-18-00	6.438	1.75	A	4.70	4.15
40F5142	415-2720-01-22-00	4.0	1.459	C	12.60	11.00

*Shape: Rectangle.
Matching CAMBION ferruls are available for CAMBION handles.



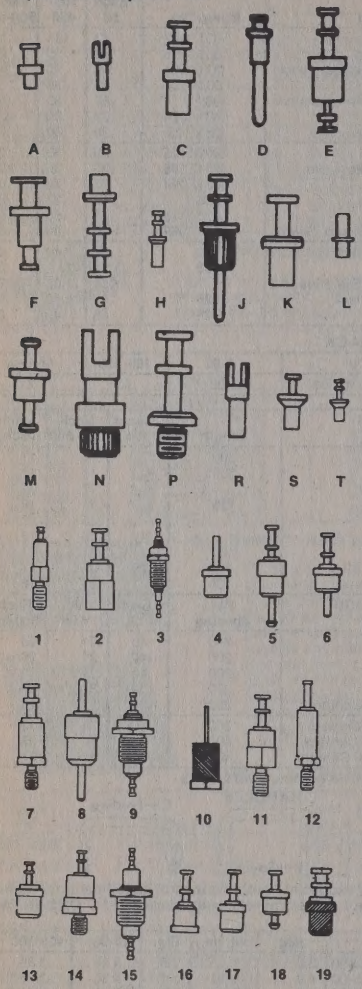
TERMINAL BOARDS

Each section drilled for 14 terminals, with 10 mounted. Material is GEE, epoxy glass cloth, MIL-P-18177.

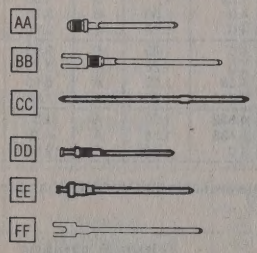
Stock No.	Type 200-	Thk. x Wdth.	1-9	10-99	100-499
10F7949	1402-35-01-02	3/32"x2"	19.70	14.20	12.40
40F5139	1402-45-01-02	1/8"x2"	24.60	17.70	15.50
10F7950	1406-35-01-02	3/32"x1½"	17.20	12.40	10.80

Solder Terminals

Suffix in type number indicates board thickness size: —**01**, 1/32"; —**02**, 1/16"; —**03**, 3/32"; —**04**, 1/8". Number in plating column indicates finish; **01** is silverplate, **04** is electro-tin plate and **05** is electro-solder. **Order number of terminals required in multiples of 100.**



WIRE WRAP TERMINALS



Type 3748-02-04. For board 1/16" thick, .090 mtg. dia.; .045 sq. wire-wrap pin with turret.
Type 3848-01-03. Board .062-.125" thk., .056 dia.; .025 sq. wire-wrap pin, turret.
Type 3854-01-03. Board .052-.188" thk., .058 dia.; .025 sq. wire-wrap pin, turret.
Type 3866-01-03. For board .062" thick only, 058 mtg. dia.; .025 sq. wire-wrap pin, turret. **Order number of terminals required in multiples of 100.**

UNINSULATED TERMINALS

Stock No.	Type	Stock No.	Type	Stock No.	Type	Fig.	Plating	Mtg. Dia.	Each 100-900	1000-4900	5000-9900	10M-Up
13F2190	140-1019-02-01					B	01	.047	.09	.08	.07	.07
13F2192	140-1018-02-01					B	01	.047	.08	.08	.07	.06
40F6003	140-1025-02-01					B	01	.112	.27	.25	.22	.20
40F6004	160-1026-02-01	13F2193	160-1026-03-01	13F2194	160-1026-04-01	C	01	.067	.07	.06	.05	.05
				40F6006	120-1032-01-01	D	01	.062	.08	.07	.06	.06
40F6010	160-1043-02-01			13F3000	160-1043-04-01	E	01	.090	.12	.11	.10	.09
40F6015	160-1245-02-01					K	01	.112	.09	.08	.07	.07
40F6016	160-1457-02-01	13F3005	160-1457-03-01			K	01	.078	.06	.06	.05	.04
40F6021	160-1463-02-01					M	01	.116	.08	.07	.07	.06
39F3641	160-1512-02-05					A	05	.062	.07	.07	.06	.05
				13F3009	160-1548-04-01	C	01	.112	.08	.08	.07	.06
40F6023	160-1558-02-01	13F3010	160-1558-03-01			C	01	.090	.06	.06	.05	.04
40F6026	160-1582-02-01					P	01	4-40 Thd.	.16	.15	.13	.12
40F6029	160-1724-02-01	13F3018	160-1724-03-01			C	01	.112	.09	.08	.07	.07
		13F3020	140-1784-03-01			N	01	.112	.14	.13	.11	.10
40F6032	140-1785-02-01					R	01	.062	.08	.07	.06	.06
40F6038	140-1941-02-01					R	01	.071	.08	.07	.07	.06
40F6039	140-1969-02-01					R	01	.112	.11	.11	.09	.08
40F6043	160-2027-02-01					C	01	.071	.08	.07	.06	.06
40F6044	160-2034-02-01	13F3039	160-2034-03-01			C	01	.090	.09	.08	.07	.07
40F6045	160-2040-02-01					K	01	.072	.09	.09	.08	.07
40F6047	160-2042-02-01					F	01	.072	.06	.06	.05	.05
40F6048	160-2043-02-01	13F3046	160-2043-03-01			C	01	.072	.06	.06	.05	.05
40F6049	160-2044-02-01					P	01	.072	.07	.06	.06	.05
40F6053	160-2084-02-01					G	01	.112	.15	.14	.12	.11
40F6054	160-2085-02-01					K	01	.047	.05	.05	.04	.04
40F6056	140-2089-02-01					B	01	.047	.10	.09	.08	.07
40F6071	180-2753-02-05					S	05	.060	.06	.06	.05	.04
				13F3078	180-2754-04-05	T	05	.060	.06	.06	.05	.04
13F3080	180-3653-02-01					C	01	.062	.06	.06	.05	.05
39F3642	180-7337-02-05					H	05	.060	.06	.06	.05	.05

STUD, TAPPED AND RIVET-MOUNT TYPES

Types 1503, 1504, 1510, 1511 and 1947 are Teflon; 1581 and 1795 are phenolic; 4810-4899 are molded diallyl; others ceramic. Last suffix in Type No. indicates color; —19 white; —16 blue; —00 no. color choice. Next-to-last suffix indicates terminal plating; —01 silver; —05 electro solder; —03 gold. Studs are cadmium plus colored chromate. (*) meets MIL-T-55155. All are double turret except (†) single turret, (**) fork terminal. **Order by number of terminals required in multiples of 10.**

Stk. No.	Type 570-(§572)	Fig.	Mtg.	10-90	100-490	Stk. No.	Type 570-(§572)	Fig.	Mtg.	10-90	100-490
40F6200	1503-01-05-19*	1	4-40 thd.	.95	.73	39F3645	2642-01-01-19	3	6-32 thd.	2.24	1.72
40F6201	1504-01-05-19*	11	6-32 thd.	.95	.73	39F3646	2640-01-01-19	....	10-32 thd.	2.00	1.54
40F6202	1510-01-05-19*	2	4-40 thd.	.95	.73	40F1782	3648-02-01-00	....	6-32 tap	1.01	.78
40F6203	1511-01-05-19*	2	6-32 thd.	.95	.73	40F1762	3650-01-01-00	....	4-40 tap	1.01	.78
40F1821	1581-01-01-00	14	6-32 thd.	.95	.73	40F1737	1980-03-01-00†	....	3-48 thd.	.97	.75
40F1831	1795-01-01-00	15	1/4-28 thd.	1.61	1.24	40F1805	1990-01-05-00	9	1/4-28 thd.	1.96	1.51
40F1773	1942-01-05-00*	....	6-32 thd.	1.01	.78	40F6213	1994-02-01-00	....	6-32 thd.	.97	.75
40F1774	1942-02-05-00*	....	6-32 thd.	1.01	.78	40F6217	2045-01-01-00	....	4-40 thd.	1.01	.78
40F1841	1947-01-05-19	....	4-40 tap	1.46	1.12	40F1700	2255-01-03-00†	10	2-56 thd.	1.28	.99
40F1842	1947-02-05-19	....	6-32 tap	1.46	1.12	40F1701	2255-02-03-00†	10	2-56 thd.	1.28	.99
40F6224	§4810-01-05-16	7	14-40 thd.	.75	.58	40F6233	§4870-01-05-16†	12	2-56 thd.	.69	.53
40F6225	§4814-01-05-16*	....	14-40 tap	.85	.65	40F6234	§4872-01-05-16†	....	2-56 tap	.75	.58
40F6227	§4820-01-05-16*	....	4-40 tap	.96	.74	40F6236	§4884-01-05-16	....	2-56 tap	.75	.58
40F6228	§4826-01-05-16	....	4-40 tap	.85	.65	40F6237	§4894-01-05-16*†	12	2-56 thd.	.69	.53
40F6229	4827-01-05-16	....	6-32 tap	.85	.65	39F3643	§4863-01-05-16	....	6-32 tap	.95	.73
40F6231	§4862-01-05-16**	....	4-40 tap	.95	.73	39F3644	§4889-01-05-16	05	4-40 UNC	.69	.53

TEFLON PRESS-MOUNT TERMINALS

Stock No.	Type	Fig.	Description	Panel Thick.	Mtg. Dia.	Ht. Above Board	Each 10-90	100-490	500-990
40F6239	571-4015-01-05-19	17	Double turret	To .062"	.093"	.140"	.23	.22	.20
40F1847	571-4025-01-05-19	13	Double turret	To .062"	.148"	.210"	.44	.41	.38
40F6248	571-4029-01-05-19	4	Pin term.	To .062"	.148"	.210"	.40	.38	.35
40F6251	571-4034-01-05-19	16	Double turret	To .062"	.148"	.210"	.48	.45	.42
40F5150	571-4176-01-05-19*	8	Pin/pin feed-thru	To .062"	.148"	.210"	.48	.45	.42
40F1947	571-4182-02-05-19	5	Dbl. tur. feed-thru	To .085"	.148"	.210"	.48	.45	.42
40F6261	571-4182-03-05-19	5	Dbl. tur. feed-thru	To .125"	.148"	.210"	.48	.45	.42
40F5152	571-4197-01-05-19*	6	Dbl. tur. feed-thru	To .190"	.148"	.250"	.48	.45	.42
40F1812	571-4263-01-05-19	18	Dbl. tur. feed-thru	To .125"	.216"	.228"	.78	.74	.68
40F6242	571-4026-01-05-19	17	Dbl. tur. stand-off	To .062"	.148"	.250"	.48	.45	.42
39F3647	571-4179-01-05-19	18	Turret feed-thru	To .062"	.148"	.125"	.51	.49	.45
39F3648	571-4016-01-05-19	19	Dbl. tur. stand-off	To .062"	.093"	.210"	.48	.45	.42

WIRE WRAP TERMINALS

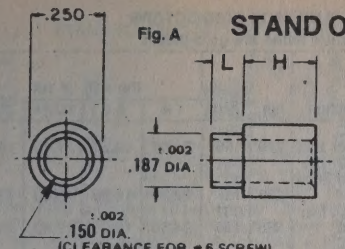
Stock No.	Type	Fig.	Description	Each 100-900	1000-4900	5000-9900	100M-Up
40F4010	155-3748-02-04	EE	Turret	.25	.20	.18	.16
40F4011	155-3848-01-03	DD	Turret	.40	.31	.29	.25
40F4013	155-3866-01-03	....	Turret	.37	.29	.27	.24
39F3649	155-0019-01-03	CC	pin	.12	.09	.09	.08
39F3650	155-1048-01-03	....	pin	.08	.07	.06	.05
81F3830	155-1077-01-03	AA	2 Wrap knurl mt.	.40	.31	.29	.26
81F3831	155-1078-01-03	BB	3 Wrap knurl forked mt.	.48	.37	.34	.30
81F3832	155-3763-01-04	FF	3 Wrap slotted	.29	.22	.21	.18

Swage Tooling

CAMBION

STAND OFFS

Fig. A



- Round
- Thru hole
- Swag Mount

Fig. B

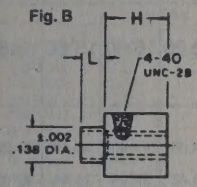
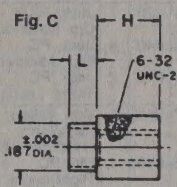


Fig. C



Used in chassis, cabinets and front panels. Brass and aluminum material and platings meet and often exceed mil spec. Series 1200, 1300, 2100 stand off material is brass. Series 7000 stand off is aluminum. Finish: 07-Cadmium, 19-Clear Chromate.

SPACERS & STANDOFFS

Stock No.	Type 350-	Lgth.	Hght.	10-99	100-499	500-999	1,000-2,499
81F3832	7404-01-19	.062	.125	.41	.32	.29	.26
81F3834	7404-09-19	.092	.125	.41	.32	.29	.26
81F3835	7404-12-19	.109	.375	.41	.32	.29	.26
81F3836	7404-14-19	.109	.625	.41	.32	.29	.26
81F3837	7188-04-07	.062	.375	.41	.32	.29	.26
81F3838	2188-09-07	.094	.125	.41	.32	.29	.26
81F3839	1247-02-07	.062	.188	.41	.32	.29	.26
81F3840	1247-09-07	.094	.125	.41	.32	.29	.26
81F3841	1247-10-07	.094	.188	.41	.32	.29	.26
81F3842	1247-11-07	.094	.250	.41	.32	.29	.26
81F3843	1247-12-07	.102	.375	.41	.32	.29	.26
81F3845	1300-01-07	.062	.125	.41	.32	.29	.26
81F3846	1300-09-07	.094	.125	.41	.32	.29	.26
81F3847	1300-10-07	.094	.188	.41	.32	.29	.26
81F3848	1300-11-07	.094	.250	.41	.32	.29	.26
81F3849	1300-12-07	.094	.375	.41	.32	.29	.26
81F3850	1300-13-07	.109	.500	.41	.32	.29	.26
81F3851	1300-17-07	.125	.125	.41	.32	.29	.26
81F3852	1246-09-07	.094	.125	.41	.32	.29	.26
81F3853	1246-12-07	.094	.375	.41	.32	.29	.26
81F3854	1246-19-07	.125	.250	.41	.32	.29	.26
81F3855	1246-27-07	.156	.250	.41	.32	.29	.26

HAND WIRE WRAP TOOL

For wrapping solid copper 30-AWG wire. Low cost alternative to power equipment. Molded glass filled nylon. Size: 3.225"x.480"dia.
13F3175. Type 435-1816-01-00-16 ..... 4.40

IC INSERTION-EXTRACTION TOOL

Position integrated circuits for insertion or extraction. Practically any C with 14 or 16 leads aligned on 0.300" centers can easily be inserted or extracted. Material is plastic.

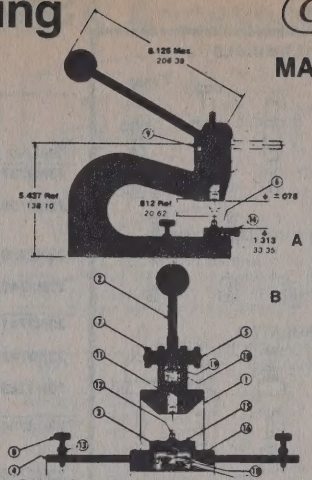
Stock No.	Type	10-99	100-499	500-999	1,000-2,499
13F3220	706-3739-01-00-00	2.04	1.84	1.69	1.63
65F1812	706-3733-01-00-00	2.40	2.16	1.99	1.92
65F1813	415-7036-01-00-20	Order in multiples of 10			

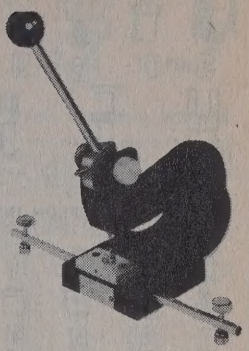
IC card ejector clip handle. Color: White
10-90 Each..... 15 100 & up 13

IC TESTERS

Provide easy test point access to 14 and 16 pin Dual-In—Line IC's under operating conditions Tester is placed over top of IC and makes contact with the exposed portion of each lead.
13F3231. Type 706-1020-01-00-00-00; 14 pin tester.
1-4 Each..... 4.80 5-9 Each..... 4.30 10-24 Each..... 4.00
13F3232. Type 706-1019-01-00-00; 16 pin tester.
1-4 Each..... 5.05 5-9 Each 4.55

MANUAL TERMINAL SWAGER



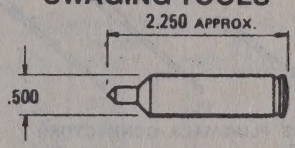


CAMBION 435-3803 Manual Terminal Swager has a deep, Arbor-type throat to accommodate large boards and panels. Stabilizing rods are included to support larger panels while swaging. This swager can handle curved and odd-shaped boards, and with its deep throat, terminals can be swaged in place as far as 5.0" from the board edge.

Series 435

Stock No.	Type	Description	Each
40F1570	3803-1	5" Throat	184.00

SWAGING TOOLS

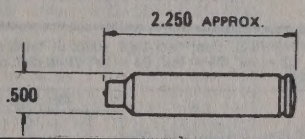


45° FLARE PUNCH

Flare swage used where component will be soldered to an etched pad on the swaged side of the board. Though mechanically weak prior to soldering, the solder fillet provides reliable electrical and mechanical connection.

81F3877	6663-01-00	17.50	81F3878	6657-01-00	17.50

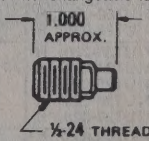
ROLL PUNCH



Stk. No.	Type	Each
81F3864	435-6604-01-00	17.50
81F3865	435-6601-01-00	
81F3866	435-6629-01-00	
81F3867	435-6617-01-00	
81F3868	435-6618-01-00	
81F3870	435-6612-01-00	
81F3871	435-6638-01-00	
81F3872	435-6607-01-00	
81F3873	435-6642-01-00	
81F3874	435-6611-01-00	
81F3875	435-6690-01-00	
81F3876	435-6654-01-00	

Anvils are used when it is necessary to provide a sound base to insure proper swaging of components on boards. Anvils are inter-changeable to fit various sizes of components.

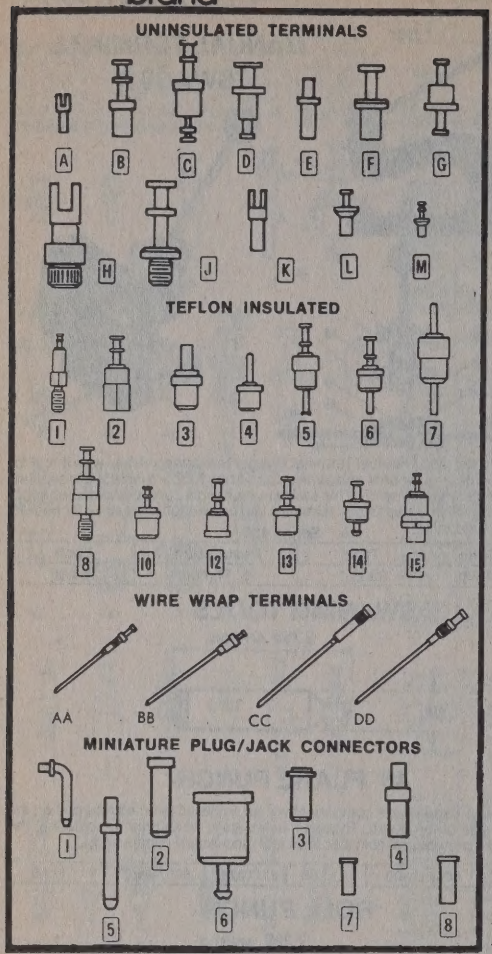
ANVILS



Stock No.	Type 435-	Each	Stock No.	Type 435-	Each
81F3856	6404-01-00	17.50	81F3860	6410-01-00	17.50
81F3857	6447-01-00		81F3861	6446-01-00	
81F3858	6451-01-00		81F3862	6411-01-00	
81F3859	6420-01-00		81F3863	6491-01-00	

VOLTREX® brand

Solder Terminals



MINIATURE PLUG/JACK CONNECTORS

All connectors listed are gold-plated

Stk. No.	Type	Jack I.D. Pin O.D.	Fig.	Description	Lgt.	Board Thick.	Per Pkg. of 100 1-4	5-9	10-24	25-49
23N3737	MC80	.016″	2	Jack, PC, Transistor Lds.	.240″	.031″/.156″	24.60	19.20	17.40	15.60
23N3738	MC81	.040″	3	Jack, PC, Dip Soldered Thru. Hole	.236″	.031″/.031″/.156″	22.20	16.80	15.60	13.80
23N3739	MC82	.040″	3	Jack, PC, Dip Soldered	.236″	.031″/.156″	24.60	19.20	17.40	15.60
23N3740	MC83	.025″	4	Jack, PC, Swage Type	.339″	.125″	46.80	36.00	33.00	29.40
23N3741	MC84	.025″	7	Jack, PC Dip. Soldered	.171″	.031″/.094″	22.20	16.80	15.60	13.80
23N3742	MC85	.040″	8	Jack, PC, Dip. Soldered	.208″	.031″/.156″				
23N3743	MC86	.016″	2	Jack, PC, Trans. Leads	.230″	.031″/188″				
23N3744	MC87	.040″	6	Wht. Teflon, Jack/Term. .148″ mtg. dia.	.390″	—	54.00	41.40	38.40	34.20
23N3745	MC88	.040″	1	Pin, PC, Right Angle	.257″	1/32″	35.40	27.24	25.44	22.32

Stk. No.	Type	Jack I.D. Pin O.D.	Fig.	Description	Lgt.	Board Thick.	Per Pkg. of 100 1-9	10-49	50-99	100-up
23N3746	MC89	.040″	5	Pin, PC, .040 mtg. dia.	.300″	1/16″	15.48	11.92	11.15	9.76
23N3747	MC90	.040″	5	Pin, PC, .040 mtg. dia.	.300″	3/32″				
23N3748	MC91	.040″	5	Pin, PC, .040″ mtg. dia.	.150″	1/32″	11.30	8.70	8.14	7.12
23N3749	MC92	.025″	5	Pin, PC, .040″ mtg. dia.	.125″	1/16″	20.10	15.50	14.50	12.70

TEFLON INSULATED PRESS-MOUNT TERMINALS

Stock No.	Type	Fig.	Descrip.	Panel Thk.	Mtg. Dia.	Ht. Above Board	Pkg. of 50 1	2-9	10-19
23N3756	IT55-017	13	Dbl. Tur.	to .062″	.093″	.140″	24.00	23.00	22.00
23N3757	IT56-017	10	Dbl. Tur.	to .062″	.148″	.210″	25.20	24.00	22.20
23N3758	IT57-017	4	Pin Term.	to .062″	.148″	.210″	22.80	21.60	19.80
23N3759	IT58-017	12	Dbl. Tur.	to .062″	.148″	.210″	27.60	25.80	24.00
23N3760	IT59-027	3	Pin Ter.	to .062″	.093″	.165″	27.00	25.50	24.50
23N3761	IT60-017	7	Stand Off	to .062″	.148″	.210″	27.60	25.80	24.00
23N3762	IT61-027	5	Pin/Pin	to .085″	.148″	.210″			
23N3763	IT61-037	5	Feed Thru.	to .125″	.148″	.210″			
23N3764	IT62-017	6	Dbl. Tur.	to .190″	.148″	.250″			
23N3765	IT63-017	14	Feed Thru.	to .125″	.216″	.228″	44.40	42.00	39.00

UNINSULATED TERMINALS. First two digit suffix of type number board thickness: 01 = 1/32″, 02 = 1/16″, 03 = 3/32″, 04 = 1/8″. Third digit contact plating: 5-silver, 6-tin, 7-solder.

Stock No.	Type	Fig.	Plating	Mtg. Dia.	Per Pkg. of 100 1-9	10-49	50-99	100-Up
23N3700	UT10-025	A	5	.047″	12.36	9.52	8.91	7.79
23N3701	UT11-025	A	5	.047″	11.16	8.60	8.04	7.04
23N3702	UT12-025	A	5	.112″	38.88	29.88	27.96	24.48
23N3703	UT13-025	B	5	.090″	8.85	6.81	6.38	5.57
23N3704	UT13-035	B	5	.090″				
23N3705	UT13-045	B	5	.090″				
23N3706	UT14-025	C	5	.090″	16.20	12.48	11.67	10.22
23N3708	UT16-025	F	5	.112″	12.12	9.34	8.73	7.64
23N3709	UT17-035	F	5	.078″	7.83	6.03	5.63	4.94
23N3710	UT18-025	G	5	.116″	9.64	7.42	6.94	6.07
23N3711	UT19-045	B	5	.112″	9.82	7.56	7.07	6.19
23N3712	UT20-025	B	5	.090″	7.15	5.51	5.15	4.50
23N3713	UT20-035	B	5	.090″				
23N3714	UT21-025	J	5	4-40 Trd.	23.04	17.76	16.56	14.52
23N3715	UT22-025	B	5	.112″	12.36	9.52	8.91	7.79
23N3716	UT22-035	B	5	.112″				
23N3717	UT23-035	H	5	.112″	19.20	14.76	13.80	12.12
23N3718	UT24-025	K	5	.062″	10.64	8.19	7.66	6.70
23N3719	UT25-025	K	5	.071″	10.85	8.36	7.82	6.84
23N3720	UT26-025	K	5	.112″	15.72	12.12	11.32	9.90
23N3721	UT27-025	B	5	.071″	10.53	8.10	7.58	6.64
23N3722	UT28-025	C	5	.090″	12.36	9.52	8.91	7.79
23N3723	UT28-035	C	5	.090″				
23N3724	UT29-025	D	5	.072″	8.67	6.68	6.24	5.46
23N3725	UT30-025	B	5	.072″	8.26	6.36	5.94	5.20
23N3726	UT30-035	B	5	.072″				
23N3727	UT31-025	J	5	.072″	9.11	7.01	6.56	5.74
23N3728	UT32-025	F	5	.047″	6.87	5.28	4.95	4.32

UNINSULATED TERMINALS (con't.)

Stock No.	Type	Fig.	Plating	Mtg. Dia.	Per Pkg. of 100 1-9	10-49	50-99	100-Up
23N3729	UT33-025	A	5	.047″	13.35	10.35	9.68	8.48
23N3730	UT34-027	L	7	.060″	7.68	5.92	5.54	4.84
23N3731	UT35-047	M	7	.060″				
23N3732	UT36-025	B	5	.062″	8.69	6.69	6.26	5.48

NOTE: All come in standard package of 100 pieces.

TEFLON INSULATED

All types listed are teflon insulated with terminals solder plated.

Stock No.	Type	Fig.	Mtg.	Per Pkg. 1	2-9
23N3750	IT50-017	1	4-40 Thd.	51.60	39.60
23N3751	IT51-017	8	6-32		
23N3752	IT52-017	2	4-40		
23N3753	IT53-017	2	6-32		
23N3754	IT54-017	15	4-40 Tap.	79.80	61.20
23N3755	IT54-027	15	6-32 Tap.		

WIRE WRAP TERMINALS

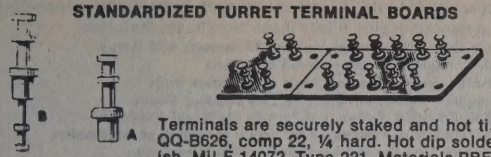
Type WT70-026: 1/16″ board, .090″ mtg. dia. Type WT71-018: .062″-.125″ boards. .056″ mtg. dia. All wire wrap.

Stock No.	Type	Fig.	Description	Per Pkg. 1-9	10-49	50-99
23N3733	WT70-026	BB	Turret	27.24	21.00	19.56
23N3734	WT71-018	AA	Turret	42.72	32.88	30.72
23N3735	WT72-018	CC	Press Mount	44.04	33.96	31.68
23N3736	WT73-018	DD	Turret	39.96	30.72	28.80

11

Keystone Terminal Boards & Accessories

STANDARDIZED TURRET TERMINAL BOARDS



Terminals are securely staked and hot tinned. QQ-B626, comp 22, ¼ hard. Hot dip solder finish. Mil-F-14072, Type 221. Materials PBE indicates Paper base electrical, Mil-P-3115C, Temp. 250°F max. Type XXXP, GEE indicates Glass Epoxy Mil-P-18177, 300°F max. Type G-10. All are 3/32" thick and double row of terminals (50 total) on 3/8" centers except (*) which has a single row with 25 terminals. All are 13⅛" long.

Double Turret—One Side (Fig. A)

Stk. No.	Type	Width	Spacing Btw Row	Mat'l	1-19	20-99	100-249
35F1640	15031*	½"	. . .	PBE	2.05	1.79	1.59
35F1641	15036	1½"	13/16"	PBE	5.06	4.32	3.83
35F1642	15236	1½"	13/16"	GEE	7.02	5.97	5.27
35F1643	15033	2"	1½"	PBE	5.16	4.39	3.88
35F1644	15233	2"	1½"	GEE	8.13	6.92	6.10
35F1645	15034	2½"	2"	PBE	5.43	4.60	3.97
35F1646	15234	2½"	2"	GEE	8.73	7.42	6.54
35F1647	15035	3"	2½"	PBE	5.62	4.77	4.22

Feed Thru Double Turret—Both Sides (Fig. B)

35F1648	15046	1½"	13/16"	PBE	8.07	6.87	6.06
35F1649	15043	2"	1½"	PBE	8.07	6.87	6.06
35F1650	15044	2½"	2"	PBE	8.46	7.20	6.35
35F1651	15045	3"	2½"	PBE	8.73	7.42	6.54

PLUG-IN HOUSING

Durable housings are ideally suited for packaging relays, logic packages, networks and miniature circuitry. Headers are molded of G.P. black phenolic. Pins are brass, nickel plated. Guide hole tapped 8-32 for terminal board mntg. stud. Materials: Polystyrene: use up to 170°F conditions. Butyrate. High impact strength, use at 210°F; Nylon at 300°F. Complete with Octal Header and Screws.

Stk. No.	Type	Size	Mat'l	Color	1-19	20-99	100-249
35F1670	641	Mini	Polyst.	Opaq. Bl.	.90	.83	.77
35F1672	664	Small	Nylon	White	1.06	1.01	.92
35F1673	665	Small	Polyst.	Clear	.91	.87	.82
35F1674	643	Small	Polyst.	Opaq. Bl.	.85	.78	.72
35F1675	650	Large	Butyrate	Clear	2.12	1.89	1.75
35F1676	668	Large	Polyst.	Clear	1.08	1.03	.97
35F1677	677	Large	Polyst.	Opaq. Bl.	1.08	1.03	.97
35F1678	639	X-L ge	Polyst.	Clear	1.13	1.07	1.02

PROTOTYPE KIT

This complete assortment of basic materials and staking tools for experimental and production runs. For construction of 1/16" and 3/32" thick terminal boards. Eyelets, terminals, brackets, bushings and push-in terminals included with instructions.

35F1657. Type 1723 NET 23.00

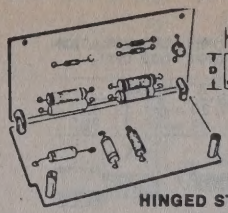


Fig. C

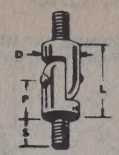


Fig. D

Fig. E

HINGED STANDOFFS FOR TERMINAL BOARDS

Saves time, space and service cost. Interconnects circuits or services without danger of shorting. Wiring exposed for easy test. Made of brass per Mil Spec.QQ-B-626A, Comp. 22, ½ hard. Cadmium plated per QQ-P-416 Class 2, Type 2, and gold iridite.

Female Hinged Standoffs (Fig. C)

Stock No.	Type	Thread	Size, Inches D	M	P	1-19	20-99	100-249
92F055	351	4-40*	.187	.375	.375	.39	.36	.32
92F056	352	4-40	.187	.375	.625	.42	.38	.35
92F057	353	6-32*	.250	.375	.375	.41	.37	.34
92F058	354	8-32	.250	.375	.625	.43	.39	.36
92F059	355	8-32*	.250	.375	.375	.41	.37	.34
92F060	356	8-32*	.250	.375	.625	.43	.39	.36

*.172 deep; all others .250 deep. Sold in multiples of five only.

Male Hinged Standoffs (Fig. D) All Have ½" Body Length

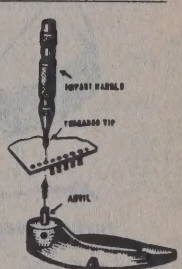
Stock No.	Type	Thread	Size, Inches D	S	P	1-19	20-99	100-249
92F061	357	4-40	.187	¼	¼	.42	.39	.35
92F062	358	6-32	.250	5/16	¼	.43	.40	.36
92F063	359	8-32	.250	5/16	¼	.43	.40	.36

Sold in multiples of five only.

Standoffs for Front of Boards (Fig. E)

Stock No.	Type	Use With Hinge #	Length	1-19	20-99	Per 100
92F064	1657A	351	¾"	. . . .	. . . .	13.80
92F065	1657B	352	1"	. . . .	. . . .	15.65
92F066	1548E	353	¾"	. . . .	. . . .	15.45
92F067	1548F	354	1"	. . . .	. . . .	17.03
92F068	1692D	355	¾"	. . . .	. . . .	15.45
92F069	1692E	356	1"	. . . .	. . . .	17.30
92F070	1657	357	½"	. . . .	. . . .	10.85
92F071	1548C	358	½"	. . . .	. . . .	10.60
92F072	1692C	359	½"	. . . .	. . . .	10.60

"IMPACT" STAKING KIT



Produces a light or heavy blow which is adjustable by turning the spring tension cap. Uniform striking action attained by pressing down handle. Interchangeable tools supplied permit assembly of terminal boards, printed circuits and small components. Simple construction, automatic single hand operation. Kit Includes: 1 No. 1301 Anvil Tool Holder, 1 impact handle (No. 1302), and the following tools: 1310, 1311, 1312, 1313, 1315, 1316, 1321, 1716, 1717, 1722, 1726. Instructions are also included. Stakes all dia. to 3/32" max.

35F1658. Type 1707 . . . . . .33.35

POWER TRANSISTOR AND SILICON CONTROL RECTIFIER SOCKETS

Standardized power transistor sockets for TO-3 case. Low cost. Corrosion resistant and cadmium plated for better solderability. **Meets EIA solderability Spec RS178A.** Spring brass contacts provide contact immediately upon insertion. Hard steel collector plates with 6-20 threaded formings to hold secure with maximum torque of 9 lbs.

Sockets for TO-66 case or SCR. Pre-assembled to chassis by either eyelets or rivets permit installation of semiconductor at later stage of assembly. Eliminates need of washers or bushings.

Sold in mulitples of five only.

Stk. No.	Type	Case	Material	Fig.	Base Heights	Color	1-19	20-99	100-249
35F1170	4601	TO-3	Nylon top, Phenolic base	A	.090	Natural	.41	.39	.30
35F1171	4607	TO-3	Nylon top, Phenolic base	B	.030	Black	.46	.42	.35
35F1172	4608	TO-3	Nylon top, Phenolic base	B	.045	Natural	.46	.42	.35
35F1173	4609	TO-3	Nylon top, Phenolic base	B	.060	Blue	.46	.42	.35
35F1174	4610	TO-3	Nylon top, Phenolic base	B	.090	Green	.46	.42	.35
35F1175	4618	TO-3	Nylon top, Phenolic base	B	.125	Red	.46	.42	.35
35F1176	4606	TO-3	All Phenolic	C	. . . .	. . .	.41	.39	.30

Fig. A

Fig. C

Fig. E

Fig. B

Fig. D

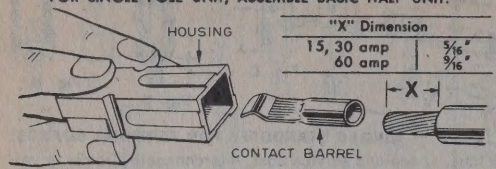
Sold in multiples of five only.

Stk. No.	Type	Case	Material	Fig.	Base Heights	Color	1-19	20-99	100-249
35F1177	4603	TO-3	Nylon top, Phenolic base	B	.030	Green	.41	.39	.30
35F1178	4602	TO-3	Nylon top, Phenolic base	B	.045	Blue	.41	.39	.30
35F1179	4615	TO-66	Nylon top,	D	. . . .	. . . .	.63	.57	.45
35F1180	4625	TO-66	Phenolic base	E	.080	. . . .	.48	.46	.36

11

A-MODE™ brand Connectors

DESIGN & ASSEMBLE "A" MODE TO YOUR OWN CONFIGURATION
FOR SINGLE POLE UNIT, ASSEMBLE BASIC HALF UNIT:

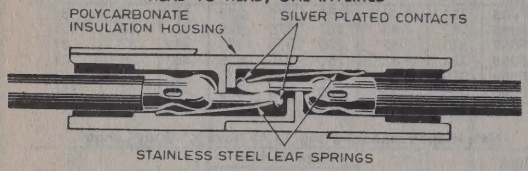


"X" Dimension	
15, 30 amp	5/16"
60 amp	9/16"

1. Strip wire per chart above.
2. Solder or crimp* wire into contact barrel.
3. Insert† contact into housing until it snaps into place.

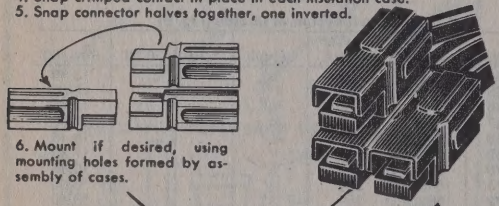
*See "A" Mode Crimp Tools for important requirements.
†Use #13N2017 insertion & removal tool for 15, 30, 60A sizes.

COMPLETE CONNECTION—SNAP TOGETHER 2 HALF UNITS HEAD TO HEAD, ONE INVERTED

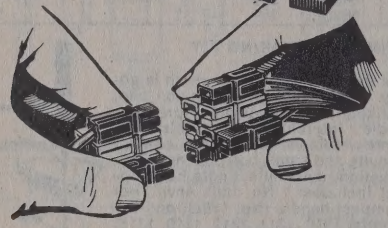


MULTIPOLE CONNECTOR

1. Strip wire for each pole desired.
2. Solder or crimp into contact barrel.
3. Slide together as many cases as desired.
4. Snap crimped contact in place in each insulation case.
5. Snap connector halves together, one inverted.



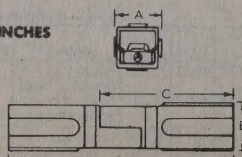
6. Mount if desired, using mounting holes formed by assembly of cases.



PHYSICAL AND ELECTRICAL CHARACTERISTICS

NOMINAL AMPERAGE:	15
SIZE (inches):	5/16x5/16x3 1/32
HOUSING MATERIAL:	Polycarbonate
STANDARD COLOR:	Yellow
CONTACT MATERIAL:	Copper, Silver Plated
SPRING MATERIAL:	300 Series Stainless Steel
OPERATING TEMPERATURE RANGE:	—20°C to 105°C
CURRENT RATING:	15 Amp on 16 AWG Wire produces 19°C Rise
VOLTAGE RATING:	600
BREAKDOWN VOLTAGE TO MOUNTING:	6000 DC
WIRE SIZE ACCOMMODATION:	16 to 20 AWG
MAX. WIRE INSULATION DIAMETER:	.137"
MATING FORCE: (one pair):	Approx. 2 lbs.
EXTRACTION FORCE (one pair):	Approx. 2 lbs.
CONTACT RETENTION FORCE:	Approx. 25 lbs.
CONTACT INSERTION FORCE:	Approx. 3 lbs.
CONTACT RESISTANCE (AVERAGE):	With 3/8" of 16 AWG wire 875 Microhms
ENVIRONMENTAL RESTRICTIONS:	Protected—No Hydrocarbon fluids

DIMENSIONAL SPECIFICATIONS—INCHES



Rating	A	B	C	D
15 Amp	5/16	5/16	31/32	1 5/8
30 Amp	5/16	5/16	31/32	1 5/8
60 Amp	5/8	5/8	1 7/8	3 13/64

*Amperage Module. A unique concept in electronic connectors. This patented design offers these significant features:

- **Meets Current Requirements from 15 through 600 Amps**
- **High Voltage Protection—Rated 600 Volts**
- **Self-Mating—No Separate Male and Female Units**
- **Stackable—Insulation Cases Fit Like Building Blocks With Slide-Lok Action that Permits Multipole Assembly**
- **Mountable—Case Designed for Screw Mounting of Assemblies**
- **Extremely Low Contact Resistance—400 Micro-ohms**
- **Snap Action—Positive Connect and Disconnect**
- **Self Cleaning of Contacts with Each Make and Break**
- **Maximum Conductivity from Silver Plated Copper Contacts**
- **High Reliability Index—15,000 Cycle Mechanical Life**
- **Color Coded Cases—Simplify Wiring**
- **U.L. Recognized and C.S.A. Listed**
- **High Dielectric, Impact Resistant Polycarbonate Case**
- **Non-Pitting Current Carrying Surfaces**
- **Vibration Protected—Full Current Flow under Vibration**

"A" MODE STANDARD PACKAGES

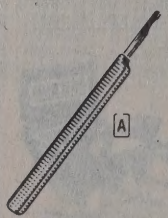
Complete assembly instructions included in each package. Each connector includes silver plated contact and insulation case.

Stock No.	Amps	Color	AWG Wire Size	Std. Pkg.	Price Per Package 1-4	5-9	10-24	25-49
13N1996	15	Red	16-20	100	72.50	58.00	49.30	43.50
13N1997	15	Black	16-20	100				
13N1998	15	White	16-20	100				
13N2000	15	Yellow	16-20	100	67.50	54.00	45.90	40.50
13N2001	30	Red	12-18	100	72.50	58.00	49.30	43.50
13N2002	30	Green	12-18	100				
13N2003	30	Black	12-18	100				
13N2004	30	White	12-18	100				
13N2005	60	Blue	6-12	25	99.00	79.20	67.32	59.40
13N2006	60	Red	6-12	25				
13N2007	60	Black	6-12	25				

EXTRA "A" MODE CONTACTS

Stock No.	Amps	AWG	Std. Pkg.	Price Per Package 1-4	5-9	10-24	25-49
13N1990	15	16-20	100	23.00	18.40	15.64	13.80
13N1991	30	12-18	100	23.00	18.40	15.64	13.80
13N1992	60	6-12	25	41.25	33.00	28.05	24.75

TOOLS DESIGNED FOR "A" MODE CONNECTORS



A INSERTION AND REMOVAL TOOL FOR CONTACTS

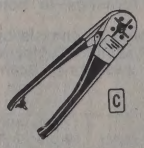
For use with 15, 30 and 60 amp contacts.
13N2017. NET 7.00

"A" MODE CRIMPING TOOLS

Designed to operate on the indent principle; results in locking the wire in the barrel of the contact without deforming contact barrel.

B HAND CRIMP TOOL FOR 15 AND 30 AMP CONTACTS

Quickly and easily crimps contacts.
13N2018. ..... 136.00



C RATCHET TYPE HAND CRIMP TOOLS

Controlled crimp cycle—jaws will not open until full crimp indent has been achieved.
13N2019. For 15 and 30 A Contacts.... 454.00
13N2020. For 60 Amp Contacts..... 304.00

Connector Kits

These kits are an engineer's dream come true. Because of the unique features of the A-Mode, one kit covers all your lab and design needs. The kit contains 50 connectors, a crimp tool, and an insertion/extraction tool in a tough clear plastic box.

AEK-015 15 AMP KIT INCLUDES:
50—15 Amp Contacts
50—Housings In Assorted Colors of Red, Black, Green, White
1—Insertion/Extraction Tool
1—Crimp Tool
13N1988. NET 189.95

AEK-030 30 AMP KIT INCLUDES:
50—30 Amp Contacts
50—Housings In Assorted Colors of Red, Black, Green, White
1—Insertion/Extraction Tool
1—Crimp Tool
13N1989. NET 189.95

11

Hardware Index

Amerlok

P.C. Board Hardware

CS 495
CMS 495
FC 494
FTL 494
MTL 494
PCBS 495
PCE 495
PCG, PCP 495
PCT 494
PCTL 494
PGCD 495
PGCS 495

Spacers

APCS 499
FPCS 500
HMFB 499
HSS 500
HTA 498
HTB 498
LPCS 499
MSS 499
NSRS 500
PCS 500
RA, RN, RS 498
RTB 498
SPCS 500
TPCS 499
TSS 498

Hardware Assortments

HD4011 504
HD4013, HD4014, HD4018, HD4019 504

Bushings

CSP 501
SMB 499, 501
SSSC 501
STBF 501
SVC 501
Cable Clamps 506
Coil Spring Fasteners 501
Cushioned Cable Clamps 501
Hole Plugs 506
Rubber Bumper 506
Rubber Grommets 506
Spade Bolts 506
Soldering Lugs 506
Vent Plugs 506
Vinyl Grommets 506

Fasteners

Acorn Nuts 504
Angle Brackets 504
Flathead and Cabinet Screws 504
Flat Washer 504
Hex Nuts 504
Lockwashers 504
Machine Screws 504
Nylon Mtg. Rivets 504
Screw Insulation Bushing 504
Snap Nuts 504
Spring Clips 504

Electrovert

Cable & Wiring Accessories

APO-0 thru 5 519
C1-C3 519
C2P thru C7P 519
ELVB 519
ET-4C thru ET-13C 519
GS-2 thru GS-6 519
N1 thru N7 519
SP 519

G.C.

Adhesives, Chemicals and Service Aids 508

General Electric

Silicones

G-300, G322L, G623 511
RTV-11, 21, 60, 615, 630 511
RT-100 thru 189 511

Heyco

Wiring Accessories

Bushings—Open/Closed 503
" Shorty 502
" Snap 502
" Strain Relief 502
Lab Kits (Bushings & Plugs, 1999, 2997, 2998, 2999, 3399, 4199 503
Plugs Hole & Vents 503

Mueller

CLIPS

11A, 11C 507
13 507
21A, 21C, 23 507
24A, 25C, 26, 27, 27C, 29 507
33C, 34, 34C, 36 507
45, 45C, 47, 49 507
50C, 51C 507
60CHS, 60HS, 60NS 507
70, 70S, 70CS 507
72 507
85, 85C, 85T, 87 507

3M

Scotch Tape

24, 27 523
33, 35, 70, 88 523

Connector Insulation

8404, 8405, 8406 523

Sealing Compound

06147, 06148 523

Panduit

Terminals and Wiring Accessories

ACC, ABMM, ARC 521
BS 521
CF, CS, CT160 521
D, DNF, DV, DVF 521
FCC, FCM 523
GSZB 522
GS4H 522
ICF 521
LD 521
MLT 522
OCF 521
PLC, PLF, PLM, PLT 522
PRT 522
PV 521
PX 523
SSC, SSM, SST 522
STH, STS 522
T 522
TA, TM 523
Wiring Duct & Cover 521

Thomas & Betts

Cable Ties

TC, TY 517
WT1, WT2, WT163M 517
WT193, W197 517

Sta-Kon Connectors

Female Connectors 524
Male Connectors 524
Locking Fork Terminals 524
Lug-it Connectors 524

Sta-Kon Terminals

Compression Tools 525
Installation Tools 525
Terminal Kits (Assortments) 525
Wire Strippers 525

Spraytec

Paints & Chemicals 509, 510

H. H. Smith

Spacers and Stand offs

2100-2134 ..... 496, 497
2300-2304 496
2330-2339 ..... 496, 497
2340-2343 496
2370-2374 496
2380-2384 496
2600-2618 497
2640-2648 497
3021-3026 496
4000-4044 497
4050-4064 497
4093-4099 497
4293-4299 497
4300-4317 497
4318-4335 497
8101-8133 497
8146-8184 497
8200-8295 496
8320-8371 496
8401-8447 496
8480-8487 496

H. H. Smith (Cont.)

8500-8535 496
8560-8591 496
8600-8611 496
8660-8697 497
8790-8792 496
8880-8895 497

Voltrex

Polarized Connectors 510

Wiring Accessories

ACC 513
ADC 516
ALC 513
AVC 513
BTN, BTP 513
CH 514
CFCC 513
CGP 515
CGT 515
DVRT 512
ECC, EHC 515
FCC 513
HWN, HWP 513
HTWT 516
LFCC 516
LWS 514
LWT 516
LWTA 516
NCC 515
PNS 514
SENS 514
SFCC 516
SSSC 515
SVC 515
TCS 516
TWTS 516
UMS 514
VMK, VMM 520
VMT 512
VRT, VRTH, VRTM, VRTR 512
WDC, WDL, WDMC 518

SILICAPS

Silicones 510
Strain Relief Bushing 520
HPD, HPH, SJ
SJO, SJT, SP, SPT
SST

Solderless Terminals & Connectors

CBP 530
CBS 528, 533
CCN 531
CCP 529
CLS 527, 529, 533
CFL 533
CFS 530, 533
CLS 528, 529
CMS 530, 533
CRS 526, 533
CSS 533

Terminals

1425, 1810, 1812, 1818, 1820, 2316 531

Terminal Strips

LTS, STS 510

Assortments

A-Mode Connector Kit 534
Cable Clamp Kit 536
Cable/Hose Clamp Kit 536
Easy-on Connector Kit 535
Quick-disconnect Terminal Kit 534
Resistor Kit 536
Spacer Kits 536
Strain Relief Kit 536
Terminal Kit 534
Wire Tie Kit 536

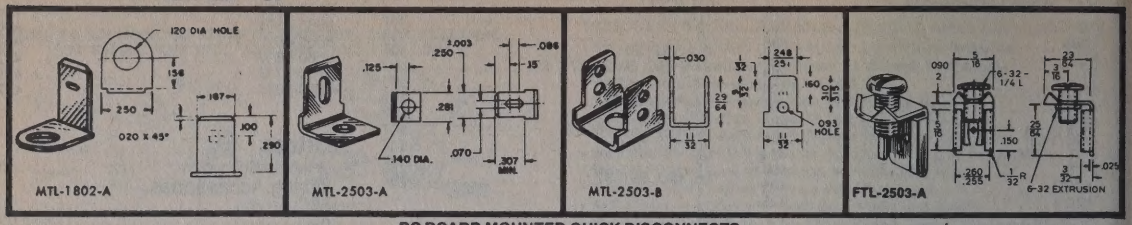
NO NOISE

Cleans, lubricates, restores all tuners. Prevents gumming and eliminates binding in auto turntables. Use for noisy tube sockets and wafer type tuners. Non-toxic 6 oz. spray cans.

32F269. NET 3.85

AMERLOK brand PC Board Hardware

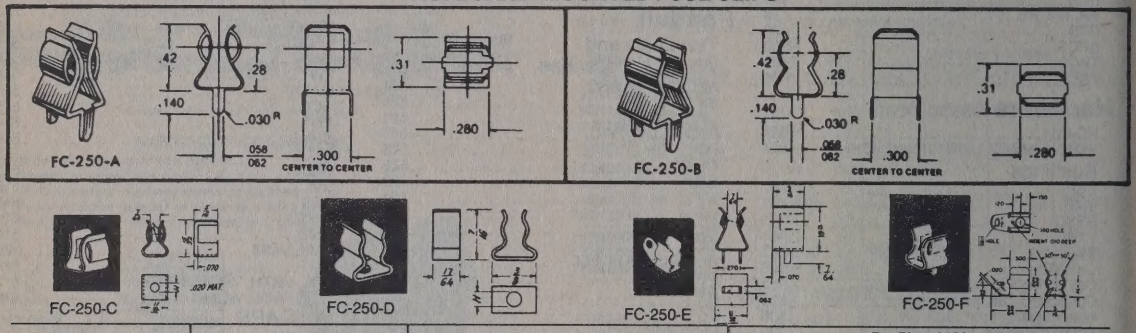
PC BOARD MOUNTED QUICK DISCONNECTS



PC BOARD MOUNTED QUICK DISCONNECTS

Stk. No.	Type	Material	Per Pkg. of 100 1-9	10-49	50-Up
23N3664	MTL-1802-A	.020" Brass, Polished	6.45	5.38	4.84
23N3665	MTL-2503-A	.032" Brass, Electro-Tin Pl.	5.94	4.95	4.46
23N3666	MTL-2503-B	.032" Brass, Electro-Tin Pl.	7.68	6.40	5.76
16N1673	FTL-2503-A	.025" Brass, Electro-Tin Pl.	14.10	11.75	10.58

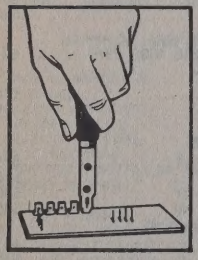
P.C. BOARD MOUNTED FUSE CLIPS

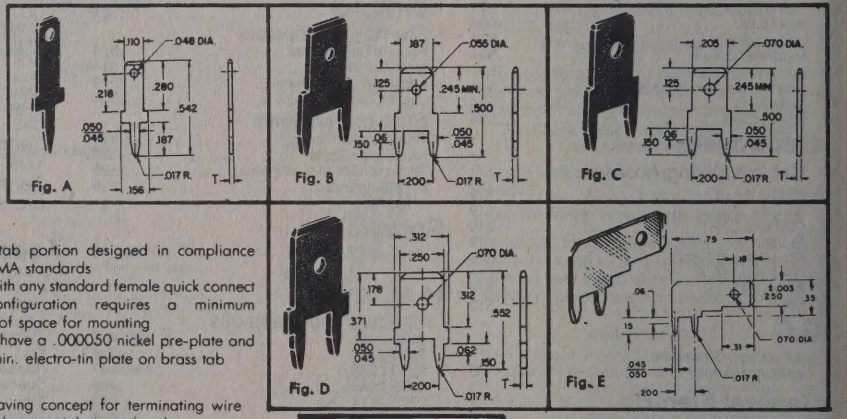


Stk. No.	Type	Material	Per Pkg of 100 1-9	10-49	50-Up
23N3667	FC-250-A	.020" Brass, Hot Tin	8.85	7.38	6.64
23N3668	FC-250-B	.020" Brass, Hot Tin	8.85	7.38	6.64
81N1183	FC-250-C	.020" Brass, Hot Tin	10.01	9.10	8.00
81N1184	FC-250-D	.020" Brass, Hot Tin	12.12	11.20	10.20
81N1185	FC-250-E	.020" Brass, Hot Tin	20.15	19.00	12.30
81N1186	FC-250-F	.020" Brass, Hot Tin	10.21	9.25	8.15

Fuse clips accommodate 1/4" dia. fuses

PC BOARD DISCONNECT TABS

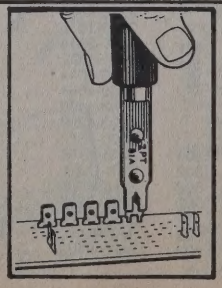




- Mating tab portion designed in compliance with NEMA standards
- Mates with any standard female quick connect
- Tab configuration requires a minimum amount of space for mounting
- All tabs have a .000050 nickel pre-plate and .0001 min. electro-tin plate on brass tab

Printed circuit tabs, economical space-saving concept for terminating wire leads to printed circuit boards. Cost less than special pin and socket contacts and provide standardization. No need to top-solder the board. Male, quick-disconnect. All tab sizes are interchangeable in pre-drilled boards. Recommended mounting hole .046" dia., #56 drill or .052" dia., #55 drill, depending upon board type and thickness.

Stock No.	Type	Fig.	Thickness	Per Pkg. - 100 1-9	10-49
16N1000	PCT-1102	A	.020	5.96	5.07
16N1001	PCT-1103	A	.032	6.12	5.21
16N1002	PCT-1802	B	.020	6.36	5.41
16N1003	PCT-1803	B	.032	6.64	5.65
16N1004	PCT-2002	C	.020	8.68	7.38
16N1005	PCT-2003	C	.032	7.56	6.43
16N1006	PCT-2503	D	.032	7.20	6.12
23N3663	PCTL-2503	E	.032	9.80	8.33



UNIVERSAL HAND TOOL

Type 8404-500. Precision machined hardened and ground. Inserts P.C. board disconnect male tabs into pre-drilled boards. Tabs can be inserted straight or peened over for greater retention. Close spacing is possible. One tool accommodates all tab sizes: .110", .187", .205", and .250", in all thicknesses.
16N1007. NET..... 118.00

PC Board Hardware

AMERLOK™ brand

COMPONENT CLAMPS

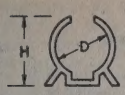


Fig. A

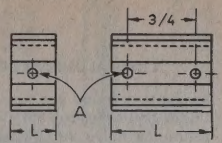
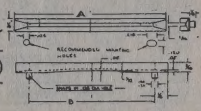


Fig. B

Fasten, and where required, insulate a wide variety of electrical and electronic components, accessories, and parts. Permit quick insertion, allow easy removal. Typical applications are capacitors, resistors, lamps, batteries and fuses. Made of strong black vinyl and have high dielectric strength. Floor of clip is pierced for screws or other fastening devices.

Stk. No.	Type	Component Dia. "D"	Clamp Lgt. "L"	Clamp Ht. "H"	Fig.	Hole Dia. "A"	PK.-100 1-9	PK.-100 10-49
16N1034	CS-4	1/4	1/2	13/32	A	3/32	20.00	17.00
16N1035	CS-6	3/8	1/2	1/2	A	3/32	20.72	17.62
16N1036	CS-8	1/2	1/2	5/8	A	3/32	21.56	18.33
16N1037	CS-10	5/8	1/2	5/8	A	3/32	22.56	19.18
16N1038	CS-12	3/4	1/2	3/8	A	5/32	25.32	21.53
16N1039	CS-16	1	1 1/8	1 1/4	B	5/32	31.60	26.86
16N1040	CS-22	1 3/8	1 1/8	1 15/32	B	5/32	35.44	30.13

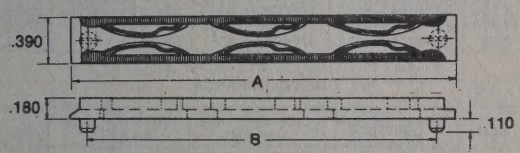
RACK CARD GUIDES



Guides may be used horizontally or vertically for mounting circuit boards in rack chassis. Recommended mounting holes: .125 dia. holes (front) .120 × .218 slot (rear). Four lengths in natural nylon. Material: Nylon 6/6.

Stock No.	Type	A	B	1-9	10-49	50-99	100-up
81N1643	PCG-101	3"	2 1/2"	66.00	56.10	41.25	33.00
81N1644	PCG-102	4"	3 1/2"	72.24	61.40	45.15	36.12
81N1645	PCG-103	6"	5 1/2"	78.60	66.81	49.13	39.30
81N1646	PCG-104	8 1/2"	7.95"	84.80	72.08	53.00	42.40

TENSION RACK CARD GUIDE

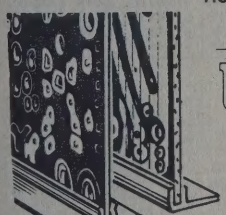


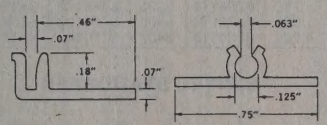
These guides permit tension-holding assembly of printed circuit boards. Guides snap mount into metal, wood, or plastic machine casing or chassis. Four lengths, black only. Material: Polycarbonate.

Accepts boards thickness: 0.50 to .100. Snaps into 128 hole in .060 thick board.

Stock No.	Type	A	B	Pkg. of 100 1-9	10-49	50-99	100-up
81N1647	PCG5250	2.5	2.2	41.76	35.50	26.10	20.88
81N1648	PCG5330	3.3	3	43.32	36.82	27.08	21.66
81N1649	PCG5392	3.925	3.625	44.56	37.88	27.85	22.28
81N1650	PCG5667	6.675	6.375	75.32	64.02	47.08	37.66

P.C. BOARD GUIDE





PCBG-3 PCBG-4

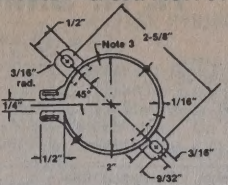
Plastic P.C. Board Guides Offer Low Initial Cost Plus Low Installation Cost

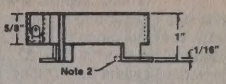
Adhesive: 0.25 lbs. max.; 200°F. max.

Guides made from plastic extrusions assuring accurate placement and alignment of circuit boards. Available adhesive bases for self fastening. Guides designed to take circuit boards 1/16" thick, and are stocked in 2 ft. lengths. Types with suffix "A" are furnished with adhesive back.

Stock No.	Type	PKG. OF 10 1-99	100-499	500-999	1000-Up
23N3974	PCBG-3	26.48	22.51	16.55	13.24
37N1643	PCBG-3A	42.16	30.84	26.35	21.08
37N1644	PCBG-4	23.00	19.55	14.38	11.50
37N1645	PCBG-4A	41.28	35.09	25.80	20.64

STANDING CAPACITOR HOLDER (Nylon)

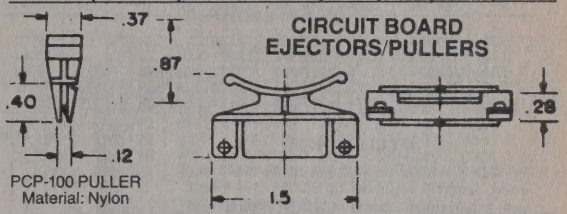




Optional clamping hardware. Optional inside spacer to elevate capacitor .093 from chassis. Anti-rotation rib (3 PLS).

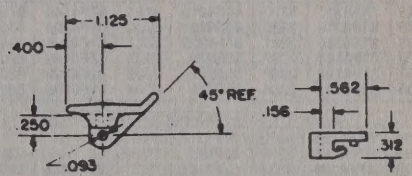
Stock No.	Type	Description	Pkg. of 100 1-9	10-49	50-99	100-up
81N2605	CMS-16	without spacer without hardware	47.84	40.67	29.90	23.92
81N2606	CMS-16H	with spacer with clamping hardware (not installed)	59.00	50.83	37.38	29.90

CIRCUIT BOARD EJECTORS/PULLERS



PCP-100 PULLER
Material: Nylon

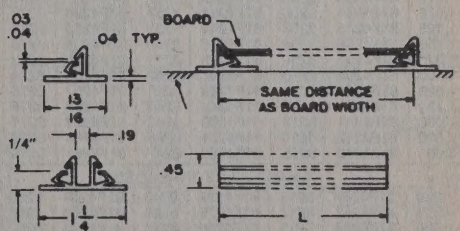
Stock No.	Type	Pkg. of 100 1-9	10-49	50-99	100-up
81N1688	PCP-100	50.80	43.18	31.75	25.40



PCE-800 EJECTOR
Material: Nylon

Stock No.	Type	Color	Pkg. of 100 1-9	10-49	50-99	100-up
81N1679	PCE-800-NAT	Natural	36.48	31.01	22.80	18.24
81N1680	PCE-800-GRN	Green				
81N1681	PCE-800-BLK	Black				
81N1682	PCE-800-BRN	Brown				
81N1683	PCE-800-RED	Red				
81N1684	PCE-800-ORG	Orange				
81N1685	PCE-800-YEL	Yellow				
81N1686	PCE-800-BLU	Blue				
81N1687	PCE-800-VLT	Violet				

HOLD DOWN STRIPS



Mounts to metal or wood. Single or dual channels. Staple or tack to wood. Use boards of any length or width. One piece vinyl.
Pkg./10 in 2 ft. lengths—PGCS—single mount
PGCD—double mount

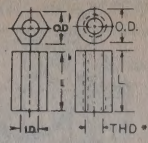
Stock No.	Type	Nom. base width	1-9	10-49	50-99	100-up
81N1700	PGCS-24	13/16"	37.00	31.45	23.13	18.50
81N1701	PGCD-24	1 1/4"	46.76	39.75	29.23	23.38

12

H. H. Smith Spacers

¼" O.D. BRASS SPACERS

Available in round and hex types, zinc plated brass with clearance holes in #4, #6, and #8, threaded holes in 4-40, 6-32, and 8-32 holes. Threaded spacers over 1" long, tapped ⅜" from each end, not continuous.



¼" O.D. ROUND BRASS

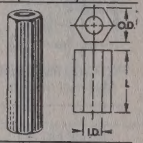
Lgth. In.	Clearance Hole #4 (.115)		Clearance Hole #6 (.140)		Clearance Hole #8 (.171)		Pkg. of 100
	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	
.125	**67F4132**	8700	**67F4133**	8701	**67F4134**	8702	8.66
.250	**35F533**	2340	**35F536**	2100	**35F541**	2105	10.66
.375	.....	.....	**35F537**	2101	.....	.....	12.78
.500	**35F535**	2342	**35F538**	2102	**35F564**	2107	14.29
.750	**67F4135**	2343	**35F539**	2103	.....	.....	22.06
1.000	.....	.....	**35F540**	2104	**35F565**	2109	28.33

¼" O.D. ROUND THREADED BRASS

Lgth. In.	4-40 Thread		6-32 Thread		8-32 Thread		Pkg. of 100
	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	
.....	.....	.....	.....	.....	.....	.....	
.250	**35F883**	2370	**35F553**	2120	.....	.....	12.17
.375	**35F884**	2371	**35F561**	2121	.....	.....	14.44
.500	**35F551**	2372	**35F554**	2122	**35F558**	2127	18.88
.750	**35F552**	2373	**35F555**	2123	**35F559**	2128	27.41
1.000	**35F885**	2374	**35F562**	2124	**35F560**	2129	32.00

HEX CLEARANCE

¼" O.D. hex spacers with precision machined ends, lengths accurate to ±.005". Aluminum with iridite finish (meets MIL-C-5541 specifications). Ideal for raising sub-panels, chassis, etc. Avg. shipping weight: 6 ounces.



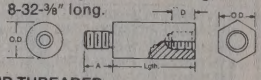
Lgth. In.	Clearance Hole #4 (.115)		Clearance Hole #6 (.140)		Clearance Hole #8 (.171)		Pkg. of 100
	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	
.125	**81F4217**	8790	**81F4218**	8791	**67F4140**	8792	9.74
.250	**81F4219**	2380	**35F875**	2300	**81F4223**	2305	11.40
.375	**81F4220**	2381	**81F4222**	2301	**81F4224**	2306	13.99
.500	**67F4143**	2382	**35F876**	2302	**67F4149**	2307	14.90
.750	**67F4144**	2383	**35F877**	2303	**81F4225**	2308	22.06
1.000	**81F4221**	2384	**35F878**	2304	**81F5738**	2309	30.46

¼" O.D. HEX THREADED BRASS

.125	**67F4155**	8820	**67F4156**	8821	.....	.....	11.40
.250	**67F4158**	2330	**35F871**	2320	.....	2325	13.23
.375	**67F4159**	2331	**67F4163**	2321	**67F4165**	2326	16.12
.500	**67F4160**	2332	**35F872**	2322	**67F4166**	2327	18.88
.750	**67F4161**	2333	**35F873**	2323	**67F4167**	2328	29.39
1.000	**67F4162**	2334	**35F874**	2324	**67F4168**	2329	34.71

¼" O.D. MALE-FEMALE STANDOFFS

Made of ¼ zinc plated brass and type 6/6 nylon in round and hex (hex in nylon only). Tap depth 4-40-¼" deep, 6-32-⅜" deep, and 8-32-7/16" deep. Thread length, 4-40-3/16" long, 6-32-¼" long, and 8-32-⅜" long.



BRASS ROUND THREADED

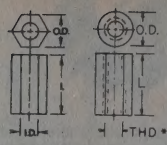
Lgth. In.	4-40		6-32		8-32		Pkg. of 100
	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	
.250	**67F4238**	8200	**67F4245**	8232	**67F4252**	8264	34.71
.375	**67F4239**	8201	**67F4246**	8233	**67F4253**	8265	35.32
.500	**67F4240**	8202	**67F4247**	8234	**67F4254**	8266	36.09
.625	**67F4241**	8203	**67F4248**	8235	**67F4255**	8267	36.86
.750	**67F4242**	8204	**67F4249**	8236	**67F4256**	8268	37.62
.875	**67F4243**	8205	**67F4250**	8237	**67F4257**	8269	38.37
1.000	**67F4244**	8206	**67F4251**	8238	**67F4258**	8270	39.45
1.125	**81F4235**	8207	**81F4244**	8239	**81F4253**	8271	4022
1.250	**81F4236**	8208	**81F4245**	8240	**81F4254**	8272	42.04
1.375	**81F4237**	8209	**81F4246**	8241	**81F4255**	8273	44.64
1.500	**81F4238**	8210	**81F4247**	8242	**81F4256**	8274	46.16
1.625	**81F4239**	8211	**81F4248**	8243	**81F4257**	8275	47.23
1.750	**81F4240**	8212	**81F4249**	8244	**81F4258**	8276	48.13
2.000	**81F4241**	8213	**81F4250**	8245	**81F4259**	8277	49.35
2.500	**81F4242**	8214	**81F4251**	8246	**81F4260**	8278	51.64
3.00	**81F4243**	8215	**81F4252**	8247	**81F4261**	8279	56.06

BRASS HEX THREADED

.250	**81F4262**	8216	**81F4278**	8248	**81F4294**	8280	34.71
.375	**81F4263**	8217	**81F4279**	8249	**81F4295**	8281	35.32
.500	**81F4264**	8218	**81F4280**	8250	**81F4296**	8282	36.09
.625	**81F4265**	8219	**81F4281**	8251	**81F4297**	8283	36.86
.750	**81F4266**	8220	**81F4282**	8252	**81F4298**	8284	37.62
.875	**81F4267**	8221	**81F4283**	8253	**81F4299**	8285	38.37
1.000	**81F4268**	8222	**81F4284**	8254	**81F4300**	8286	39.45
1.125	**81F4269**	8223	**81F4285**	8255	**81F4301**	8287	40.22
1.250	**81F4270**	8224	**81F4286**	8256	**81F4302**	8288	42.04
1.375	**81F4271**	8225	**81F4287**	8257	**81F4303**	8289	44.64
1.500	**81F4272**	8226	**81F4288**	8258	**81F4304**	8290	46.16
1.625	**81F4273**	8227	**81F4289**	8259	**81F4305**	8291	47.23
1.750	**81F4274**	8228	**81F4290**	8260	**81F4306**	8292	48.13
2.000	**81F4275**	8229	**81F4291**	8261	**81F4307**	8293	49.35
2.500	**81F4276**	8230	**81F4292**	8262	**81F4308**	8294	51.64
3.00	**81F4277**	8231	**81F4293**	8263	**81F4309**	8295	56.06

¼" O.D. ALUMINUM SPACERS

Available in round and hex in Aluminum with Irridite finish meeting MIL-C-5541. Available in clearance holes #4, #6, and #8. Threaded holes in 4-40, 6-32, and 8-32. Threaded spacers over 1" long tapped ⅜" from each end, not continuous.



Lgth. In.	Clearance Hole #4 (.115)		Clearance Hole #6 (.140)		Clearance Hole #8 (.171)		Pkg. of 100
	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	
.125	**67F4011**	8480	**67F4019**	8500	**67F4027**	8520	7.59
.250	**67F4012**	8481	**67F4020**	8501	**67F4028**	8521	9.10
.375	**67F4013**	8482	**67F4021**	8502	**67F4029**	8522	10.62
.500	**67F4014**	8483	**67F4022**	8503	**67F4030**	8523	12.13
.625	**67F4015**	8484	**67F4023**	8504	**67F4031**	8524	13.64
.750	**67F4016**	8485	**67F4024**	8505	**67F4032**	8525	15.18
.875	**67F4017**	8486	**67F4025**	8506	**67F4033**	8526	16.69
1.000	**67F4018**	8487	**67F4026**	8507	**67F4034**	8527	18.20
1.500	.....	.....	**13F226**	8509	**13F227**	8529	24.28
2.000	.....	.....	**13F229**	8511	**13F230**	8531	27.30
2.500	.....	.....	**13F232**	8512	.....	.....	56.14
3.000	.....	.....	**13F235**	8513	.....	.....	59.18

¼" O.D. ROUND THREADED ALUMINUM

Lgth. In.	4-40 Thread		6-32 Thread		8-32 Thread		Pkg. of 100
	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	
.125	**67F4060**	8320	**67F4076**	8340	**67F4092**	8360	9.10
.250	**67F4061**	8321	**67F4077**	8341	**67F4093**	8361	10.62
.375	**67F4062**	8322	**67F4078**	8342	**67F4094**	8362	12.13
.500	**67F4063**	8323	**67F4079**	8343	**67F4095**	8363	13.64
.625	**67F4064**	8324	**67F4080**	8344	**67F4096**	8364	15.18
.750	**67F4065**	8325	**67F4081**	8345	**67F4097**	8365	16.69
.875	**67F4066**	8326	**67F4082**	8346	**67F4098**	8366	18.20
1.000	**67F4067**	8327	**67F4083**	8347	**67F4099**	8367	21.23
1.250	**67F4068**	8328	**67F4084**	8348	**67F4100**	8368	24.28
1.500	**67F4069**	8329	**67F4085**	8349	**67F4101**	8369	25.79
1.750	**67F4070**	8330	**67F4086**	8350	**67F4102**	8370	27.30
2.00	**67F4071**	8331	**67F4087**	8351	**67F4103**	8371	28.81

¼" HEX CLEARANCE

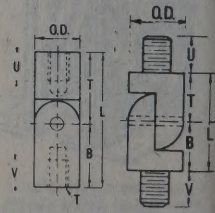
Lgth. In.	Clearance Hole #4 (.115)		Clearance Hole #6 (.140)		Clearance Hole #8 (.171)		Pkg. of 100
	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	
.125	**13F246**	8560	**13F255**	8580	**13F264**	8600	9.10
.250	**13F247**	8561	**13F256**	8581	**13F265**	8601	10.62
.375	**13F248**	8562	**13F257**	8582	**13F266**	8602	12.13
.500	**13F249**	8563	**13F258**	8583	**13F267**	8603	13.64
.625	**13F250**	8564	**13F259**	8584	**13F268**	8604	15.18
.750	**13F251**	8565	**13F260**	8585	**13F269**	8605	16.69
1.000	**13F252**	8567	**13F261**	8587	**13F270**	8607	19.71
1.500	**13F253**	8569	**13F262**	8589	**13F271**	8609	56.14
2.000	**13F254**	8571	**13F263**	8591	**13F272**	8611	71.31

¼" HEX THREADED ALUMINUM

.250	**67F4109**	8401	**67F4117**	8421	**67F4125**	8441	12.13
.375	**67F4110**	8402	**67F4118**	8422	**67F4126**	8442	13.64
.500	**67F4111**	8403	**67F4119**	8423	**67F4127**	8443	15.18
.625	**67F4112**	8404	**67F4120**	8424	**67F4128**	8444	16.69
.750	**67F4113**	8405	**67F4121**	8425	**67F4129**	8445	18.20
.875	**67F4114**	8406	**67F4122**	8426	**67F4130**	8446	19.71
1.000	**67F4115**	8407	**67F4123**	8427	**67F4131**	8447	21.23

SWIVEL STANDOFFS

Made of tin plated brass in 3/16" and ¼" OD. Features hinged action with male and female threads, internal and external. 3021, 3022, 3027, 3/16" O.D.

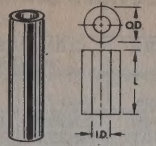


Stk. No.	Type	Lgth.	Fig.	Thd.	T	U	B	V	Pkg. of 100
81F4226	3021	¾"	1	4-40	.375	.172	.375	.172	51.80
81F4227	3022	1"	1	4-40	.375	.172	.625	.250	51.80
81F4228	3027	1/8"	2	4-40	.250	.250	.250	.250	45.70
81F4229	3028	1/8"	2	6-32	.250	.312	.250	.312	53.33
81F4230	3029	1/8"	2	8-32	.250	.312	.250	.312	51.80
81F4231	3023	¾"	1	6-32	.375	.172	.375	.172	54.84
81F4232	3025	¾"	1	8-32	.375	.172	.375	.172	53.33
82F4233	3024	1"	1	6-32	.375	.172	.625	.250	56.35
81F4234	3026	1"	1	8-32	.375	.172	.625	.250	54.84

H. H. Smith Spacers—Standoffs

¼" O.D. NYLON SPACERS

Made of 6/6 nylon in round and hex clearance and threaded holes. Available in #4, #6 and #8 in clearance holes and 4-40, 6-32 and 8-32 threaded holes. Threaded types ¾" long, tap is ⅜" from each end, not continuous.



ROUND CLEARANCE

Lgth. In.	Clearance Hole #4 (.115) Stk. No.	Type	Clearance Hole #6 (.140) Stk. No.	Type	Clearance Hole #8 (.171) Stk. No.	Type	Pkg. of 100
.125	**30F1433**	4000	**30F1434**	4001	**30F1435**	4002	5.11
.250	**30F1436**	4006	**30F1437**	4007	**30F1438**	4008	6.04
.375	**30F1439**	4012	**30F1440**	4013	**30F1441**	4014	7.74
.500	**30F1442**	4018	**30F1443**	4019	**30F1444**	4020	9.16
.625	**30F1445**	4024	**30F1446**	4025	**30F1447**	4026	10.56
.750	**30F1448**	4030	**30F1449**	4031	**30F1450**	4032	11.98
.875	**30F1451**	4036	**30F1452**	4037	**30F1453**	4038	13.10
1.000	**30F1454**	4042	**30F1455**	4043	**30F1456**	4044	14.10

ROUND THREADED

Length "L"	4-40 Thread Stk. No.	Type	6-32 Thread Stk. No.	Type	8-32 Thread Stk. No.	Type	Pkg. of 100
.250"	**30F1457**	4050	**30F1458**	4051	**30F1459**	4052	20.01
.375"	**30F1460**	4053	**30F1461**	4054	**30F1462**	4055	22.83
.500"	**30F1463**	4056	**30F1464**	4057	**30F1465**	4058	25.37
.750"	**30F1466**	4059	**30F1467**	4060	**30F1468**	4061	26.63
1.000"	**30F1469**	4062	**30F1470**	4063	**30F1471**	4064	30.45

¼" O.D. HEX CLEARANCE NYLON

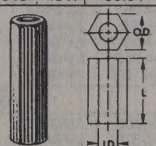
Length	Stk. No.	.092	Stk. No.	.115	Stk. No.	.141	Price per 100
.250	**81F4310**	4318	**81F4311**	4319	**81F4312**	4320	6.04
.375	**81F4313**	4321	**81F4314**	4322	**81F4315**	4323	7.74
.500	**81F4316**	4324	**81F4317**	4325	**81F4318**	4326	9.16
.750	**81F4319**	4327	**81F4320**	4328	**81F4321**	4329	11.98
.875	**81F4322**	4330	**81F4323**	4331	**81F4324**	4332	13.10
1.000	**81F4325**	4333	**81F4326**	4334	**81F4327**	4335	14.10

¼" O.D. HEX THREADED NYLON

Length	Stk. No.	4-40	Stk. No.	6-32	Stk. No.	8-32	Price per 100
.250	**81F4328**	4300	**81F4329**	4301	**81F4330**	4302	21.77
.375	**81F4331**	4303	**81F4332**	4304	**81F4333**	4305	22.32
.500	**81F4334**	4306	**81F4335**	4307	**81F4336**	4308	23.17
.750	**81F4337**	4309	**81F4338**	4310	**81F4339**	4311	27.80
.875	**81F4340**	4312	**81F4341**	4313	**81F4342**	4314	28.64
1.000	**81F4343**	4315	**81F4344**	4316	**81F4345**	4317	30.04

CERAMIC SPACERS

Military types made of grade L5 ceramic to meet MIL 1-10 with glazed outsides. Commercial type made of L5 with glazed outside. Available with mounting threads from 6-32 to ¼-20.

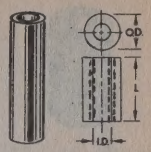


MIL SPEC

Stk. No.	Type	Description	Thread	Dimensions A	B	C	Each
67F4207	2600	NL-523W01-004	6-32	1/2	3/8	5/32	.68
67F4208	2601	NL-523W01-005	6-32	5/8	3/8	1/4	.69
67F4209	2602	NL-523W01-006	6-32	3/4	3/8	1/4	.72
67F4210	2603	NL-523W01-008	6-32	1	3/8	3/8	.79
67F4211	2604	NL-523W01-010	6-32	1 1/4	3/8	3/8	.83
67F4212	2605	NL-523W01-012	6-32	1 1/2	3/8	3/8	.88
67F4213	2606	NL-523W01-016	6-32	2	3/8	3/8	.99
67F4214	2607	NL-523W02-005	8-32	5/8	1/2	3/16	.72
67F4215	2608	NL-523W02-006	8-32	3/4	1/2	1/4	.79
67F4216	2609	NL-523W02-008	8-32	1	1/2	3/8	.83
67F4217	2610	NL-523W02-010	8-32	1 1/4	1/2	3/8	.88
67F4218	2611	NL-523W02-012	8-32	1 1/2	1/2	3/8	.95
67F4219	2612	NL-523W02-016	8-32	2	1/2	3/8	1.08
67F4220	2615	NL-523W03-008	10-32	1	3/4	3/8	1.43
81F4346	2616	NL-523W03-010	10-32	1 1/4	3/4	3/8	1.53
81F4347	2617	NL-523W03-012	10-32	1 1/2	3/4	3/8	1.66
81F4348	2618	NL-523W03-016	10-32	2	3/4	3/8	1.73
COMMERCIAL TYPES							
67F4222	2640	.....	6-32	1/4	1/4	Thru	.58
67F4223	2641	.....	6-32	1/2	1/4	5/32	.62
67F4224	2642	.....	6-32	3/8	3/8	5/32	.64
67F4225	2643	.....	6-32	1/2	3/8	3/16	.65
67F4226	2644	.....	6-32	1/2	1/2	9/64	.68
67F4227	2645	.....	6-32	3/4	1/2	1/4	.71
67F4228	2646	.....	6-32	1	1/2	3/8	.79
67F4229	2647	.....	6-32	1 1/2	1/2	9/16	.89
67F4230	2648	.....	6-32	2 1/2	1/2	1/2	1.11

¼" O.D. PHENOLIC SPACERS

Good mechanical strength; resists chemicals and abrasions. Excellent dielectric and low moisture absorption. PBE Grade MIL-P-79A. Natural Color. On spacers ¾" and longer, tap is ⅜" from each end; others continuous.



ROUND CLEARANCE

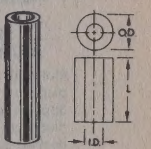
Length	Stk. No.	#4	Stk. No.	#6	Stk. No.	#8	Price per 100
.250	**81F4349**	8146	**81F4350**	8147	**81F4351**	8148	8.35
.375	**81F4352**	8152	**81F4353**	8153	**81F4354**	8154	10.31
.500	**81F4355**	8158	**81F4356**	8159	**81F4357**	8160	12.42
.625	**81F4358**	8164	**81F4359**	8165	**81F4360**	8166	14.53
.750	**81F4361**	8170	**81F4362**	8171	**81F4363**	8172	16.57
1.000	**81F4364**	8182	**81F4365**	8183	**81F4366**	8184	21.55

ROUND THREADED

Lgth. In.	4-40 Thread Stk. No.	Type	6-32 Thread Stk. No.	Type	8-32 Thread Stk. No.	Type	Pkg. of 100
.250	**67F4184**	8660	**67F4187**	8661	**67F4188**	8662	15.50
.375	**67F4189**	8666	**67F4190**	8667	**67F4191**	8668	18.32
.500	**67F4192**	8672	**67F4193**	8673	**67F4194**	8674	21.51
.625	**67F4195**	8678	**67F4196**	8679	**67F4197**	8680	23.97
.750	**67F4198**	8684	**67F4199**	8685	**67F4200**	8686	26.79
1.000	**67F4204**	8696	**67F4205**	8697	**67F4206**	8695	32.43

¼" O.D. FIBRE SPACERS

Made of fibre per MIL F-1148A grade CH. Available in #4, #6, and #8 with clearance holes and 4-40, 6-32, and 8-32 threaded holes. Threaded type ¾" long, tap is ⅜" from each end, not continuous.



ROUND CLEARANCE

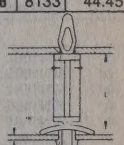
Lgth. In.	Clearance Hole #4 (1.15) Stk. No.	Type	Clearance Hole #6 (.140) Stk. No.	Type	Clearance Hole #8 (.171) Stk. No.	Type	Pkg. of 100
.125	**67F4169**	8880	**67F4170**	8881	**67F4171**	8882	17.35
.250	**67F4172**	2335	**35F547**	2130	**35F550**	2140	12.98
.375	**67F4173**	2336	**67F4183**	2131	**67F4184**	2141	16.00
.500	**67F4174**	2337	**35F567**	2132	**35F568**	2142	18.62
.625	**67F4177**	8895	**67F4178**	8896	**67F4179**	8897	21.71
.750	**67F4175**	2338	**35F548**	2133	**35F566**	2143	24.82
1.000	**67F4176**	2339	**35F549**	2134	**67F4185**	2144	32.58

ROUND THREADED

Length	Stk. No.	4-40	Stk. No.	6-32	Stk. No.	8-32	Price per 100
.250	**81F4368**	8101	**81F4369**	8102	**81F4370**	8103	32.01
.312	**81F4371**	8104	**81F4372**	8105	**81F4373**	8106	33.21
.375	**81F4374**	8107	**81F4375**	8108	**81F4376**	8109	34.40
.500	**81F4377**	8113	**81F4378**	8114	**81F4379**	8115	36.79
.625	**81F4380**	8119	**81F4381**	8120	**81F4382**	8121	39.25
.750	**81F4383**	8125	**81F4384**	8126	**81F4385**	8127	41.57
.875	**81F4386**	8131	**81F4387**	8132	**81F4388**	8133	44.45

P.C. BOARD SUPPORTS

Made of 6/6 nylon. Snaps into P.C. board and chassis. Chassis hole .187 thickness .034 to .080, PC board .156 hole, 1/16 thick. Also available in self-extinguishing.



P.C. BOARD SUPPORTS

Stk. No.	Type	Length	Price Pkg. of 100
81F4389	4093	3/16	7.43
81F4390	4094	1/4	7.86
81F4391	4095	3/8	8.28
81F4392	4096	1/2	8.70
81F4393	4097	5/8	9.54
81F4394	4098	3/4	10.10
81F4395	4099	7/8	10.80
SAME EXCEPT SELF-EXTINGUISHING			
81F4396	4293	3/16	9.68
81F4397	4294	1/4	10.10
81F4398	4295	3/8	10.67
81F4399	4296	1/2	11.24
81F4400	4297	5/8	12.21
81F4401	4298	3/4	13.05
81F4402	4299	7/8	13.90

AMERLOK™ brand

Spacers

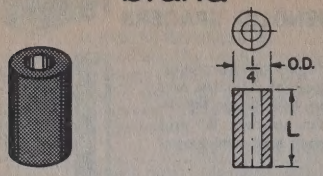
CLEARANCE HOLD SPACERS FOR #4, #6, or #8 SCREWS

1/4" O.D. BRASS

L	CLEARANCE HOLE #4 SCREW Stock No.	Type	CLEARANCE HOLE #6 SCREW Stock No.	Type	CLEARANCE HOLE #8 SCREW Stock No.	Type	1-4 Pkgs. of 100	5-9 Pkgs. of 100
1/4"	23N3851	RB-4-250	23N3856	RB-6-250	.....	.....	7.89	6.41
3/8"	22N3582	RB-4-375	23N3857	RB-6-375	23N3862	RB-8-375	9.46	8.05
1/2"	23N3853	RB-4-500	23N3863	RB-8-500	23N3863	RB-8-750	10.50	9.00
3/4"	23N3854	RB-4-750	.....	.....	23N3864	RB-8-750	16.34	13.89
1	.....	.....	.....	.....	23N3865	RB-8-1000	20.98	17.84

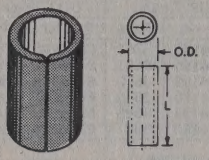
1/4" O.D. SEAMLESS ALUMINUM

1/4"	23N3800	RA-4-250	23N3805	RA-6-250	23N3810	RA-8-250	6.74	5.73
3/8"	23N3801	RA-4-375	23N3806	RA-6-375	23N3611	RA-8-375	7.86	6.69
1/2"	23N3802	RA-4-500	23N3807	RA-6-500	23N3812	RA-8-500	8.98	7.64
3/4"	.....	.....	23N3808	RA-6-750	23N3813	RA-8-750	11.24	9.56
1"	.....	.....	23N3809	RA-6-1000	23N3814	RA-8-1000	13.48	11.46



1/4" O.D. SPACERS

Nickel plated brass spacers per MIL-F-14072, QQ-N-290 type VII. Seamless aluminum spacers iridite finish per Mil-C-5541Excellent dielectric strength. Plastic spacers polyvinyl dichloride providing: high thermal resistance (to 225°F), self-extinguishing, and high dielectric strength. Nylon spacers are polyamide, Type 6/6 per MIL-P-17091B natural color.

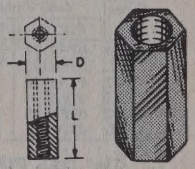


ECONOMY ALUMINUM SPACERS

Material is 5052-H34 aluminum per QQ-318C. Spacers are rolled flat strip aluminum assuring maximum bearing surface, square ends, and no burrs. Approximate I.D.s: 11/64" for #4, 3/16" for #6, 15/64" for #8.

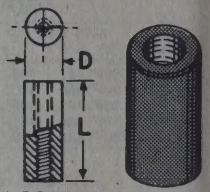
ECONOMY BUTTED SEAM ALUMINUM SPACER

L	Stk. No.	Type	1-9 Pkgs. of 100	10-49 Pkgs. of 100
1/4"	23N3941	RS-4-250	8.24	7.01
3/8"	23N3942	RS-4-375	8.48	7.21
1/2"	23N3943	RS-4-500	8.92	7.59
1"	23N3945	RS-4-1000	10.68	9.08
1/4"	23N3946	RS-6-250	8.84	7.52
3/8"	23N3947	RS-6-375	9.00	7.65
1/2"	23N3948	RS-6-500	9.36	7.96
1"	23N3950	RS-6-1000	11.16	9.49
1/4"	23N3951	RS-8-250	11.48	9.76
3/8"	23N3952	RS-8-375	11.60	9.86
1/2"	23N3953	RS-8-500	12.24	10.41
3/4"	23N3954	RS-8-750	13.60	11.56
1"	23N3955	RS-8-1000	14.88	12.65
1/4" O.D. NYLON				
1/8"	37N1682	RN-4-125	3.78	3.22
1/4"	37N1683	RN-4-250	4.47	3.80
3/8"	37N1684	RN-4-375	5.73	4.88
1/2"	37N1685	RN-4-500	6.78	5.77
3/4"	37N1686	RN-4-750	8.87	7.54
1"	37N1687	RN-4-1000	10.44	8.88
1/8"	37N1688	RN-6-125	3.78	3.22
1/4"	37N1689	RN-6-250	4.47	3.80
3/8"	37N1690	RN-6-375	5.73	4.88
1/2"	37N1691	RN-6-500	6.78	5.77
3/4"	37N1692	RN-6-750	8.87	7.54
1"	37N1693	RN-6-1000	10.44	8.88
1/4"	37N1695	RN-8-250	4.47	3.80
3/8"	37N1696	RN-8-375	5.73	4.88
1/2"	37N1697	RN-8-500	6.78	5.77
3/4"	37N1698	RN-8-750	8.87	7.54
1"	37N1699	RN-8-1000	10.44	8.88



1/4" O.D. ROUND SPACER

Nickel plated brass spacers per MIL-F-14072, QQ-N-290 type VII. Hex and round aluminum spacers iridite finished per MIL-C-5541Threaded spacers over 3/4" length are tapped 3/8" deep from each end.

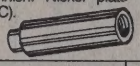


THREADED SPACERS FOR #4-40, #6-32, or #8-32 SCREWS

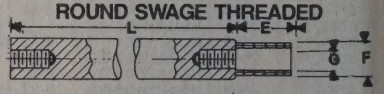
1/4" HEX BRASS

L	#4-40 THREAD Stock No.	Type	#6-32 THREAD Stock No.	Type	#8-32 THREAD Stock No.	Type	Pkgs. of 100 1-4	Pkgs. of 100 5-9
1/4"	23N3881	HTB-4-250	23N3886	HTB-6-250	23N3891	HTB-8-250	9.80	8.33
3/8"	23N3882	HTB-4-375	.....	.....	23N3892	HTB-8-375	11.94	10.15
1/2"	23N3883	HTB-4-500	23N3888	HTB-6-500	23N3893	HTB-8-500	13.98	11.89
3/4"	23N3884	HTB-4-750	23N3889	HTB-6-750	23N3894	HTB-8-750	21.77	18.51
1"	23N3885	HTB-4-1000	23N5890	HTB-6-1000	23N3895	HTB-8-1000	25.71	21.86
1/4" O.D. ROUND BRASS								
1/4"	.....	.....	23N3871	RTB-6-250	.....	.....	9.01	7.66
3/8"	.....	.....	.....	.....	23N3877	RTB-8-375	10.69	9.09
1/2"	23N3868	RTB-4-500	23N3873	RTB-6-500	23N3878	RTB-8-500	13.98	11.89
3/4"	23N3869	RTB-4-750	23F3889	RTB-6-750	.....	.....	20.30	17.26
1"	23N3870	RTB-4-1000	23N3875	RTB-6-1000	.....	.....	23.70	20.15
1/4" HEX ALUMINUM								
1/4"	23N3836	HTA-4-250	23N3841	HTA-6-250	23N3846	HTA-8-250	8.98	7.64
3/8"	23N3837	HTA-4-375	23N3842	HTA-6-375	23N3847	HTA-8-375	10.16	8.59
1/2"	23N3838	HTA-4-500	23N3843	HTA-6-500	23N3848	HTA-8-500	11.24	9.56
3/4"	23N3839	HTA-4-750	23N3844	HTA-6-750	23N3849	HTA-8-750	13.48	11.46
1"	23N3840	HTA-4-1000	23N3845	HTA-6-1000	23N3850	HTA-8-1000	15.72	13.37
1/4" ROUND ALUMINUM								
1/4"	23N3815	RTA-4-250	23N3822	RTA-6-250	23N3829	RTA-8-250	7.86	6.69
3/8"	23N3816	RTA-4-375	23F3823	RTA-6-375	23F3830	RTA-8-375	8.98	7.64
1/2"	23F3817	RTA-4-500	23N3824	RTA-6-500	23N3831	RTA-8-500	10.10	8.59
3/4"	23N3818	RTA-4-750	23F3825	RTA-6-750	23N3832	RTA-8-750	12.36	10.51
1"	23N3819	RTA-4-1000	23F3826	RTA-6-1000	23N3833	RTA-8-1000	15.72	13.37
1 1/2"	23F3820	RTA-4-1500	23N3827	RTA-6-1500	23F3834	RTA-8-1500	19.10	16.24
2"	23N3821	RTA-4-2000	23F3828	RTA-6-2000	23N3835	RTA-8-2000	21.34	18.14

SPECIFICATIONS
• Material:
Brass, CDA alloy 360, Federal specification number QQ-B-626b Composition 22 • Finish: Nickel plate .0001" per QQ-N-290 Type VII (QC).



ROUND SWAGE THREADED



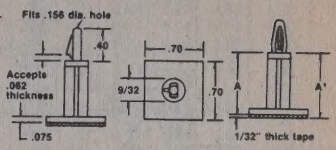
Lgth.	Board Thick	Swage E	Swage F	Swage G	THREAD SIZE* 2-56 No.	Type TSS	Pkgs. of 100 1-4	5-9	10-Up
.125	1/16	.109	.187	.156	81N1389	2-125-2	24.48	20.40	18.36
.250	1/16	.109	.187	.156	81N1390	2-250-2	24.48	20.40	18.36
.375	1/16	.109	.187	.156	81N1391	2-375-2	24.48	20.40	18.36
.500	1/16	.109	.187	.156	81N1392	2-500-2	24.48	20.40	18.36

Lgth.	BOARD Thick	SWAGE E	SWAGE F	SWAGE G	THREAD SIZES* 4-40 Stk. No.	Type TSS	1-4	5-9	10-Up	6-32 Stk. No.	Type TSS	1-4	5-9	10-Up	8-32 Stk. No.	Type TSS	1-4	5-9	10-Up
.250"	1/16	.109	.187	.156	81N1393	4-250-2	23.67	19.73	17.75	81N1398	6-250-2	21.42	17.85	16.07	81N1403	8-250-2	22.89	19.08	17.17
.375"	1/16	.109	.167	.156	81N1394	4-375-2	23.67	19.73	17.75	81N1399	6-375-2	21.42	17.85	16.07	81N1404	8-375-2	22.89	19.08	17.17
.500"	1/16	.109	.187	.156	81N1395	4-500-2	23.67	19.73	17.75	81N1400	6-500-2	24.72	20.60	18.54	81N1405	8-500-2	22.89	19.08	17.17
.750"	1/16	.109	.187	.156	81N1396	4-750-2	25.71	21.43	19.28	81N1401	6-750-2	28.95	24.13	21.71	81N1406	8-750-2	27.99	23.33	20.99
1.000"	1/16	.109	.187	.156	81N1397	4-1000-2	29.58	24.65	22.19	81N1402	6-1000-2	28.95	24.13	21.71	81N1407	8-1000-2	27.99	23.33	20.99

ADHESIVE MOUNT SNAP IN SPACER

Adhesive: 0.25 lbs. max.; 200 F. max.

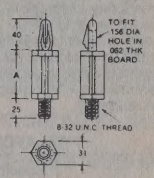
Stock No.	Type	"A-1" with tape	Pkg. of 100 1-9	10-49	50-99	100-up
81N2584	APCS-3	3/16"	28.72	24.41	17.95	14.36
81N2585	APCS-4	1/4"	29.12	24.75	18.20	14.56
81N2586	APCS-6	3/8"	29.56	25.13	18.48	14.78
81N2587	APCS-8	1/2"	30.24	25.70	18.90	15.12
81N2588	APCS-10	5/8"	30.88	26.25	19.30	15.44
81N2589	APCS-12	3/4"	31.56	26.83	19.73	15.78
81N2590	APCS-14	7/8"	32.24	27.40	20.15	16.12
81N2591	APCS-16	1"	32.92	27.98	20.58	16.46
81N2592	APCS-18	1 1/8"	33.60	28.56	21.00	16.80



CIRCUIT BOARD SUPPORTS

Studded supports for screw fastening. Are reusable one piece circuit board support with a #8-32 thread for speedy installation. Requires no tools. (Supplied less mounting nut.)

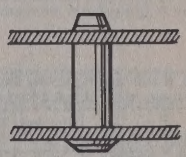
Stock No.	Type	Nom. dim. A	Pkg. of 100 1-9	10-49	50-99	100-up
81N1671	TPCS-4	.25"	15.00	12.75	9.38	7.50
81N1672	TPCS-6	.37"	15.24	14.10	9.53	7.62
81N1673	TPCS-8	.50"	15.48	13.16	9.68	7.74
81N1674	TPCS-10	.62"	16.28	13.84	10.18	8.14
81N1675	TPCS-12	.75"	17.08	14.52	10.68	8.54
81N1676	TPCS-14	.87"	18.00	15.30	11.25	9.00
81N1677	TPCS-18	1.12"	19.00	16.15	11.88	9.50
81N1678	TPCS-225	1.43"	19.64	16.69	12.28	9.82



MINIATURE SUPPORT POST

Made from molded nylon . . . no pins or screws required.

Stock No.	Type	C dim.	Pkg. of 100 1-9	10-49	50-99	100-up
81N1655	MSS-2	.125	8.48	7.21	5.30	4.24
81N1656	MSS-4	.250	8.96	7.62	5.60	4.48
81N1657	MSS-6	.375	9.12	7.75	5.70	4.56
81N1658	MSS-8	.500	10.00	8.50	6.25	5.00
81N1659	MSS-10	.625	10.64	9.04	6.65	5.32
81N1660	MSS-12	.750	11.28	9.59	7.05	5.64

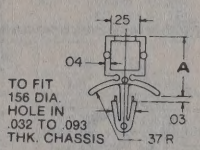


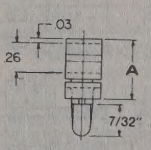
12

CIRCUIT BOARD STACKING SPACERS

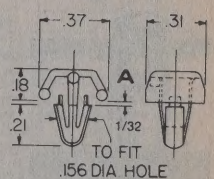
LPCS spacers are used to stack any number of boards, vertically or side by side. Four spacing heights. Only two simple components. Everything snaps into place. Positive "Bathed Arrow" locking, made of strength nylon.

Stock No.	Type	Nom. dim. A	Pkg. of 100 1-9	10-49	50-99	100-up
81N1651	LPCS-8	1/2"	14.92	12.68	9.33	7.46
81N1652	LPCS-10	5/8"	15.72	13.36	9.83	7.86
81N1653	LPCS-12	3/4"	16.08	13.67	10.05	8.04
81N1654	LPCS-14	7/8"	17.36	14.76	10.85	8.68
81N1632	SMB-501	1/32"	11.48	9.76	7.18	5.74





MODEL SMB-501 CAPPING BUTTON



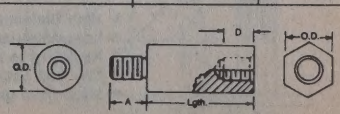
Note: This mounting cap fits all Series LPCS spacer types & sizes.

MALE-FEMALE THREADED SPACERS HEX BRASS

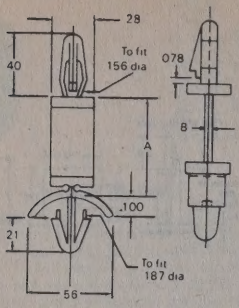
Features lengths 1/4" to 3" threaded sizes from 4-40 to 8-32. Brass spacers per QQ-B-626. Comp. 22 zinc plated.

#4-40 Thread Lgth.	Stock No.	Type	#6-32 Thread Stock No.	Type	#8-32 Thread Stock No.	Type	Pkg. of 100 1-4	5-9	10-up
1/4"	**81N2543**	HMFB-4-250	**81N2546**	HMFB-6-250			34.80	29.89	26.13
3/8"	**81N2544**	HMFB-4-375	**81N2547**	HMFB-6-375			35.46	30.46	26.63
1/2"	**81N2545**	HMFB-4-500	**81N2548**	HMFB-6-500	**81N2553**	HMFB-8-500	36.13	31.03	27.13
3/4"			**81N2549**	HMFB-6-750	**81N2554**	HMFB-8-750	37.63	32.32	28.25
1"			**81N2550**	HMFB-6-1000	**81N2555**	HMFB-8-1000	39.46	33.89	29.63
1 1/2"			**81N2551**	HMFB-6-1500	**81N2556**	HMFB-8-1500	46.12	39.61	34.63
2"			**81N2552**	HMFB-6-2000	**81N2557**	HMFB-8-2000	49.45	42.47	37.13
2 1/2"					**81N2558**	HMFB-8-2500	51.62	44.33	38.75
3"					**81N2559**	HMFB-8-3000	56.11	48.19	42.13

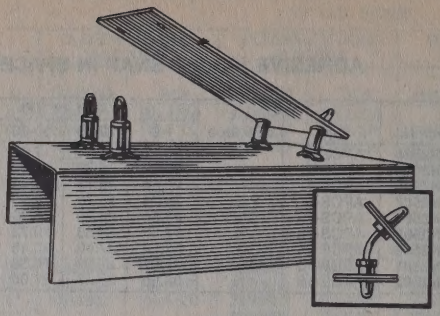
THD. SIZE	A	D
4-40	3/16"	1/4"
6-32	1/4"	3/8"
8-32	3/8"	7/16"

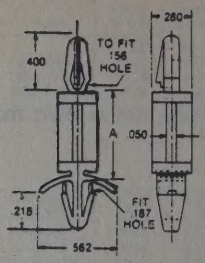


AMERLOK™ brand Spacers



FPCS





PCS

SNAP-IN CIRCUIT BOARD SUPPORT/SPACER

Provide ample clearance from the chassis for assembled boards. An arrow-type locking head snaps into a .187" dia. hole in chassis where it expands to lock permanently in position. Finger grip insertion eliminates need for tools. Circuit board is held firmly in position by locking tension flange which, compressed upon entry, springs out to lap over and secure board. A squeeze of the fingers permits removal of board from support for repair or replacement. FPCS supports permit complete accessibility to circuit board components for easy maintenance and replacement. Type FPCS fully compatible with type PCS rigid supports.

TYPE FPCS-FLEXIBLE SUPPORT

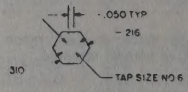
Stk. No.	Type	Spacing Dist. "A"	PER PK.—100			
			1-9	10-49	50-99	100-UP
37N1659	FPCS-6	⅜"	11.68	9.93	7.30	5.84
37N1660	FPCS-8	½"	12.40	10.54	7.75	6.25
37N1662	FPCS-12	¾"	13.80	11.73	8.63	6.90
37N1663	FPCS-14	⅞"	14.52	12.35	9.08	7.26

TYPE PCS

Stk. No.	Type	Spacing Dist. "A"	PER PK.—100			
			1-9	10-49	50-99	100-UP
16N1008	PCS-3	3/16"	7.37	4.39	3.50	3.04
16N1009	PCS-4	¼"	7.86	4.68	3.73	3.24
16N1010	PCS-6	⅜"	8.22	4.89	3.90	3.39
16N1011	PCS-8	½"	8.86	5.27	4.21	3.65
16N1012	PCS-10	5/8"	9.41	5.60	4.46	3.88
16N1013	PCS-12	¾"	10.07	5.99	4.78	4.15
16N1014	PCS-14	⅞"	10.71	6.37	5.08	4.41
16N1015	PCS-16	1"	23.70	14.10	11.25	9.76
16N1016	PCS-18	1⅛"	24.24	14.42	11.51	9.99
16N1017	PCS-20	1¼"	24.82	14.77	11.78	10.23
16N1018	PCS-22	1⅜"	25.40	15.11	12.05	10.46

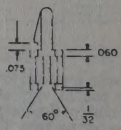
SCREW FASTENED CIRCUIT BOARD SUPPORT

Insert No. 6 self-tapping screw through chassis and into support. Snap circuit board over top of supports tapered head. Tension flange holds circuit board in place; squeeze flange for circuit board removal.

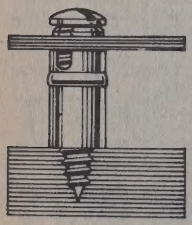


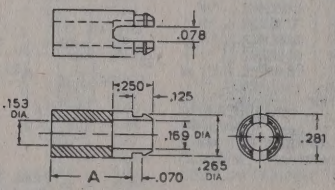
Stock No.	Type	Spacing "A"	Tap Depth "B"	PER PK.—100			
				1-9	10-49	50-99	100-UP
23N3975	SPCS-4	13/64"	¼"	12.90	7.67	6.12	5.31
23N3976	SPCS-6	⅜"	¼"	13.08	7.78	6.21	5.39
23N3977	SPCS-8	½"	¼"	13.32	7.92	6.32	5.49
23N3978	SPCS-12	¾"	¼"	14.78	8.79	7.01	6.09

- **Minimal Chassis Profusion**
- **High Dielectric Strength**
- **Nylon Material**



SELF-RETAINING SPACER



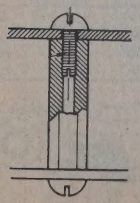


To fasten, snap spacer tip into .234" dia. hole on ckt board and insert screw thru spacer into base. Ideal for installation on wood. For maintenance/repair, withdraw screw, spacer remains locked on ckt board, ready for quick reassembly.

To fasten, snap spacer tip into .234" dia. hole on ckt board and insert screw thru spacer into base. Ideal for installation on wood. For maintenance/repair, withdraw screw, spacer remains locked on ckt board, ready for quick reassembly.

Stk. No.	Type	Screw Size	"A"	"D"	PER PK.—100			
					1-9	10-49	50-99	100-UP
37N1647	NSRS-63	#6	⅜"	153"	11.32	9.63	7.08	5.66
37N1648	NSRS-64	#6	½"	153"	11.88	10.10	7.43	5.94
37N1649	NSRS-65	#6	5/8"	153"	12.20	10.37	7.63	6.10
37N1650	NSRS-66	#6	¾"	153"	12.72	10.82	7.95	6.36
37N1651	NSRS-67	#6	⅞"	153"	13.24	11.26	8.28	6.62
37N1652	NSRS-68	#6	1"	153"	13.76	11.70	8.60	6.88
37N1653	NSRS-83	#8	⅜"	169"	11.32	9.63	7.08	5.66
37N1654	NSRS-84	#8	½"	169"	11.88	10.10	7.43	5.94
37N1655	NSRS-85	#8	5/8"	169"	12.20	10.37	7.63	6.10
37N1656	NSRS-86	#8	¾"	169"	12.72	10.82	7.95	6.36
37N1657	NSRS-87	#8	⅞"	169"	13.24	11.26	8.28	6.62
37N1658	NSRS-88	#8	1"	169"	13.76	11.70	8.60	6.88

HEX SPACER/STANDOFFS



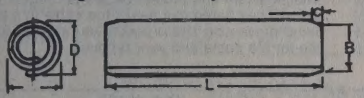
- **High Dielectric, self-extinguishing**
- **Low moisture absorption**
- **Resistant to chemicals**
- **Use with self-tapping screws**
- **Made from gray CPVC**

Stk. No.	Type	Screw	Hex	Length	PER PK.—100			
					1-9	10-49	50-99	100-UP
16N1019	HSS-43	#4	3/16"	⅜"	5.19	3.09	2.46	2.14
16N1020	HSS-44	#4	3/16"	½"	6.52	3.88	3.10	2.69
16N1025	HSS-64	#6	¼"	½"	6.95	4.13	3.30	2.86
16N1027	HSS-66	#6	¼"	¾"	7.89	4.69	3.74	3.25
16N1029	HSS-68	#6	¼"	1"	8.98	5.34	4.26	3.70

Coil spring fasteners utilize the spirally coiled spring concept, a recognized superior spring design. It imparts unique features not found in other spring pins. More than fasteners coil spring fasteners are also shock absorbing elements which are integral, active components of a total assembly.

COIL SPRING FASTENERS

- **Uniform strength and flexibility**
- **Equal stress distribution**
- **Wider hole tolerance**
- **Closer Diameter tolerances**
- Swaged Chamfers
- **Re-Usable**
- **Prolonged useful life of your assembly**

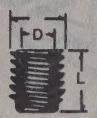


Nickel stainless steel AISI 302

Stock #	Type	"D" Nominal Pin Dia.	"L" Length	CHAMFERS "B" Max. Dia.	CHAMFERS "C" Ref. Length	Recomm. Hole Size Max.	Recomm. Hole Size Min.	Price Per Pkg. Pkgs. of 100 1-9	10-49	50-99	100-up
81N1408	CSP-0208-NP	1/32 (.031)	1/8	.029	.024	.032	.031	5.98	4.98	4.48	3.98
81N1409	CSP-0212-NP	1/32 (.031)	3/16	.029	.024	.032	.031	6.00	5.00	4.50	4.00
81N1410	CSP-0216-NP	1/32 (.031)	1/4	.029	.024	.032	.031	6.04	5.04	4.53	4.03
81N1411	CSP-0224-NP	1/32 (.031)	3/8	.029	.024	.032	.031	6.19	5.16	4.64	4.13
81N1412	CSP-0308-NP	3/64 (.047)	1/8	.045	.024	.048	.046	5.74	4.78	4.30	3.83
81N1413	CSP-0312-NP	3/64 (.047)	3/16	.045	.024	.048	.046	5.80	4.84	4.35	3.87
81N1414	CSP-0316-NP	3/64 (.047)	1/4	.045	.024	.048	.046	5.84	4.87	4.38	3.90
81N1415	CSP-0324-NP	3/64 (.047)	3/8	.045	.024	.048	.046	6.00	5.00	4.50	4.00
81N1416	CSP-0412-NP	1/16 (.062)	3/16	.059	.028	.065	.061	4.20	3.50	3.15	2.80
81N1417	CSP-0416-NP	1/16 (.062)	1/4	.059	.028	.065	.061	4.27	3.56	3.20	2.85
81N1418	CSP-0424-NP	1/16 (.062)	3/8	.059	.028	.065	.061	4.44	3.70	3.33	2.96
81N1419	CSP-0432-NP	1/16 (.062)	1/2	.059	.028	.065	.061	4.75	3.96	3.56	3.17
81N1420	CSP-0612-NP	3/32 (.094)	3/16	.091	.038	.097	.093	4.58	3.82	3.44	3.06
81N1421	CSP-0616-NP	3/32 (.094)	1/4	.091	.038	.097	.093	4.85	4.05	3.64	3.24
81N1422	CSP-0624-NP	3/32 (.094)	3/8	.091	.038	.097	.093	5.39	4.49	4.04	3.59
81N1423	CSP-0632-NP	3/32 (.094)	1/2	.091	.038	.097	.093	5.98	4.98	4.48	3.98
81N1424	CSP-0816-NP	1/8 (.125)	1/4	.121	.044	.129	.124	6.08	5.07	4.56	4.06
81N1425	CSP-0824-NP	1/8 (.125)	3/8	.121	.044	.129	.124	6.86	5.72	5.14	4.57
81N1426	CSP-0832-NP	1/8 (.125)	1/2	.121	.044	.129	.124	7.62	6.35	5.71	5.08
81N1427	CSP-0848-NP	1/8 (.125)	3/4	.121	.044	.129	.124	9.86	8.22	7.40	6.58
81N1428	CSP-1224-NP	3/16 (.188)	3/8	.182	.055	.192	.185	12.08	10.07	9.06	8.05
81N1429	CSP-1232-NP	3/16 (.188)	1/2	.182	.055	.192	.185	13.78	11.48	10.33	9.19
81N1430	CSP-1248-NP	3/16 (.188)	3/4	.182	.055	.192	.185	17.69	14.74	13.27	11.79
81N1431	CSP-1264-NP	3/16 (.188)	1	.182	.055	.192	.185	21.95	18.29	16.46	14.63

THREADED SELF-TAPPING BUSHINGS

Stock #	Type #	Style Thread Forming	Thread Cutting	Internal Thread "X" Unified	Outside Diameter "D"	Length "L"	Recom-Hole	Resale Pkg. Per. 100 1-9	10-49	50-99	100-up
81N1432	STBF-0440	X		4-40	3/16	.250	.169 (#18)	18.24	15.20	13.68	12.16
81N1433	STBC-0440		X	4-40	3/16	.250	.169 (#18)	18.92	15.77	14.19	12.61
81N1434	STBF-0632	X		6-32	7/32	.281	.199 (#8)	19.86	16.55	14.90	13.24
81N1435	STBC-0632		X	6-32	7/32	.281	.199 (#8)	20.54	17.11	15.40	13.69
81N1436	STBF-0832	X		8-32	1/4	.312	.228 (#1)	23.29	19.41	17.46	15.52
81N1437	STBC-0832		X	8-32	1/4	.312	.228 (#1)	23.99	19.99	17.99	15.99
81N1438	STBF-1032	X		10-32	9/32	.375	.250 (1/4)	26.52	22.10	19.89	17.68
81N1439	STBC-1032		X	10-32	9/32	.375	.250 (1/4)	27.04	22.53	20.28	18.03
81N1440	STBF-2520	X		1/4-20	11/32	.438	.312 (5/16)	35.96	29.97	26.97	23.98
81N1441	STBC-2520		X	1/4-20	11/32	.438	.312 (5/16)	36.63	30.53	27.47	24.42



THREADED SELF-TAPPING BUSHINGS

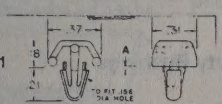
MATERIAL BRASS

A consistently high level of mechanical performance at a *lower* total installed cost. High pull-out resistance. Hole tolerances do not affect pull-out resistance—translating into a consistent, high quality level. Low radial stresses against the hole wall reduce component breakage and expensive rejects.

SNAP-IN MOUNTING BUTTONS

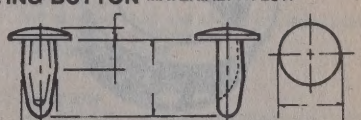
Faster, easier to install. No tools needed. No screws, nails or rivets. Made of nylon. "Barbed Arrow" locking head expands to fasten permanently.

NYLON 6/6, RMS-1



Stock No.	Type	Nom. Dim. A	Pkg. of 100 1-9	10-up
81N1632	SMB-501	1/32"	11.48	9.76
81N1633	SMB-503	3/32"	11.68	9.93
81N1634	SMB-505	5/32"	11.88	10.10
81N1635	SMB-507	7/32"	11.98	10.22
81N1636	SMB-509	9/32"	12.08	10.27
81N1637	SMB-511	11/32"	12.28	10.44
81N1638	SMB-513	13/32"	12.48	10.61
81N1639	SMB-515	15/32"	12.68	10.78
81N1640	SMB-517	17/32"	12.88	10.95
			13.12	11.15

MOUNTING BUTTON MATERIAL: NYLON



TO SNAP FIT IN A .125 ±.002 DIA. HOLE, MATERIAL THICKNESS RANGE—.080 TO .100.

Stock No.	Type	Pkg. of 100 1-9	10-up
81N2601	MB-1	9.17	6.55

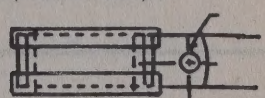
Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	Mounting Center "E"	Pkg. of 100 1-9	10-up
81N2621	SVC-2	1/8	3/8	#10	.561	35.07	29.23
81N2622	SVC-3	3/16	3/8	#10	.592	35.58	29.65
81N2623	SVC-4	1/4	3/8	#10	.623	36.09	30.08
81N2624	SVC-5	5/16	3/8	#10	.656	36.63	30.53
81N2625	SVC-6	3/8	3/8	#10	.686	37.35	31.13
81N2626	SVC-7	7/16	3/8	#10	.717	37.95	31.63
81N2627	SVC-8	1/2	3/8	#10	.766	38.49	32.08
81N2628	SVC-10	5/8	3/8	#10	.829	41.19	34.33
81N2629	SVC-12	3/4	1/2	1/4	.951	42.57	35.48
81N2630	SVC-16	1	1/2	1/4	1.076	45.21	37.68

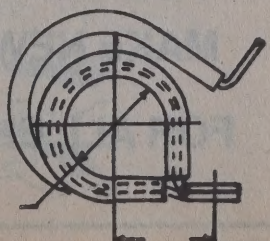
TYPE SSSC Combines STAINLESS STEEL (300 series) and Silicone rubber (−85°F to +450°F)

Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	Mounting Center "E"	Pkg. of 100 1-9	10-up
81N2611	SSSC-2	1/8	3/8	#10	.561	45.75	35.63
81N2612	SSSC-3	3/16	3/8	#10	.592	45.09	37.58
81N2613	SSSC-4	1/4	3/8	#10	.623	47.40	39.50
81N2614	SSSC-5	5/16	3/8	#10	.656	49.77	41.48
81N2615	SSSC-6	3/8	3/8	#10	.686	52.11	43.43
81N2616	SSSC-7	7/16	3/8	#10	.717	54.42	45.35
81N2617	SSSC-8	1/2	3/8	#10	.766	56.76	47.30
81N2618	SSSC-10	5/8	3/8	#10	.829	61.38	51.15
81N2619	SSSC-12	3/4	1/2	1/4	.951	66.09	55.08
81N2620	SSSC-16	1	1/2	1/4	1.076	82.65	66.88

CUSHIONED CABLE CLAMPS

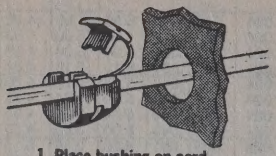
Cushioned Cable Clamps provide protection and routing support for tubes, pipes, wire bundles and cables. Material thickness for Diameters 1/8" through 7/16" is .032, and .050 for Diameters 1/2 through 1". TYPE SVC is made of pregalvanized low Carbon Steel (ASTM A 527), and cushioned with PVC (−40°F to 250°F). TYPE SSSC Combines Stainless Steel (300 series) and silicone rubber (−85°F to +450°F).



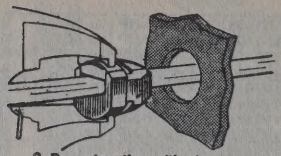


Wiring Accessories

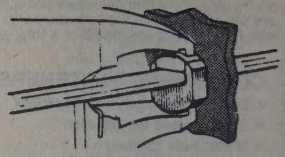
Strain Relief Bushings



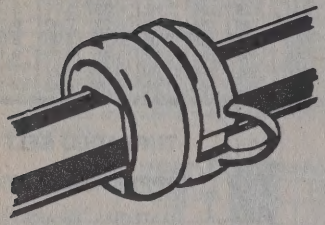
1. Place bushing on cord



2. Press together with pincers or pliers



3. Snap into hole

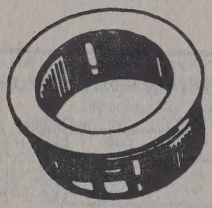


Add reliability, longevity and safety. They protect the life line of your electric/electronic products by absorbing forces of pull, push, flex and twist on power supply cables. Made of nylon, they securely anchor, insulate and protect cables at chassis entry point. Their flared exit eases the cable into a lazy bend preventing sharp bends and assures longer life for the cable and your product.

Stock No.	Part No.	Chassis Dim. Mtg. Hole Size	Chassis Dim. Max. Thick.	Pkg. of 100 1-20	21-100	101-500	501-1000
81F4798	1017	.375	.062	2.50	1.34	1.05	.90
81F4799	1077	.437	.062	2.50	1.73	1.35	1.16
81F4800	1114	.500	.095	2.66	2.13	1.67	1.44
81F4801	1147	.500	.100	2.66	2.13	1.67	1.44
81F4802	1167	.562	.125	3.76	3.02	2.36	2.03
81F4803	1184	.500	.465	2.66	2.13	1.67	1.44
81F4804	1210	.625	.125	4.39	3.53	2.76	2.37
81F4805	1207	.625	.125	4.39	3.53	2.76	2.37
81F4806	1237	.750	.125	6.42	5.16	4.03	3.64
81F4807	1364*	.500	.100	3.91	3.14	2.46	2.22

*Right angle

Snap Bushings

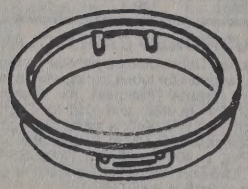


These nylon bushings convert raw-edged holes in metal to smooth, neat insulated ones. They snap and lock into holes with fingertip pressure. Will withstand a push back force of 35 pounds.

They'll meet your needs for insulating and mechanically protecting electrical and communication cables, tubing, hose, rope and utility lines. Available in 46 sizes for use in 1/4" to 2 1/2" diameter holes.

Stock No.	Part	Inside Dia.	Pkg. of 100 1-20	21-100	101-500	501-1000
81F4808	2030	1/8"	2.50	1.56	1.22	1.10
81F4809	2043	5/16"	2.50	1.66	1.30	1.18
81F4810	2053	3/8"	2.50	1.76	1.38	1.25
81F4811	2073	1/2"	2.50	2.02	1.58	1.43
81F4812	2126	11/16"	3.70	2.97	2.32	2.10

Heyco® Shorty Bushings



When internal clearance is limited these nylon insulating bushings will solve your problem.

1/8" clearance is all that is needed. They'll completely insulate and isolate electric or communication cables as well as low R.P.M. shafts and push-pull rods. Shorty Bushings will hold your costs down with their low price and fingertip installation.

Stock No.	Type	Mtg. Hole Dia.	I.D.	Max Panel Thick.	Pkgs. of 100 1-20	21-100	101-500	501-1000
81F4813	2810	.187"	.125"	1/16"	2.50	1.56	1.22	1.10
81F4814	2820	.500"	.375"	1/16"	2.50	1.56	1.22	1.10
81F4815	2850	.875"	.750"	1/16"	2.95	2.37	1.85	1.67

MAKE NEWARK YOUR DEPENDABLE SOURCE

FOR ALL ELECTRONIC PARTS AND EQUIPMENT

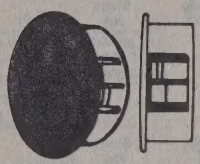
Wiring Accessories

OPEN/CLOSED BUSHINGS

This nylon bushing's split design allows side entry and encirclement of preassembled harnesses, capillary tubes or other units that have segments larger than the bushing's I.D. They also assemble into holes that already contain cable or tubing. Fingertip pressure installs the bushing which closes to form a complete circle and an insulation barrier against the raw edge of the metal hole.

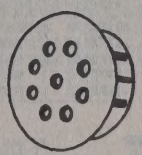
Stock No.	Type	Mtg. Hole Dia.	I.D.	Max. Panel Thick.	Pkg. of 100 1-20	21-100	101-500	501-1000
81F4816	2865	.375″	17/64″	1/8″	2.50	1.56	1.22	1.10
81F4817	2871	.500″	5/16″	1/8″	2.50	1.76	1.38	1.25
81F4818	2874	.875	43/64″	1/8″	3.70	2.97	2.32	2.10

HOLE PLUGS AND VENT PLUGS



Stock No.	Type	Mtg. Hole Dia.	Max. Thick.	Pkg. of 100 1-20	21-100	101-500	501-1000
81F4819	2617	.187″	.062	2.50	1.56	1.22	1.10
81F4820	2603	.375	.125	2.50	1.56	1.22	1.10
81F4821	2643	.500	.125	2.50	1.76	1.38	1.25
81F4822	2703	.875	.125	3.70	2.97	2.32	2.10

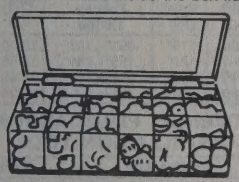
VENT PLUGS



Stock No.	Type	Mtg. Hole Dia.	Max. Thick.	Pkg. of 100 1-20	21-100	101-500	501-1000
81F4824	2697	.875	.125	3.70	2.97	2.32	2.10
81F4823	2707	1.00	.125	5.00	3.42	2.68	2.43

LabKits™

HEYCO LABKITS provide working assortments of HEYCO Nylon Strain Relief Bushings, Insulating Bushings, Hole Plugs, Cable Clamps, Terminal Bushings and Liquid Tight Connectors for prototype and laboratory use. They are an essential tool for product design departments and experimental research. Each clear plastic box has eighteen compartments and contains an assortment of the most popular sizes of parts. Pertinent information describing the contents of each compartment is mounted inside the box lid.



LabKit 1999
188 assorted Heyco strain reliefs, 18 popular sizes.
81F9338. Net: 38.46

LabKit 2997
255 assorted Heyco Hole Plugs, 18 popular sizes.
81F9340. Net: 115.38

LabKit 3399
285 assorted nylon cable clamps—18 different sizes, both standard and heavy duty for 1/8″ to 1 1/2″ diameter applications.
81F9342. Net: 38.46

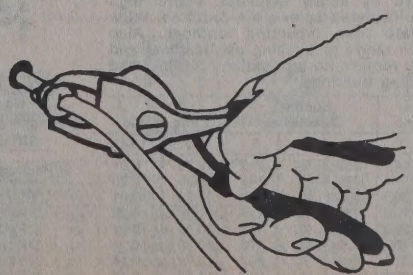
LabKit 2999
258 assorted Snap and Shorty insulating bushings in 18 popular sizes.
81F9339. Net: 38.46

LabKit 2998
129 assorted insulating bushings, plugs and strain relief bushings for 1/2″ KO (7/8″) and 3/4″ KO (1 3/32) holes.
81F9341. Net:138.46

LabKit 4199
252 assorted terminals bushings complete with both 3/16″ and 1/4″ size solder and double male terminals assembled.
81F9343. Net: 71.15

STRAIN RELIEF BUSHING ASSEMBLY PLIERS

PART #0022 (No. 29) HAND PLIERS.
Adjustable for all Heyco Strain Relief Bushings that assemble into holes up to 7/8″ diameter. **81F4825.** Net: 44.87



CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND PROMPT SERVICE

FLAT HEAD RACK AND CABINET SCREWS

Stock No.	Type	Screw Size	Length	Boxes of 100 1-9	Boxes of 100 10-Up
31F2176	SFH-0632-032-SN	6-32	1/2"	3.06	2.55
31F2177	SFH-0632-048-SN	6-32	3/4"	3.09	2.58
31F2066	SFH-0832-032-SN	8-32	1/2"	3.03	2.53
31F2178	SFH-0832-048-SN	8-32	3/4"	3.36	2.80
31F2313	SFH-1032-032-SN	10-32	1/2"	3.51	2.93

CUP FINISHING WASHERS NICKEL-PLATED

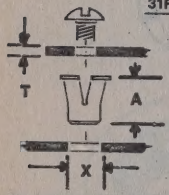
Stock No.	Type	Screw Size	O.D.	Boxes of 100 1-9
31F2142	WCF-06-028-SN	No. 6	7/16"	1.92
31F2143	WCF-08-032-SN	No. 8	1/2"	2.01
31F2144	WCF-10-036-SN	No. 10	9/16"	2.31

WASHER HEAD SHEET METAL SCREWS NICKEL PLATED

Stock No.	Type	Screw Size	Length	Boxes of 100 1-9	Boxes of 100 10-Up
32F613	SHW-A06-040-SN	No. 6	5/8"	4.02	3.35
32F614	SHW-A08-048-SN	No. 8	3/4"	4.41	3.68
32F615	SHW-A08-032-SN	No. 8	1/2"	4.26	3.55

SHEET METAL SCREWS SLOTTED HEX HEAD SELF-TAPPING NICKEL PLATED

Stock No.	Type	Screw Size	Length	Boxes of 100 1-9	Boxes of 100 10-Up
30F092	SSH-A04-024-SN	No. 4	3/8"	3.87	3.23
31F2124	SSH-A04-032-SN	No. 4	1/2"	4.11	3.43
31F2125	SSH-A06-016-SN	No. 6	1/4"	3.87	3.23
31F2126	SSH-A06-024-SN	No. 6	3/8"	3.90	3.25
31F2127	SSH-A06-032-SN	No. 6	1/2"	3.99	3.33
31F2128	SSH-A06-048-SN	No. 6	3/4"	4.20	3.50
31F2129	SSH-A08-024-SN	No. 8	3/8"	4.20	3.50
31F2130	SSH-A08-032-SN	No. 8	1/2"	4.32	3.60
31F2132	SSH-A10-032-SN	No. 10	1/2"	4.74	3.95
31F2133	SSH-A10-048-SN	No. 10	3/4"	4.86	4.05



SNAP NUTS

INSERT INTO HOLE

DRIVE SCREW

LOCKED IN PLACE

Consists of a knurled aluminum nut housed in a tapered wall nylon cage. Driving a screw into the nut during assembly draws nut up, expanding cage wall and locking it into hole.

FEATURES AND ADVANTAGES

- **Spring tension in nylon cage holds nut in hole prior to final assembly**
- **Fits all sheet thicknesses**
- **Only the nylon comes in contact with the sheet material**
- **Makes assembly rattle-proof and dampens vibration**

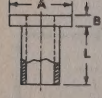
HOW TO USE THE SNAP NUTS

1. **Drill or stamp a hole to dimension "X"**
2. **Push fastener into hole with finger pressure**
3. **Select screw length**
4. **Locate component to be attached over Snap Nut and insert screw**
5. **Drive screw, up to torque limit. 25, 50, 50, 65 in. lbs. resp.**

Note: Dimension "T" = .030"

Stock No.	Type	Thread	Dimensions A	Dimensions X	Average Pull-out	Pkg. of 100 1-9	Pkg. of 100 10-49
37N1828	SN-0632	#6-32	3/8	.312±.004	250 lbs.	13.26	11.05
37N1829	SN-0832	#8-32	1/2	.406±.005	375 lbs.	14.58	12.15
37N1830	SN-1032	#10-32	1/2	.406±.005	375 lbs.	14.58	12.15
37N1831	SN-2520	1/4"-20	5/8	.500±.006	450 lbs.	17.58	14.65

SCREW INSULATOR/BUSHING

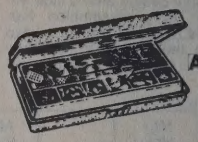


May be used as screw insulator where high strength non-insulated screws are required. Wide flanges isolate from mounting surfaces. Also satisfy a wide range of bushing applications and because they require no lubrication, can be used as light loading bearings.

Stock No.	Type	Screw Lengths Size	Screw Lengths L	Nominal Dimensions A	B	F	Pkg. of 100 1-9	Pkg. of 100 10-Up
28F1910	SIB-0403	#4	.046	.252	3/64	.140	10.36	8.81
				.235	3/64	.145	9.64	8.20
28F1912	SIB-0406	#4	.093	.235	3/64	.145	10.36	8.81
				.235	3/64	.145	9.64	8.20
28F1914	SIB-0416	#4	.250	.235	3/64	.145	10.36	8.81
28F1915	SIB-0616	#6	.250	.300	3/64	.170	10.36	8.81
28F1916	SIB-0824	#8	.375	.345	1/16	.205	10.76	9.15
28F1917	SIB-1024	#10	.375	.400	1/16	.260	11.08	9.42
28F1918	SIB-2524	1/4	.375	.535	1/16	.315	12.20	10.37

ACORN NUTS BRASS-NICKEL PLATED

Stock No.	Screw Size	Boxes of 100 1-9	Boxes of 100 10-Up
31F2102	6-32	15.47	12.09
31F2103	8-32	16.06	12.55



HARDWARE ASSORTMENTS

In reusable plastic boxes. Nickel plated steel.

ROUND HEAD SCREW ASSORTMENT. Contains: 4-40x1/2, 6-32x1/4, 6-32x3/4 & 8-32x1/2 R.H.M.S.; 4-40, 6-32, & 8-32 hex nuts; #6x1/2 hex head sheet metal screws. 105 pieces total.
32F051. Type HD-4013. NET..... 3.25

BINDER HEAD ROUND ASSORTMENT. Contains: 4-40x1/2, 6-32xz, 6-32x3/4 & 8-32x1/2 B.H.M.S.; 4-40, 6-32 & 8-32 hex nuts; & #6x1/2 hex head sheet metal screws. 115 pieces total.
32F052. Type HD-4018. NET..... 3.25

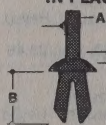
WOOD SCREW ASSORTMENT. Contains: #4x1/2, #6x3/4, #6x1, #8x3/4, #8x1 & #8x1 1/4 round head and #8x1 & #8x1 1/4 flat head wood screws. 90 pieces total.
32F054. Type HD-4019. NET..... 3.25

SLOTTED HEX HEAD SHEET METAL SCREWS. Contains: #4x3/8, #6x1/4, #6x1/2, #6x3/4, #8x1/4, #8x3/8, #8x1/2 & #8x5/8 slotted hex head sheet metal screws. 85 pieces total.
32F053. Type HD-4014. NET..... 3.25

HEX WASHER HEAD SHEET METAL SCREWS. Contains: #6x1/4, #6x3/8, #6x 1/2, #6x3/4, #8x1/4, #8x3/8, #8x1/2, & #8x5/8 hex washer head sheet metal screws. 80 pieces total.

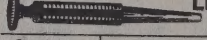
32F1367. Type HD-4011. NET..... 3.25

NYLON MOUNTING RIVETS



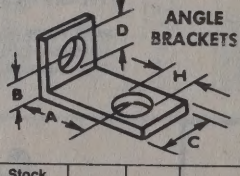
Type NMR plastic push rivet is the fast method of fastening. Insert rivet and push its post downward to spread the legs for secure assembly. For faster assembly, the NMR-T installation tool holds the rivet for insertion and injects the post with a tap of its plunger head.

Stock No.	Type No.	Post Dia A	Leg Lgth. B	Head Thick. C	Hole Dia.	Total Matl. Thknss. Range	Pkg. of 100 1-9	Pkg. of 100 10-49
28F1919	NMR-1	.120"	.450"	.080"	.218"	.093"-.156"	12.00	10.20
28F1920	NMR-2	.125"	.380"	.075"	.187"	.156"-.281"	12.56	10.68
28F1921	NMR-3	.125"	.535"	.075"	.187"	.312"-.440"	24.40	20.74
28F1922	NMR-4	.150"	.620"	.080"	.250"	.281"-.500"	36.24	30.81

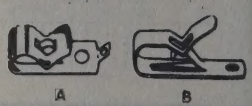


LIGHTWEIGHT POLYCARBONATE INSTALLATION TOOL

Stock No.	Type	For Use With	Each
28F1923	NMR-T1	NMR-1, NMR-2, NMR-3	32.67



ANGLE BRACKETS



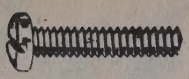
FAHNSTOCK SPRING CLIPS

Stock No.	Type	Fig.	Length	Width	Max. Wire	Mtg. Hole	Boxes of 100
32F631	641	A	1/2"	7/32"	16 GA	#4	11.58
32F633	103	B	1"	3/8"	10 GA	#8	10.28

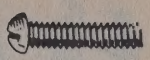
Packages of 100

Stk. No.	A	B	C	D	H	Per Pkg.
31F2152	15/64"	9/32"	9/32"	.144"	.125"	5.82
31F2153	7/32"	13/32"	9/32"	.160"	.160"x.250"	6.51
31F2154	15/32"	15/32"	3/8"	.144"	.144"	5.88
31F2156	19/64"	21/64"	1/2"	.165"	6-32 tap.	9.87
31F2157	3/16"	1/4"	5/16"	.144"	6-32 tap.	8.76
31F2158	1/4"	15/64"	5/16"	.135"	6-32 tap.	10.38

BINDER HEAD MACHINE SCREW



ROUND HEAD MACHINE SCREW



Screw Size	Lgth.	STEEL Nickel Plated Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	NYLON Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	STEEL Nickel Plated Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up
2-56	1/4"	30F695	3.30	2.75	30F1001	8.45	6.63	.....	.....	.....
2-56	1/2"	30F696	3.36	2.80	32F656	9.04	7.09	31F2189	3.21	2.68
2-56	3/4"	.....	.....	.....	.....	.....	.....	31F2190	3.69	3.08
4-40	1/4"	30F698	2.97	2.48	30F1005	9.62	7.54	31F2086	3.09	2.58
4-40	3/8"	.....	.....	.....	.....	.....	.....	30F082	3.15	2.63
4-40	1/2"	30F699	3.51	2.93	30F1007	7.87	6.18	31F2087	3.21	2.68
4-40	3/4"	30F700	3.84	3.20	32F657	8.45	6.63	31F2088	3.96	3.30
6-32	3/16"	31F2196	2.82	2.35	.....	.....	.....	.....	.....	.....
6-32	1/4"	31F2197	2.61	2.18	30F1009	8.45	6.63	31F2091	3.00	2.50
6-32	3/8"	31F2198	2.61	2.18	30F1011	8.45	6.63	30F083	3.06	2.55
6-32	1/2"	30F701	2.34	1.95	30F1013	9.04	7.09	31F2092	3.06	2.55
6-32	3/4"	30F703	2.31	1.93	43F479	9.04	7.09	31F2093	3.51	2.93
6-32	1"	.....	.....	.....	.....	.....	.....	31F2094	3.69	3.08
6-32	1 1/4"	.....	.....	.....	.....	.....	.....	31F2192	3.81	3.18
6-32	2"	.....	.....	.....	.....	.....	.....	31F2195	3.93	3.28
8-32	1/4"	30F704	2.64	2.20	.....	.....	.....	.....	.....	.....
8-32	3/8"	30F705	2.70	2.25	43F480	8.45	6.63	31F2096	3.18	2.65
8-32	1/2"	30F706	2.82	2.35	43F481	9.04	7.09	31F2097	3.24	2.70
8-32	3/4"	30F707	3.15	2.63	30F1023	9.62	7.54	31F2098	3.42	2.85
8-32	1"	.....	.....	.....	.....	.....	.....	31F2099	3.57	2.98
8-32	1 1/4"	.....	.....	.....	.....	.....	.....	31F2193	3.81	3.18
10-32	1/2"	30F708	3.24	2.70	32F659	9.04	7.09	31F2100	3.90	3.25
10-32	3/4"	30F709	3.54	2.95	.....	.....	.....	30F084	4.05	3.38
10-32	1"	.....	.....	.....	32F660	10.21	8.00	31F2101	4.20	3.50
10-32	1 1/2"	.....	.....	.....	.....	.....	.....	31F2194	4.47	3.73

HEX NUTS

Thread	Width	Thickness	STEEL—NICKEL PLATED Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	NYLON Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up
2-56	3/16	1/16	31F2207	2.64	2.20	30F1033	8.19	6.41
3-48	3/16	1/16	31F2208	2.64	2.20	.....	.....	.....
4-40	1/4	3/32	31F2106	2.19	1.83	30F1034	8.19	6.41
6-32	1/4	3/32	31F2107	2.49	2.08	.....	.....	.....
6-32	5/16	7/64	31F2209	1.73	1.56	30F1035	8.39	6.60
8-32	1/4	3/32	31F2108	1.48	1.33	.....	.....	.....
8-32	5/16	7/64	31F2210	2.31	1.93	30F1036	8.78	6.87
8-32	11/32	1/8	32F644	2.49	2.08	.....	.....	.....
10-32	3/8	1/8	31F2200	2.64	2.20	30F1037	8.78	6.87
1/4-20	7/16	3/16	31F2211	3.51	2.93	.....	.....	.....

INTERNAL LOCKWASHERS CADMIUM PLATED STEEL

EXTERNAL LOCK WASHER CADMIUM PLATED STEEL

SPLIT TYPE LOCKWASHER ZINC PLATED STEEL

Screw Size	Stock No.	O.D.	Pkg. of 100 1-9	Pkg. of 100 10-Up	Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up	Stock No.	Pkg. of 100 1-9	Pkg. of 100 10-Up
No. 2	31F2243	3/16	2.22	1.85	.....	.....	.....	.....	.....	.....
No. 4	31F2245	17/64	2.16	1.80	30F644	2.25	1.88	31F2160	.99	.83
No. 6	31F2246	9/32	2.01	1.68	30F646	1.89	1.63	31F2161	.99	.83
No. 8	31F2247	21/64	1.92	1.60	30F648	2.08	1.79	31F2162	1.14	.95
No. 10	31F2248	3/8	1.95	1.63	30F448	2.47	1.98	31F2163	1.26	1.05
1/4"	31F2249	15/32	2.22	1.85	30F650	2.80	2.20	.....	.....	.....
3/8"	31F2251	11/16	3.90	3.07	.....	.....	.....	.....	.....	.....

FLAT METAL WASHER NICKEL PLATED STEEL

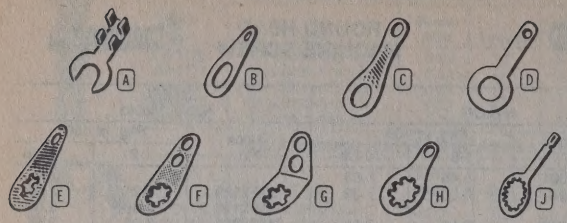
FLAT FIBRE WASHERS

FLAT NYLON WASHERS

FIBRE SHOULDER WASHERS

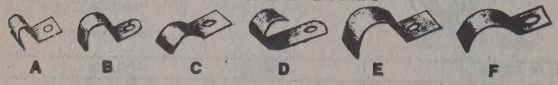
Screw Size	Stock No.	O.D.	Pkg. of 100 1-9	Pkg. of 100 10-Up	Stock No.	O.D.	Pkg. of 100 1-9	Pkg. of 100 10-Up	Stock No.	O.D.	Pkg. of 100 1-9	Pkg. of 100 10-Up	Stock No.	O.D.	Pkg. of 100 1-9	Pkg. of 100 10-Up
No. 4	31F2138	9/32	2.37	1.98	30F355	1/4	2.06	1.66	30F1040	9/32	2.34	2.02	30F357	9/32	3.38	2.68
No. 6	31F2139	3/8	2.40	2.00	31F2165	1/4	2.22	1.78	30F1041	5/16	3.12	2.45	31F2171	5/16	5.09	4.08
No. 8	31F2140	3/8	2.28	1.90	31F2166	3/8	2.41	1.94	30F1042	3/8	3.58	2.81	31F2172	3/8	5.23	4.19
No. 10	31F2141	7/16	2.16	1.80	31F2167	3/8	1.82	1.54	30F1043	7/16	3.71	2.90	31F2173	7/16	5.39	4.32
1/4	32F612	5/8	2.61	2.18	30F356	1/2	1.76	1.56	.....	.....	.....	.....	31F2174	1/2	5.56	4.46

TINNED BRASS SOLDERING LUGS



Stock No.	Type	Screw Size	Length	Fig.	Packages of 100 1-9	Packages of 100 10-49
32F1300	76-144	No. 6	5/8"	A	5.67	4.73
31F2076	11A-120	No. 4	17/32"	B	4.14	3.45
32F1303	11A-144	No. 6	17/32"	B	4.14	3.45
32F1304	11-169	No. 8	5/8"	B	4.86	4.05
32F1306	46-169	No. 8	7/8"	C	4.50	3.75
32F1301	328-144	No. 6	9/16"	D	5.19	4.33
32F1302	9-144	No. 6	1 1/16"	D	4.41	3.68
31F2074	141-169	No. 8	1 3/16"	D	4.71	3.93
31F2075	29-196	No. 10	51/64"	D	4.71	3.93
32F1308	502-144	No. 6	5/8"	E	4.65	3.88
32F1309	502-169	No. 8	5/8"	E	4.65	3.88
28F1850	503-144	No. 6	23/32"	F	4.80	4.00
28F1851	503-169	No. 8	23/32"	F	4.80	4.00
28F1852	505-144	No. 6	41/64"	G	4.80	4.00
28F1853	505-169	No. 8	41/64"	G	4.80	4.00
28F1854	681-264	1/4"	1 3/16"	H	5.61	4.68
28F1855	761-375	3/8"	1 5/32"	J	7.47	6.23

METAL CABLE CLAMPS



Stk. No.	Type	Dia. of Arc	1-24	25-49	50-99	100-249
29F627	A	1/8"				
29F628	B	5/16"				
29F629	C	5/16"				
29F630	D	5/16"	.31	.28	.24	.20
29F631	E	1/2"				
29F632	F	5/8"				

ADHESIVE MOUNTED LOCKING CABLE CLIP

Easily mounted, neat appearing fastening device. Exclusive patented lock/release design allows easy insertion of cable and positive holding action. Long aging adhesive backing on clip holds to almost any clean surface. Average pull-off strength of 12 pounds. High-impact stable PVC temp. range −20° to +180°F.

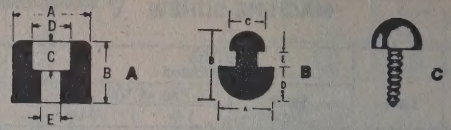
Stock No.	I.D.	Width	Length	Boxes of 100
32F682	3/4"	1.5"	1.5"	40.05
32F684	1/2"	1"	1.25"	21.52
32F685	3/8"	1"	1"	18.68
32F686	1/4"	1"	1"	16.03
32F687	3/16"	1"	3/4"	14.70
32F688	3/8"	1/2"	1"	13.13
32F689	1/4"	1/2"	1"	11.12
32F690	5/16"	1/2"	3/4"	10.12

SPADE BOLTS

Thickness of Spade—.045

Stock No.	Thread Size	A	B	C	D	E	F	Blade Thknss.	Boxes of 100 1-9	Boxes of 100 10-Up
31F2121	6-32	3/4"	5/8"	1 1/32"	6-32	#6	1/4"	.045	21.24	17.00
31F2122	6-32	7/8"	1 1/16"	1 3/32"	6-32	#6	1/4"	.045	24.50	19.60

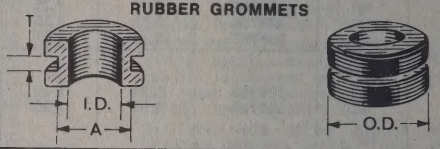
RUBBER BUMPERS



For mounting on all types of electronic equipment. Prevents vibration and protects surfaces under equipment.
†Furnished with steel washer inset. Pkg. of 100.

Stk. No.	Fig.	A	B	C	D	E	Per Pkg.
43F475	A	1/2"	1/4"	3/16"	15/64"	1/8"	5.60
43F476	A	3/4"	1/4"	1/8"	1/4"	1/8"	3.85
43F477	A	5/8"	3/8"	7/32"	1/4"	1/8"	2.90
43F478†	A	3/4"	3/8"	7/32"	1/4"	1/8"	3.60
32F1331	A	5/8"	1/2"	1/4"	5/16"	5/32"	11.48
31F2284	B	7/16"	1 7/64"	5/16"	3/32"	3/64"	6.50
31F2285	B	7/16"	23/64"	5/16"	3/16"	3/64"	6.80
31F2286	B	5/8"	9/16"	1 5/32"	5/16"	.040"	12.05
31F2008	C	5/8"	...	...	5/16"	...	5.73

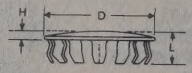
RUBBER GROMMETS



Stk. No.	Dimensions A	Dimensions T	Dimensions I.D.	Dimensions O.D.	100 Per Pkg.
31F2000	1/4"	1/16"	1/8"	1 1/32"	2.52
31F2001	5/16"	1/16"	3/16"	7/16"	3.18
32F1349	5/16"	1/16"	3/16"	1/2"	4.30
31F2002	3/8"	1/16"	1/4"	9/16"	3.40
31F2282	3/8"	5/32"	5/32"	5/8"	3.80
32F1353	3/8"	1/8"	1/4"	1/2"	5.43
32F1354	7/16"	1/16"	5/16"	3/8"	3.53
31F2004	1/2"	1/16"	3/8"	5/8"	6.07
31F2081	9/16"	1/16"	7/16"	3/4"	6.20
31F2003	5/8"	1/16"	1/2"	1 3/16"	5.82
31F2080	3/4"	1/16"	9/16"	1"	7.13
31F2083	7/8"	1/16"	5/8"	1 1/8"	14.08
31F2084	1"	5/64"	1 1/16"	1 5/16"	19.55

VINYL GROMMETS Pkg. of 100. (*) Pkg. of 50.

30F743	1/4"	1/16"	1/8"	1 1/32"	3.20
30F744	5/16"	1/16"	3/16"	7/16"	3.65
30F747	1/2"	1/16"	3/8"	5/8"	3.75
30F748*	5/8"	1/16"	1/2"	1 3/16"	3.25



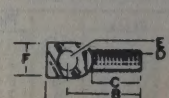
SNAP BUTTON HOLE PLUGS STEEL-NICKEL PLATED

Covers holes in metal, wood, etc. 7/8" size fits switch box knockout holes.

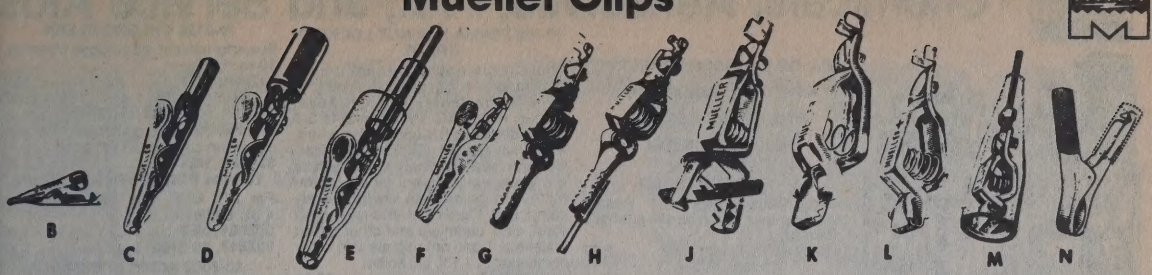
Stk. No.	Type	Hole Dia.	Panel Thickness	Dimensions D	Dimensions H	Dimensions L	Pkg. of 100 1-9	Pkg. of 100 10-49
31F085	HP-04	1/4"	1/32-1/16	13/32	1/16	15/64	9.66	8.05
32F646	HP-05	5/16"	3/64-5/64	7/16	1/16	1/4	11.85	9.88
31F2015	HP-6	3/8"	3/64-1/16	1/2	1/16	15/64	9.66	8.05
31F2016	HP-8	1/2"	1/32-1/16	21/32	5/64	9/32	10.74	8.95
31F2017	HP-10	5/8"	1/16-3/32	13/16	5/64	19/64	11.49	9.58
31F2018	HP-12	3/4"	1/16-3/32	59/64	5/64	19/64	12.81	10.68
32F648	HP-14	7/8"	1/16-3/32	1 1/16	1/16	19/64	14.49	12.08
31F086	HP-16	1"	3/32-1/8	1 9/64	3/32	5/16	16.20	13.50
32F649	HP-18	1 1/8"	1/32-1/8	1 5/16	3/32	11/32	24.24	20.20
32F650	HP-20	1 1/4"	1/16-3/32	1 7/16	3/32	11/32	19.20	16.00

Snap-in Screen-type Vent Plug. Fits in 1" dia. hole.
29F641 1-24.....**$1.02** 25-49.....**$.78** 50-99.....**$.67**

SPADE BOLTS FOR MOUNTING SCREWS STEEL-NICKEL PLATED



Mueller Clips



MICRO-GATOR CLIPS

Designed for printed circuits and tight spots. Tip is no bigger than the head of a pin yet will stand up straight on the smallest terminals. Uses No. 20 or smaller wire. Length, 1 3/32". Jaw spread, 1/32". Tips, 1/32" across Solder connectors. Shpg. wt., 1/4 lb. per 100.

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F496	34	B	Cad. Plated Steel	.15	.12
28F497	34C	B	Copper	.18	.14

2" ALLIGATOR CLIPS

28F464	60PR-2	C	†Adapted for phone Tip or test prod tip	.27	.21

INSULATED ALLIGATOR CLIPS

Insulating sleeves on barrel. Fig. D or skin tight flexible insulation Fig. E. Barrel takes wire or banana plug. Fig. D: 2 1/32"; Fig. E: 2 1/8".

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F503	60-HS	D	†Screw conn. Red	.29	.24
28F504	60-HS	D	†Screw conn. Black	.29	.24
28F505	60-CHS	D	*Screw conn. Red	.38	.30
28F506	60-CHS	D	*Screw conn. Black	.38	.30
Clip 60-S or 60-CS with skin-tight two piece flexible vinyl cover.					
28F533	63	E	†Screw conn. Black	.47	.38
28F534	63	E	†Screw conn. Red	.47	.38
28F535	63C	E	*Screw conn. Black	.52	.42
28F536	63C	E	*Screw conn. Red	.52	.42

2" INSULATION PIERCING ALLIGATOR CLIP

Like 60S with Beryllium copper needle in one jaw for electrical contact thru insulation. Ideal for test leads etc.

28F469	60NS	C	†Screw connection	.57	.46

SERIES 70 CLIPS

Designed similar to No. 30 mini-gator clip but with dimensions of popular No. 60 alligator. In either *solid copper or †cadmium plated steel. Meshing teeth and slim jaws. 1 1/16" long.

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F530	70	F	†Solder Conn.	.18	.14
28F531	70-S	F	†Screw Conn.	.21	.17
28F532	70-CS	F	†Screw Conn.	.31	.25

CROCODILE CLIPS

Nesting teeth give solid contact along entire length of jaw. Jaws open 5/16". Ship. wt., 1 1/2, 2 & 2 1/2 lbs. per 100. Sizes Fig. G—2 1/8". Fig. H—2 5/8", Fig. J—2 1/4"

Stock No.	Type	Fig.	Description	EACH 10-90	EACH 100-Up
28F507	85	G	†Screw connection	.25	.20
28F508	85-C	G	*Screw connection	.42	.34
28F509	85-T	H	†Tip Clip phone tip	.65	.52
28F510	50-C	J	*Needle clip, screw conn.	.61	.49
28F511	51-C	J	*Less needle, screw conn.	.45	.36

"PEE WEE" CLIPS—Fig. L

Type 45. Steel, cadmium plated. A very small clip for general test purposes. Jaw teeth mesh. Shipping weight: 1 lb. per 100.
Type 45C. Solid copper, phosphor bronze spring, brass screw connection. No heating from hysteresis effect. 1/4 lbs. per 100.

Stock No.	Type	Amp.	Size	Open	EACH 10-90	EACH 100-Up
28F513	45†	5	1 1/2"	5/16"	.21	.17
28F514	45-C	10	1 1/2"	1/4"	.34	.27

Sold in multiples of 10 only

3-SIDED MESH TEETH CLIPS—Fig. K

Stock No.	Type	Amp.	Size	Open	EACH 10-90	EACH 100-Up
28F523	27†	20	2 7/16"	5/8"	.40	.32
28F524	27-C*	40	2 7/16"	5/8"	.55	.44
28F515	48-B*	10	2"	1/2"	.32	.26
28F538	48-C*	20	2"	1/2"	.39	.32

HEAVY DUTY SOLID COPPER CLIPS

Type 25C—Fig. K 6 3/4 lbs. per 100. **Type 21C**—Fig. L is 18 lbs. per 100. **Type 11C**—Fig. L 41 lbs. per 100. **Type 33C**—Fig. L 82 lbs. per 100.

28F519	25-C*	75	3"	3/4"	.91	.73
28F520††	21-C*	100	4 1/2"	1 1/16"	2.33	1.86
28F521††	11-C*	200	6"	1 5/8"	4.17	3.34
28F522	33-C*	300	7 3/4"	2 1/4"	8.08	6.47

(††) Shipped half marked (†), and half plain.

BATTERY CLIPS—Fig. L

Heavy duty lead plated clips especially designed for battery connection, or for general testing.

28F516††	24-A**	25	2 7/8"	3/4"	.64	.52
28F517††	21-A**	50	4"	1 1/16"	1.17	.94
28F518††	11-A**	100	6"	1 5/8"	3.08	2.46

(††) Shipped half marked (†), and half plain.

PLIER—TYPE BATTERY CLIPS

Bright copper plated with vinyl insulating sleeves and heavy duty plated springs.
Type 41. For fast chargers, battery booster cables.
Type 46. For small overnight chargers, and battery power pickup.

Stk. No.	Type	Color	Fig.	Amp.	Size	Open	Net
28F468	46-A	Red	N	50	3"	1 1/8"	.86
28F467	46-A	Black	N	50	3"	1 1/8"	.86
28F465	41-A	Red	N	100	6"	1 9/16"	2.60
28F466	41-A	Black	N	100	6"	1 9/16"	2.60

FLEXIBLE INSULATORS FOR CLIPS LISTED ABOVE

Fig. M—Protect against electric shock and short circuit. All insulators made of vinyl.

Stock No.	Type	Color	For Clip	EACH 10-90	EACH 100-Up
28F476	47	Red	45, 45C	.13	.10
28F477	47	Black	45, 45C	.13	.10
28F478	49	Red	48B-C, 50-51C	.29	.23
28F479	49	Black	48B-C, 50-51C	.29	.23
28F482	26	Red	24A, 25, 25C	.48	.39
28F483	26	Black	24A, 25, 25C	.48	.39
28F484	23	Red	21A, 21C	.79	.63
28F485	23	Black	21A, 21C	.79	.63
28F498	36	Black	34, 34C	.09	.08
28F499	36	Red	34, 34C	.09	.08
28F474	72	Red	70, 70S, 70CS	.10	.08
28F475	72	Black	70, 70S, 70CS	.10	.08
28F486	29	Red	27, 27C	.36	.29
28F487	29	Black	27, 27C	.36	.29
28F488	13	Red	11C, 11A	1.54	1.23
28F489	13	Black	11C, 11A	1.54	1.23
28F490	87	Red	85, 85C, 85T	.13	.10
28F491	87	Black	85, 85C, 85T	.13	.10

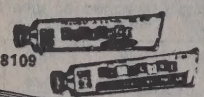
KEY TO CLIP CONSTRUCTION MATERIAL

*** solid copper, ** lead-plated steel, † cadmium-plated steel**

12

Chemicals, Adhesives, P.C., and Service Aids

10-165



10-8109

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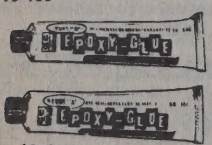
10-135



10-347

10-4002

10-9400

ALL GC AEROSOLS, EXCEPT AS NOTED, CONTAIN NO ECOLOGY-DAMAGING FLUOROCARBONS

10-120 PERMABOND

Cyanoacrylate adhesive. Resists acids. Non-toxic. 2 ton tensile strength. 3 gram tube.
32F341. NET 2.87

10-122; ⅓ oz. vial
32F344. NET 4.88

10-123; 1 oz. bottle
32F345. NET 10.92

10-121 PERMABOND™ HIGH VISCOSITY FORMULA

Higher viscosity means less wicking, no drip and slower speed of cure. Fills gaps .015-.017 inches. This grade has a higher skin adherance, which makes it ideal for surfaces which are irregular or rough, or have a high degree of porosity, such as wood or ceramic. Its slower cure time makes it ideal for applications where there is more than one operation, or minor adjustment is needed within 30 seconds. 1 fl. oz. bottle.
00Z404 NET. 10.92

10-127 PERMABOND™ QUICK FILLER/SETTER (Q.F.S.)

Clear, colorless accelerator and surface treatment agent for use with Permabond™ cyanoacrylate adhesives. It speeds the curing process and allows thicker layers of even the lower viscosity grade to be applied. It enables the adhesive to fill voids up to .020 inches.

This aerosol spray is especially useful in the electronics industry. Q.F.S. permits use of Permabond as a tacking compound for fast fixturing of electrical wires and components. 4 oz. aerosol.
00Z405 NET. 8.55

10-128 PERMABOND "910"

First setting high strength bonding for plastic rubber porcelin silicon chips "O" rings. 1 oz. bottle with dispenser nozzle.
00Z403 NET. 10.92

10-131 PERMABOND "910"

10 gram dispenser pen ideal for pocket or tool box.
00Z411 NET. 3.90

10-135 MIRACLE ADHESIVE KIT

Surface adtivator/cleaner with Cyanoacrylate adhesive.
32F337. NET 6.33

10-140 PERMA-LOK

Controls adhesion of metal parts. Resists loosening and vibrations. Fills gaps and provides metal to metal adhesion. Does not migrate to other components. Sets firmly in seconds without mixing or clamps. Removable with normal hand tools. 0.2 fl. oz. (6ml).
00Z318. NET 2.87

EPOXY PUTTY RIBBON

A two-part putty, which when kneaded together molds like clay to conform to surfaces to be bonded. Material bonds, fills and seals and when cured it can be sanded, drilled and filed. Will work on metal, wood, glass, ceramics, masonry and other materials. It is excellent for sealing plumbing pipes and filling holes and dents. It is most commonly used where large gap fill is required, or on hard-to-bond materials. Won't run, drip or sag like liquid epoxies. 10-155 pkg. of two 1.5 oz. strips.
00Z408 NET. 1.32
10-156 1/2 lb. strip in snap lid tub.
00Z409 NET. 5.82

10-165 CLEAN SWEEP

Blows away dust and grit. 15 oz. W/ adjustable 3-way valve.
00Z317. NET 3.37

10-180 PERMA-LOK NUT-LOCKING GRADE

Thixotropic anaerobic adhesive/sealant for medium strength locking of threaded fasteners, such as keys, splines, nuts, bolts and screws, to 3/4 inch in diameter. It is best for fasteners, which may require disassembly for service and repair. Ordinary tools, such as a wrench, are sufficient for disassembly, due to the medium strength of this compound. Cures fast and reliably on steel, zinc, cadmium and other plated fasteners. Does not migrate into other components. 1.7 fl. oz. bottle.
00Z407 NET 12.54

10-188 SUPER WOOD-LOK™

Super-strong industrial grade wood adhesive provides up to two tons of holding power. When cured, it is actually stronger than wood itself. Excellent for manufacturing all kinds of furniture and wood items. Although specifically formulated for wood, this adhesive is also excellent for bonding leather, Formica*, paper and other porous materials. 2.2 fl. oz. tube with dispensing nozzle.
00Z410 NET 1.77

10-190 PERMA-LOK™ SURFACE CONDITIONER

Prepares mating surfaces to be locked by Permaloc™ Anaerobic Adhesives/Sealants. Although in most cases a primer is not necessary for Perma-lok to form a strong bond, the use of Surface Conditioner will speed the cure while cleaning the part. It also activates passive surfaces, such as phenolic and melaminc plastics. Handy aerosol spray removes excess oil and dirt to prepare surfaces. Speeds cure of adhesives to 3-4 minutes for handling, full cure in 3-4 hours. 6 oz. aerosol.
00Z406 NET. 5.77

10-302 RADIO TV SERVICE CEMENT

For radio-TV speaker repair and general shop use. 2 oz.
00Z011. NET 1.42
10-304; 4 oz.
00Z315. NET 1.85

10-318 RADIO SERVICE SOLVENT

Fst acting solvent for speaker repair. 8 oz. bottle.
00Z019. NET 2.45

10-324 PLASTIC CEMENT

2 oz. bottle.
32F217. NET 1.42

10-347 EPOXY GLUE

Exceptionally hard and strong bond. 2 oz. tubes-res. & hard.
35F3378. NET 6.37

10-352 RUBBER-TO-METAL CEMENT

2 oz. bottle.
00Z033. NET 1.48

10-608 INSUL-VOLT

Positive protection against high voltage leaks, arcing, and corona shorts. Acid resistant. Meets MIL-V-1137A, grade BA. 1500V dielectric strength 4¾ fl. oz.
00Z207. NET 5.25

10-634 JIF ACTION

Electronic silicone contact cleaner. Long lasting. Will not harm plastics; non-flammable. 6 oz. aerosol.
00Z219. NET 2.28

10-702 SUPER FREEZE MIST

Locates bad components by cooling to −50°C (−58°F). 15 oz. aerosol.
00Z251. NET 3.50

10-901 TUNER BATH

Cleanses and degreases dust, grime, and foreign matter in tuners. Safe for plastics. Will not detune. 16 oz. aerosol.
00Z233. NET 3.98

10-984 PEN OILER

Non-gumming instrument oil. Meets MIL-L-6085A. ½ oz. vial.
00Z026. NET 1.58

10-2136 CHLORO-KLEEN

Powerful solvent, all purpose cleaning. 16 oz. bottle.
00Z034. NET 3.22
00Z316. 10-2139. 1 gal. 15.37

10-2602 STRIP-X

Enamel stripping compound for wire insulation coatings. 2 oz. bottle.
32F255. NET 1.75

10-3704 POLYSTYRENE Q-DOPE

For RF, UHF, and VHF protection. 4 oz. bottle.
00Z001. NET 1.65
00Z017. 10-3702; 2 oz. 1.27

10-4002 ACRYLIC CEMENT

Mending acrylic materials. 2 oz.
00Z016. NET 1.33

10-4104 POLYSTYRENE Q-DOPE THIN.

Thinning polystyrene dopes and cements. 4 oz. bottle.
00Z002. NET 1.57

10-4302 GC BOND CEMENT

All purpose adhesive. Bonds practically any surface. 2 oz. bottle.
00Z031. NET 1.85

10-4702 CORONA DOPE

Prevention corona and arcing shorts. 2 oz. bottle.
00Z025. NET 1.68

10-5012 RED-X

Red silicone compound prevents corona shorts in high voltage circuits. Fast drying. 12¾ fl. oz.
00Z209. NET 6.37
50-2; 2 oz. bottle.
00Z311. NET 1.67

10-5802 VINYLITE CEMENT

Clear flexible adhesive. 2 oz.
00Z021. NET 1.63

10-8101 SILICONE COMPOUND

Rubber and plastic lubricant. Dielectric and water protective coat. 1 oz. tube.
32F365. NET 5.12

10-8109 SILICONE HEAT SINK COMP.

Excellent heat transfer; 1 oz.
35F3389. NET 4.42

10-8666-16 SPRA KLEEN

Eliminates noise due to dust, dirt, and corrosion on contacts. Cleans and lubricates contacts. 16 oz. aerosol can.
00Z240. NET 3.17
00Z412. 10-8666-6. 6 oz. 1.97

10-8667 ZERO MIST

Locates intermittence by cooling components to −40°F. 16 oz. aerosol can.
00Z213. NET 3.50

10-8669 DRY-KLEEN

Excellent degreaser and general solvent for inks and gummy deposits on contacts, relays, and other electronic devices. Non-flammable. 16 oz. aerosol.
00Z232. NET 3.45

10-9002 INSULATING VARNISH

Alkyd base compound for insulation and protection. 2 oz.
00Z012. NET 1.98

10-9400 OIL ASSORTMENT

6 refined lubricants in dispenser vials for any oil need.
32F364. NET 7.45

22-201 SILVER PRINT

Draw or repair printed circuits. Pure silver. ½ troy oz. bottle.
00Z024. NET 29.95

22-204 SILICONE RESIN LACQUER

Provides tough protective coat on printed circuit. Insulates, protects, and prevents arcing. 6 oz. aerosol.
00Z032. NET 4.95

22-208 COPPER PRINT

Same as above except copper. 2 oz. bottle.
00Z023. NET 3.52

22-209 SILICONE SOLVENT FOR P.C. BOARDS

2 oz. bottle.
00Z030. NET 1.12

SPRAYTEC™ brand

FEATURING "FAN SPRAY" ADJUSTABLE VALVE
A long needed improvement in aerosol valve design, specially developed for improved spraying of thick fluids such as paint.
• Oval Spray Pattern Reduces Over-spray by as Much as ⅓
• Finer Spray Particles Yield Greater, More Uniform Coverage
• Requires Less Finger Pressure than Other Sprays
• Adjustable Nozzle Tip—Rotates 90° so that Spray Pattern Can Be Stroked Up and Down or Side to Side Without Tilting Can. Results in More Even Coverage Like Using a Wide Brush
SPRAY PAINT ULTRA FLAT BLACK
DEOXIDANT Contact Cleaner
CONTACT CLEANER & LUBRICANT
TAPE HEAD CLEANER
CAUTION

SERVICE AID CHEMICALS

ULTRA FLAT BLACK SPRAY PAINT

Type 32N282. Colors meet Federal Color Specification TTL-0048 (GSA-FSS), Federal Color Standard 595 number 37038 below. **Ozone safe.** 1 pint cans.

00Z226 1-11 .....5.16 12-Up 4.39

WRINKLE FINISH BLACK SPRAY

Type 8667/10-8667. Air drying wrinkle finish develops in two hours at 75° F and 50% humidity—or faster using oven or heat lamp for 15 minutes. For chassis, panels, racks, audio equipment. Adjustable fan spray valve. **Ozone safe.** 13 oz. can.

00Z231 1-11 .....4.40 12-Up 3.78

INSULATING SPRAYS

MIL APPROVED MOISTURE AND FUNGUS-PROOF VARNISH

Type 32N427. Meets Mil Spec. MIL-V-173B. Widely used as PC board coating. Fluorescent, the treated chassis may be checked with ultraviolet light. Produces clear, smooth surface which will not crack, splinter or remain tacky. **Ozone safe.** Diel Str. 750 V/mil. 15¾ oz. can.

00Z246. 1-11 ..... Each 6.80 12-23 .... Each 5.78
24-47 ..... Each 5.10 48-Up..... Each 4.25

CRYSTAL CLEAR INSULATING ACRYLIC

MIL-TT-L-0048. Type 32N291. For metal, electrical and electronic equipment. PC boards, chrome, brass, plastic, tools, batteries, paper, wood, leather. Weatherproof, protects against corrosion. **Ozone safe.** 1500 V/mil. dielectric strength. 15¾ oz. can.

00Z245. 1-11.....4.64 12-Up.....3.95

RED INSULATING VARNISH

Type 32N510. Tough, flexible film with high adhesion and arc resistance, non-tracking properties. For new or old stator windings, armatures, coils, commutator end rings, frames and end shields, bus bars, switchboard parts. Air dry or bake. **Ozone safe.** Diel str. dry 100 V./mil., wet 700 V/mil.; ASTM-D-149, 13 oz. can.

00Z228. 1-11.....5.40 12-Up.....4.59

CIRCUIT COOLER SPRAYS

Type 34N610. Locates thermal-intermittent component by spraying suspected component while equipment is operating. If cooling solves intermittent problem, replace component. Use on capacitors, transistors, resistors, oxidized joints. 15¾ oz. can.

00Z247 1-11 .....6.20 12-Up.....5.27

TAPE HEAD CLEANER SPRAY

Type 35N3386. Cleans tape heads on audio and video recording equipment. Removes oxide and dirt. Harmless to tape. 6" spray extension tube included. 16 oz. can.

00Z249 1-11 .....7.28 12-Up.....6.19

RELAY AND CONTACT CLEANER

Type 32N184. Leaves dry surface. Non-flammable. Dissolves gummy deposits. Degreases and flushes off electronic and electrical equipment. Extension tube included for hard-to-reach places.

00Z244. 15¾ oz. can
1-11 ....5.24 12-Up.....4.46

00Z239 Type 32N349 5¾ oz. can
1-11 ....3.72 12-Up.....3.17

TUNER CLEANER AND GUARD—SAFE FOR PLASTICS

Type 32N154. Provides non-oily film that lubricates contacts, guards against corrosion. Won't affect magnet wire coatings, paper insulation, most paints and varnishes. For tuners, switches, volume controls, rheostats, commutators, circuit breakers, motors, locks. With spray extension tube. 15¾ oz. can.

00Z241. 1-11.....7.20 12-Up.....6.12

CONTACT CLEANER AND LUBRICANT SPRAY

Type 32N521. Cleans, lubricates and protects from corrosion. For use where spray will not come in contact with plastics. For switches, volume controls, tuners, relays, commutators, slip rings, tube pins, dials, recorders, rheostats, circuit breakers, locks, tools. With extension tube.

00Z224. 16¼ oz. can 1-11 .5.28 12-Up ...4.49

00Z243. Type 32N343 5¼ oz. can
1-11 ....3.76 12-Up.....3.20

ELECTRIC MOTOR CLEANER

Type 32N508. Dissolves and flushes away dirt, grease. Non-flammable, non-toxic. Does not require water flush. Evaporates and leaves dry surface. Will not harm insulation or painted surface. May be harmful to plastics. With extension tube for pinpoint application. 15¾ oz. can.

00Z201. 1-11.....4.84 12-Up.....4.12

SILICONE LUBRICANT

Type 32N181. For metal, plastic, rubber, wood, leather, etc. Non-freezing, non-gumming. Ideal for anti-stick, anti-squeak action in hot and cold sealer bars, windows and doors, drawers, sliding tracks, cutting equipment, conveyors, dispensing equipment, food processing machinery. Diel. str. 350 V/mil. Temp. range −40° F to +500° F. 15¾ oz. can.

00Z242. 1-11.....6.28 12-Up.....5.34

QUICK PENETRATING OIL

Type 32N509. Frees up and lubricates rusted or frozen bolts, screws, nuts, chains, mufflers, bearings, hinges, linkages, and other industrial and electronic equipment. **Ozone safe.** 15¼ oz. can.

00Z200. 1-11.....5.36 12-Up.....4.56

PLASTIC AND GLASS CLEANER

Type 35N3383. Developed for heavy-duty cleaning of glass and plastic surfaces — windows, screens, safety shields. Spray on — wipe off. Will not leave dulling streaks or residue. **Ozone safe.**

00Z230. 13¾ oz. can
1-11.....2.92 12-Up.....2.49

ANTI-STATIC SPRAY

Type 32N1079. Neutralizes static electricity and inhibits accumulation of airborne dust on plastics, glass, tile, leather, foil, textiles, metal, photo transparencies, negatives, TV screens, and other surfaces. **Ozone safe.**

00Z222. 15¼ oz. can.
1-11 ....4.40 12-Up.....3.74

12

SPRAYTEC™ brand Sealants, Terminal Strips, Connectors

"FLUX-AWAY" is particularly well suited for removal of rosin flux from printed circuit board assemblies, electrical relays, and other electrical and electronic devices. As a solvent, it is strong enough to remove the flux, yet mild enough to avoid damaging the materials being cleaned. Wt. 20 oz. can.

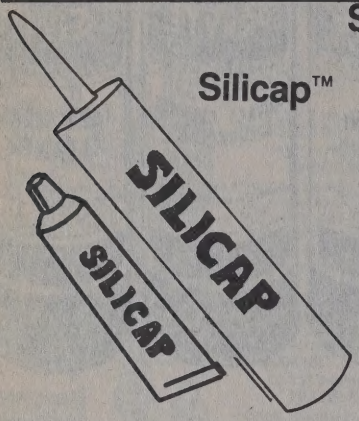
"FLUX-AWAY' is used to remove organic contaminants such as oils and greases from metal. It is employed to achieve a high level of cleanliness in the manufacture of precision parts.

PMDL has active water-displacing properties, creep and penetrating properties and fingerprint neutralizing characteristics. This positive combination is an important advantage for the protection of machined parts in process. PMDL will displace water and water/oil emulsions from a wet surface and will tend to neutralize corrosive tendencies of fingerprint contaminates. It should be noted that other soft film or oil TECTYL coatings may be applied directly over this product. Wt. 14.75 oz. can.

CRT CLEANER. Developed for heavy-duty cleaning of CRT's display terminals. Will not leave residue. Wt. 19 oz. can.

Stk. No.	Type	Use	1-11	12-23	24-47	48-Up
00Z400	43595	FLUX-AWAY	8.31	7.06	6.23	5.19
00Z401	36660	PMDL	5.85	4.97	4.382	3.66
00Z402	28319	CRT CLEANER	3.36	2.86	2.52	2.10

Silicone Rubber Sealant



Silicap™

SPC Silicone Sealants are all-purpose RTV compounds designed for protecting, repairing, sealing, insulating, and waterproofing electrical equipment and installations.

- Ready to use as supplied for on-site use; no mixing required
- Cures within 24 hours on exposure to moisture in the air; may be tooled before surface skin forms (about 10 minutes); full bond strength in about 7 days
- Maintenance-free performance eliminates costly callbacks

Good Dielectric Properties
- Electrically non-conductive
- Exceptional water repellency
- Good insulation properties

Long-Life Performance
- Will not sag, slump, lose shape, or run off surfaces
- Virtually unaffected by rain, sleet, snow, ultraviolet radiation, ozone, or temperature extremes
- Does not harden, become brittle, or crack with age
- Stays flexible from −65 to 500F

Seal: motors, generators, regulators, electrical connectors, control boxes, outlet boxes, joints, cover plates, and conductor entry holes to protect terminals and splices from moisture.

Repair: printed circuit boards, all types of electrical insulation materials, encapsulants.

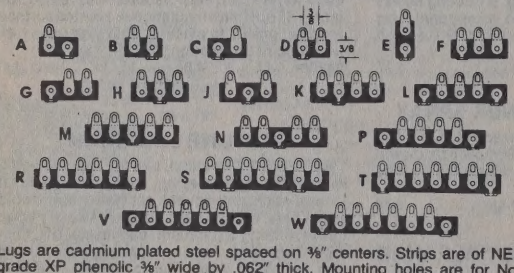
Protect: coaxial cable connectors, modules, relays, power supplies, magnetic amplifiers, circuit boards, delay lines, transformers, ferrite cores, coils, complete electrical assemblies.

3 oz Tube (with Dispensing Nozzle)

Stock No.	Type	1-11	12-Up
81N5355	SIR-103-WHT	3.52	3.17
81N5356	SIR-103-BLK	4.08	3.68
81N5357	SIR-103-CLR	3.52	3.17
11 oz Cartridge (with Reseal Cap)			
81N5353	SIR-111-WHT	7.64	6.88
81N5359	SIR-111-BLK	7.64	6.88
81N5360	SIR-111-CLR	7.64	6.88

VOLTREX® brand

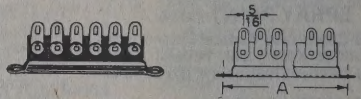
TIE DOWN TERMINAL STRIPS



Lugs are cadmium plated steel spaced on ⅜" centers. Strips are of NEMA grade XP phenolic ⅜" wide by .062" thick. Mounting holes are for No. 6 screws.

Stock No.	Type	Fig.	1-9	10-24	25-49	50-99
28N650	LTS-102-A	A	.31	.28	.24	.19
29N567	LTS-102-B	B	.31	.28	.24	.19
29N569	LTS-102-D	D	.31	.28	.24	.19
29N570	LTS-102-E	E	.36	.32	.28	.26
29N576	LTS-103-D	F	.36	.32	.28	.23
29N575	LTS-103-C	G	.35	.31	.27	.21
29N574	LTS-103-B	H	.36	.32	.28	.23
28N651	LTS-103-A	J	.35	.31	.27	.21
29N583	LTS-104-A	K	.33	.29	.26	.24
28N652	LTS-105-A	L	.36	.32	.28	.26
29N587	LTS-105-C	M	.37	.33	.29	.26
29N586	LTS-105-B	N	.36	.32	.28	.26
28N653	LTS-106-A	P	.42	.38	.32	.29
29N585	LTS-106-B	R	.42	.38	.33	.30
29N590	LTS-107-C	S	.43	.39	.34	.31
29N588	LTS-107-B	T	.43	.39	.34	.31
28N654	LTS-107-A	V	.43	.39	.33	.30
28N655	LTS-108-A	W	.45	.40	.34	.31
29N591	LTS-108-B	X	.46	.41	.35	.32
29N593	LTS-108-C	Y	.46	.41	.35	.32

TERMINAL STRIP ASSEMBLY

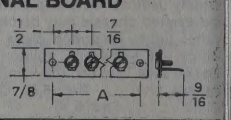


Steel, cadmium plated lug. Steel, cadmium plated base. XP Phenolic strip. Mounting holes for #6 screws.

Stock No.	Type	Term.	Mtg. Cntr. "A"	1-9	10-24	25-49	50-99
28N680	LTS-202	2	1"	.40	.35	.34	.31
28N681	LTS-203	3	1 5/16"	.45	.40	.35	.34
28N682	LTS-204	4	1 5/8"	.46	.41	.39	.34
28N683	LTS-205	5	1 15/16"	.46	.41	.39	.35
28N684	LTS-206	6	2 1/4"	.52	.46	.40	.37
28N685	LTS-207	7	2 9/16"	.52	.46	.40	.37
28N686	LTS-208	8	2 7/8"	.60	.53	.45	.39
28N687	LTS-209	9	3 1/16"	.66	.59	.46	.40
28N688	LTS-210	10	3 1/2"	.66	.59	.46	.40
28N689	LTS-211	11	3 13/16"	.71	.63	.49	.46
28N690	LTS-212	12	4 1/8"	.71	.63	.49	.46
28N691	LTS-213	13	4 7/16"	.75	.67	.59	.49

SCREW TYPE TERMINAL BOARD

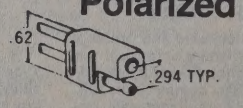
Brass, hot tinned lugs on 7/16" cntrs. Steel, cadmium plated, 6-32 × ⅜" ∅screw. XP Phenolic strip 5/8" W.

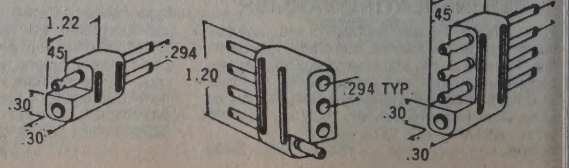


Stock No.	Type	Term.	Mtg. Cntr. "A"	1-9	10-24	25-49	50-99
29N552	STS-502	2	1 7/16"	.40	.35	.31	.28
29N553	STS-503	3	1 3/4"	.47	.42	.35	.31
29N554	STS-504	4	2 1/16"	.61	.55	.45	.38
29N555	STS-505	5	2 5/8"	.72	.64	.49	.42
29N556	STS-506	6	3 1/16"	.86	.77	.63	.53
29N557	STS-507	7	3 1/2"	1.05	.94	.73	.63
29N558	STS-508	8	3 15/16"	1.19	1.06	.89	.74
29N560	STS-510	10	4 13/16"	1.72	1.53	1.17	.98

Polarized Connectors

Full insulated to permit quick connect, disconnect. 18" color coded wire loop. Available with 2 or 4 contacts.





Stock No.	No. of Contacts	1-9	10-24	25-99	100-Up
16N1094	2	.89	.69	.59	.52
16N1095	4	1.86	1.44	1.22	1.06

12

General Electric Silicones

TWO PART SYSTEMS

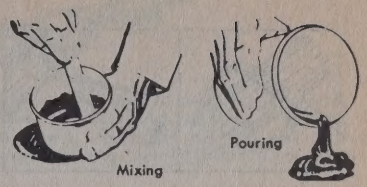
RTV-11. A low viscosity, white electrical potting compound which cures at room temperature to a resilient silicone rubber. Protects delicate electrical components from shock and vibration over temperatures from −75 to + 500°F.

RTV-21. A pink, pourable electric potting compound. Viscosity, poises: 250. Shelf life of six months.

RTV-60. Red, medium viscosity silicone rubber base that cures readily in deep sections to a high durometer, high strength rubber. Has excellent high temperature resistance—usable for short periods up to 600°F.

RTV-615. Low viscosity, clear electrical potting compound: Used to protect circuits when a transparent encapsulant is required. Can be easily cut open to repair failures and patches with fresh material.

RTV-630. A blue, medium viscosity compound which cures to an extremely tough, durable rubber. Best for prototype molds or other applications where extreme strength is required.



Stk. No. 1 lb. Container	Type	Color	Each	2-11	12-47
57F053	RTV-11	White	19.04	15.88	13.44
57F054	RTV-21	Pink	19.39	16.16	13.69
57F057	RTV-60	Red	19.04	15.88	13.44
57F049	RTV-615	Clear	23.46	20.56	18.15
57F061	RTV-630	Blue	21.93	18.79	16.36

ONE PART SYSTEMS

One package silicone rubber adhesive/sealants for an unlimited number of industrial applications. Packaged in collapsible aluminum tubes and standard caulking cartridges. Cures to tough resilient rubber at room temperature. Will withstand temperatures of 400 to 500°F and remain flexible at −75°F. Resists moisture, aging, ozone weathering. Will bond to most substrates without primer. Ideal for instant insulation, repairing low pressure leaks, gasketing, bonding, encapsulating, sealing, etc.

RTV 189. A grey, paste type, one-component, ready-to-use, silicone rubber adhesive sealant which is designed to meet the requirements of military specifications MIL-A-46146A. Type III while providing extra high adhesive and physical properties.

3 OZ. TUBE

Stk. No.	Type	Description	1-11	12-47	48-Up
57F039	RTV-102	White Paste	4.22	3.16	2.38
57F040	RTV-103	Black Paste			
57F043	RTV-106	Red Paste	5.93	4.98	4.47
57F041	RTV-108	Clear Paste	4.22	3.16	2.38
57F044	RTV-112	White Liquid	5.93	4.98	4.47
57F029	RTV-116	Red Liquid			
57F030	RTV-118	Clear Liquid			
57F200	RTV-157	Grey Hi-Strength Paste	8.62	5.89	5.02
57F201	RTV-159	Red Hi-Strength Paste			
57F065	RTV-162	White Paste	5.52	4.03	3.11

12 OZ. TUBES and *(10.3 oz. Caulking Cartridges)

Stk. No.	Type	Description	1-11	12-47	48-Up
57F031	RTV-102	White Paste	15.73	9.54	9.10
57F032	RTV-103	Black Paste			
57F035	RTV-106	Red Paste	19.21	12.21	
57F033	RTV-108	Clear Paste	15.73	9.54	9.10
57F036	RTV-112	White Liquid	19.21	12.21	11.71
57F037	RTV-116	Red Liquid			
57F038	RTV-118	Clear Liquid			
			1-11	12-23	24-Up
57F045	RTV-102*	White Paste	6.99	5.01	4.36
57F046	RTV-108*	Clear Paste			
57F202	RTV-103*	Black Paste			
57F066	RTV-162*	White Paste	15.40	13.86	11.55
81F018	RTV-189*	Grey Paste	9.10	8.19	6.83

12

SILICONE GREASES AND COMPOUNDS

Fit a wide variety of industrial and maintenance applications. Offer superior lubrication, dielectric properties, heat transfer, water repellancy, corrosion protection. Withstand temperatures from −100 to 450°F.

WIDE TEMPERATURE METAL LUBRICANT

Type G-300. Offers excellent metal-metal lubrication over −100 to + 450°F.

ALUMINUM STEEL LUBRICANT

Type G-322L. One of the finest available lubricants for aluminum steel. Prevents galling and corrosion. Also excellent for plastic-metal. Available in 8 oz. tubes.

GENERAL PURPOSE COMPOUND

Type G-623. An all-around dielectric grease which offers superior protection from shorts due to moisture. Ideal for cable connectors. Also excellent rubber lubricant for seals, gaskets, etc.

Stock No.	Type	Package Size	1-9
57F206	G-300	8 oz. Tube	12.04
57F208	G-322L	8 oz. Tube	6.64
57F212	G-623	8 oz. Tube	6.43

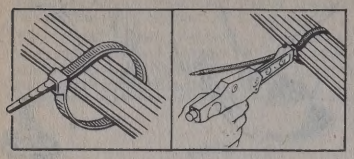
ATTENTION QUANTITY BUYERS

Newark Electronics also can supply these GE silicone products in package sizes up to five gallon pails. Write, phone or wire your nearest Newark Electronics office to discuss volume prices and delivery. Depend on Newark Electronics for the latest in silicone products at the lowest prices, fastest delivery. Stocking warehouses from coast-to-coast.

VOLTREX® brand Wiring Accessories

WIRE TIES

The Fast, Neat, And Professional System for Permanent Bundling Of Wire & Cable



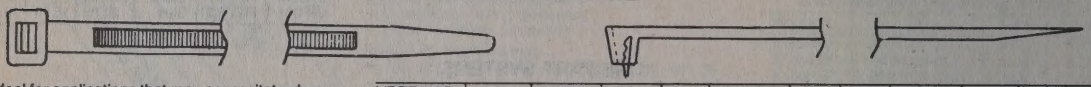
Flexible ties—precision molded of high strength, self-extinguishing fungus inert virgin Nylon—wrap easily around wire/cable bundles. The tapered tail is inserted by hand into the ties self-locking head. Uniform gripping serrations allow convenient "pull-through" down to the bundle where the straps lock to eliminate slippage. The last step is final tensioning and excess trimming—automatically accomplished by the Tens-N-Cut tensioning hand gun, or, if the assembler chooses, a pair of pliers. Ties are available in either regular or screw-mount design. Ties are serviceable at temperatures to 275°F., maximum life and strength is attained at temperatures below 185°F.

- **Serrated ties with self-locking head**
- **Miniature ties have bent tip for easy insertion**
- **Manufactured from the finest virgin Nylon**
- **One piece construction**
- **Tens-N-Cut Hand Gun assures a better wire/cable tying system**

REGULAR

Type	Maximum Bundle Diameter	Tensile Strength	Overall Length	Screw Size	Stock No.	Package of 100 1-9	Package of 100 10-Up	Stock No.	Package of 1000 1-24	Package of 1000 25-49	Package of 1000 50-99
VRT-05M	5/8"	18#	3"	—	**81N1693**	2.67	2.49	**81N1692**	30.33	25.42	22.30
VRT-06M	3/4"	18#	4 3/16"	—	**78N506**	4.80	3.84	**78N536**	15.60	14.69	13.86
VRT-11M	1 3/8"	18#	5 3/4"	—	**78N517**	4.99	3.99	**78N530**	19.09	17.95	16.96
VRT-101	1 1/4"	30#	5 3/4"	—	**78N507**	5.71	4.57	**78N537**	20.01	18.86	17.80
VRT-161	2"	30#	7 1/2"	—	**78N518**	6.87	5.48	**78N531**	24.66	23.13	21.87
VRT-16S	2"	50#	8"	—	**78N508**	7.23	5.79	**78N538**	26.27	24.67	23.28
VRT-22S	2 3/4"	50#	10 3/4"	—	**78N509**	14.22	11.38	**78N539**	69.61	66.13	63.18
VRT-36S	4 1/2"	50#	15 1/2"	—	**78N510**	16.70	13.38	**78N540**	77.17	73.31	69.43
VRT-34H	4 1/4"	120#	15"	—	**78N511****	11.88	9.51	**78N541***	71.35	68.17	64.95

RELEASABLE TIE



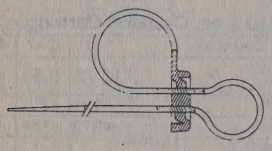
Ideal for applications that may necessitate change of repair. Tie is easily removed by simply depressing protruding tab, located in head. Min. tensile strength 50 lbs.

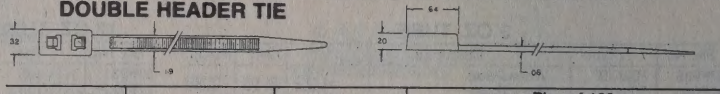
VRTR-12S	1 1/2"	50#	6"	—	**81N1697**	8.10	7.56	**81N1696**	92.58	77.61	68.28
VRTR-16S	2"	50#	8"	—	**81N1699**	8.76	8.18	**81N1698**	99.96	83.79	73.50

MOUNTABLE—(*) Pkg. of 500 (**) Pkg. of 50

VMT-12S	1 1/2"	50#	6 3/4"	#10	**78N512**	10.96	8.76	**78N542**	64.58	57.34	57.66
VMT-32H	4"	120#	15 5/8"	1/4"	**78N526****	18.29	14.60	**78N503***	101.06	93.61	84.59

DOUBLE HEADER TIE





Stk. No.	Type	Overall Length	Pkg. of 100 1-4	Pkg. of 100 5-9	Pkg. of 100 10-Up
81N2608	DVRT-22S	11 1/16"	14.20	12.07	10.65
81N2609	DVRT-36S	15 5/8"	17.08	14.52	12.81

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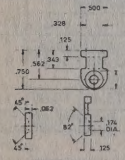
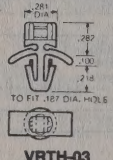
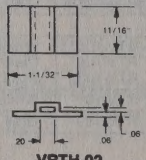


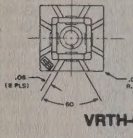
VRTH-01



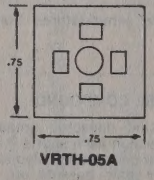
VRTH-03



VRTH-02

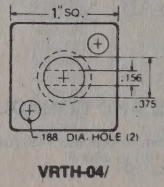


VRTH-05

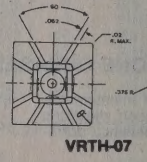


VRTH-05A

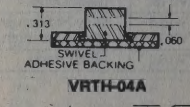
WIRE TIE HOLDERS



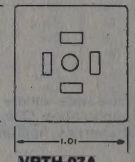
VRTH-04/



VRTH-07



VRTH-04A



VRTH-07A

- **Converts Regular Ties into Mountables**
- **High Strength Nylon and Polycarbonates**

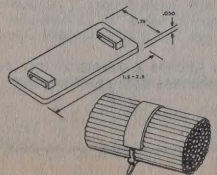
Type VRTH-01 provides a counter sink .174" dia. hole for mounting holder with #8 screw. Type VRTH-02 adhesive backed holder for quick press mount to any clean surface. Type VRTH-03 has barbed arrow tip to lock into .187" dia. hole. Type VRTH-04 screw mounting holder with swivel center allows for rerouting of bundles, .188" dia. mounting hole. Type VRTH-04A swivel center holder with adhesive backing. VRTH-05 center mounting hole for #6 flat head screw. VRTH-05A same as VRTH-05 except adhesive backing. VRTH-07 center mounting hole for #8 flat head screw. VRTH-07A same as VRTH-07 except adhesive backing.

Adhesive: 0.25 lbs. max. 200°F. max.

Stk. No.	Type	Description	Pkg. of 100 1-9	Pkg. of 100 10-45
23N3669	VRTH-01	Screw Mount Holder	6.35	4.87
23N3670	VRTH-02	Adhesive Backed	16.12	13.71
37N2108	VRTH-03	Barbed Arrow Tip	13.72	11.67
37N2109	VRTH-04	Swivel Center-Screw	22.64	19.25
37N2110	VRTH-04A	Swivel Center-Adhesive	38.56	32.78

Stk. No.	Type	Description	1-9	10-49	50-99	100-Up
81N2595	VRTH-05	Center Screw Mtg.	11.52	9.80	7.20	5.76
81N2596	VRTH-05A	Adhesive Backed	15.92	13.54	9.95	7.96
81N2597	VRTH-07	Center Screw Mtg.	15.52	13.20	9.70	7.76
81N2598	VRTH-07A	Adhesive Backed	19.92	16.94	12.45	9.96

WIRE TIE MARKING ACCESSORIES

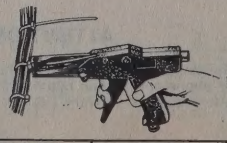


Marker tags used to permanently identify wires, bundles, leads or terminals. Special matted surface accepts ink, pencil or marker pen.

Stk. No.	Type	Per Pkg. 1-9	Per Pkg. 10-49
81N1694	VRTM-1*	41.33	38.57
81N1695	VRTM- 2†	4.14	3.86

(*) Pkg. of 500 (†) Pkg. of 50.

TENS-N-CUT WIRE TIGHTENER AND CLIPPER



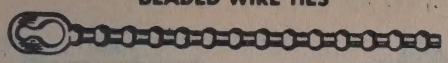
- **Automatic Tightening**
- **Flush Trimming**
- **Adjustable Tension Setting**
- **Deposits Wastes When Trigger Released**
- **Rugged Construction Yet Lightweight To Prevent User Fatigue.**

Stock No.	Type	Description	Each
78N547	8408-001	Tens-N-Cut Hand Gun	84.69

Wiring Accessories

VOLTREX® brand

BEADED WIRE TIES



- Strong
- Durable
- Easy to apply and fasten
- Extra conductors can be added at any time
- Available in a range of lengths to suit the job
- Low cost

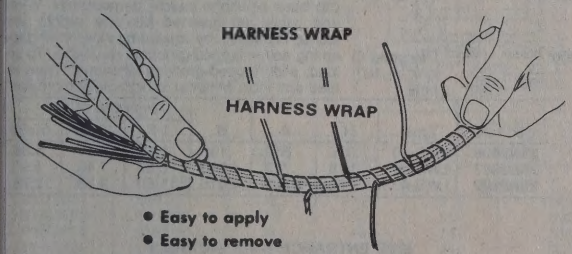
Wrap around the wire bundle, thread through the specially designed loop, pull it tight and lock in place. Stays put, holds harness together until released. To add more conductors to the bundle, open the tie, add the wires and refasten it. The ties are strong and durable with a high dielectric that makes them perfect for electrical harnesses. Polyethylene Type BTP, high dielectric ties come in various colors; Type BTN nylon ties are available in white only.

Stk. No.	Type	Length	Color	Package of 100		
				1-9	10-49	50-99
32N692	BTP-4-RED	4"	Red	5.32	4.53	3.33
32N1250	BTP-4-YEL	4"	Yellow	5.32	4.53	3.33
32N1251	BTP-4-BLU	4"	Blue	5.32	4.53	3.33
32N1267	BTN-4-WHT	4"	White	8.88	7.55	5.55
23N3683	BTP-6-RED	6"	Red	8.52	7.25	5.33
23N3684	BTP-6-YEL	6"	Yellow	8.52	7.25	5.33
23N3685	BTP-6-BLU	6"	Blue	8.52	7.25	5.33
23N3686	BTN-6-WHT	6"	White	11.60	9.86	7.25
23N3687	BTP-8-RED	8"	Red	10.00	8.50	6.25
23N3688	BTP-8-YEL	8"	Yellow	10.00	8.50	6.25
23N3689	BTP-8-BLU	8"	Blue	10.00	8.50	6.25
23N3690	BTN-8-WHT	8"	White	15.08	12.82	9.43
23N3691	BTP-10-RED	10"	Red	12.24	10.41	7.65
23N3692	BTP-10-YEL	10"	Yellow	12.24	10.41	7.65
23N3693	BTP-10-BLU	10"	Blue	12.24	10.41	7.65
23N3694	BTN-10-WHT	10"	White	18.32	15.58	11.45

TWIST TYPE WIRE TIES

You are bound to save money by using these twist type Nylon ties for wire bundles, or other applications. The time saved is substantial, they're easy to use, and reusable! Just twist the ends together. Another flick of the fingers release the tie instantly. Color: White.

Stock No.	Type	Bundle Dia.	Approx. Height	Package of 100		
				10-49	50-99	100-249
78N594	TWT-3	.2-.3"	.900"	5.44	4.63	3.40
78N595	TWT-4	.3-.4"	1.032"	5.80	4.93	3.63
78N596	TWT-5	.4-.5"	1.200"	6.16	5.24	3.85
78N597	TWT-8	.7-.8"	1.550"	7.24	6.16	4.53

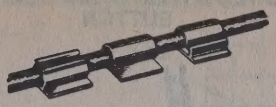


- Easy to apply
- Easy to remove
- Strong and tough
- Reusable
- Flexible
- Versatile

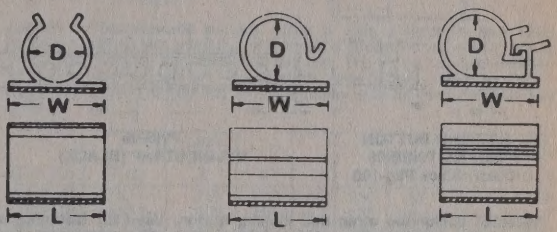
Provides protection for groups of conductors. For temporary or permanent installations. Useful for harnesses which carry wiring around sharp corners. Leads can be brought out at any point to make a "tailor-made", tight-fitting harness. Type HWN is nylon. Type HWP is polyethylene.

Stock No.	Type	Size	Bundle Range	Coil of 100 Ft.		
				1-9	10-49	50-99
23N3648	HWN-02	1/8"	1/16–1/2"	14.87	14.42	14.12
23N3649	HWN-03	3/16"	1/8–1"	31.77	29.66	26.48
23N3650	HWN-04	1/4"	3/16–1 1/2"	26.83	26.02	25.50
23N3651	HWN-06	3/8"	5/16–2"	84.24	81.72	80.08
23N3652	HWN-08	1/2"	3/4–4"	89.64	86.96	80.92
23N3653	HWP-02	1/8"	1/16–1/2"	14.88	13.89	12.40
23N3654	HWP-03	3/16"	1/8–1"	17.76	16.58	14.80
23N3655	HWP-04	1/4"	3/16–1 1/2"	19.14	17.87	15.95
23N3656	HWP-06	3/8"	5/16–2"	24.75	23.10	20.63
23N3657	HWP-08	1/2"	3/4–4"	23.16	22.48	22.00

ADHESIVE CABLE HOLDERS



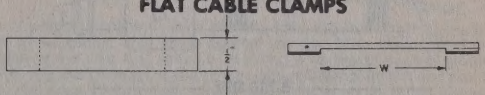
Stays in place permanently when adhesive mtd. For anchoring cable, tubing, pipe or rod up to 1/2" in diameter. Made from strong resilient CPVC plastic, elastic enough to receive components, firm enough to hold them securely. No holes to bore or screws to fasten. Adhesive backing permits fast mounting to any smooth surface.



U-CLIP(AUC) C-CLIP(ACC) L-CLIP (locking)(ALC)

Stk. No.	Type	Cable Dia. "D"	Clamp Width "W"	Clamp Length "L"	Desc.	Pkg. of 100	
						1-9	10-49
16N1049	AUC-1	1/8	3/4	3/4	U-Clamp	24.64	20.95
16N1050	AUC-2	1/4	3/4	3/4	U-Clamp	27.88	23.70
16N1051	AUC-3	3/8	3/4	3/4	U-Clamp	31.08	26.42
16N1052	AUC-4	1/2	1	1	U-Clamp	34.40	29.24
16N1053	AUC-6	3/4	1	1	U-Clamp	48.68	41.38
16N1054	ACC-1	1/8	3/4	3/4	C-Clamp	24.72	21.02
16N1055	ACC-2	1/4	3/4	1/4	C-Clamp	27.84	23.67
16N1056	ACC-3	3/8	3/4	3/4	C-Clamp	31.04	26.39
16N1057	ACC-4	1/2	1	1	C-Clamp	34.44	29.28
16N1058	ACC-6	3/4	1	1	C-Clamp	45.00	38.25
32N689	ALC-2	1/4	3/4	3/4	Locking	29.48	25.06
32N684	ALC-4	1/2	1	1	Locking	36.88	31.35
32N682	ALC-6	3/4	1	1	Locking	52.72	44.82

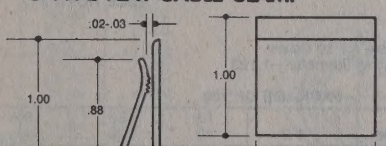
FLAT CABLE CLAMPS

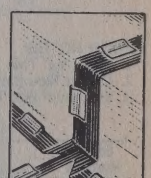


Designed expressly for holding flat conductors: flat flexible cable, ribbon cable, etc. Place cable along desired course—strait, across corners, at right angles, stacked, whatever your application requires. Clamp's self adhesive backing holds harness permanently in position. Made of high dielectric, self-extinguishing CPVC.

Stock No.	Type	Cable Width "W"	Packages of 100			
			1-9	10-49	50-99	100-249
16N1062	FCC-1	1/2	28.76	24.45	17.98	14.38
16N1063	FCC-2	1	31.44	26.73	19.65	15.72
16N1064	FCC-4	2	32.72	27.82	20.45	16.36
16N1065	FCC-6	3	34.48	29.31	21.55	17.24

C-TYPE FLAT CABLE CLAMP



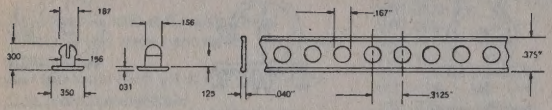


Voltrex Type CFCC 1" self-adhesive Noryl C-type clamps, designed for routing of 1 to 6 layers 26-30 AWG flat or woven cable. 1/2" or 1" widths have serrated gripper-minimizing slippage. 1/4" profile good for limited access applications. The self-adhesive eliminates need for mounting holes or tools.

Stk. No.	Type	Clamp Width	Packages of 100		
			1-9	10-49	50-99
23N3681	CFCC-1	1/2"	22.20	18.87	13.88
23N3682	CFCC-2	1"	28.52	24.25	17.83

12

PERFORATED NYLON STRAP AND LOCKING BUTTON



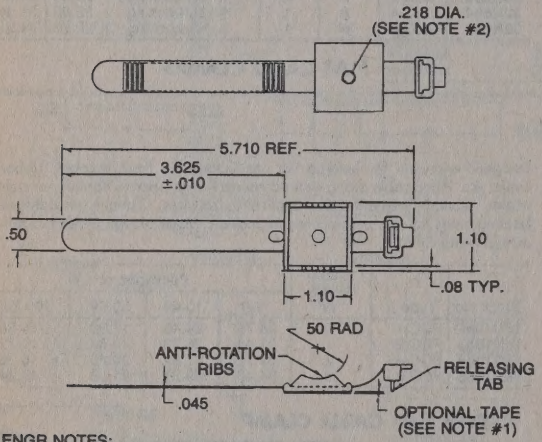
LOCKING BUTTON
Part No. PNSB-05
Color: Black Pkg-100

PNS-05
NYLON STRAP (BLACK)

Versatile perforated strap and locking button. Used for fastening or supporting wire bundles, cables, tubing, pipe, wire harnesses. Also used to suspend a group of conductors or fasten them in position in assembly. Made from nylon, withstands ambient temperatures from −60° to +275°F. Acid and alkali resistant. Not affected by petroleum products. Supplied in 50 and 100 foot rolls.

Stock No.	Type	Description	(Per Spool or Pkg.) 1-9	10-49	50-99	100-Up
81N1690	PNS-05-BLK-C	100 ft. strap	40.24	34.20	25.15	20.12
81N1689	PNS-05-BLK-L	50 ft. strap	20.12	17.10	12.58	10.06
81N1691	PNSB-05-BLK	Black button Pkg. 100	7.64	6.49	4.78	3.82

UNIVERSAL MOUNTING STRAP



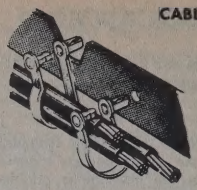
ENGR NOTES:
1. Tape, 1/32" Thk.
2. Center Mounting Hole for 10 Screw
3. Maximum Rod Holding Diameter—1.125

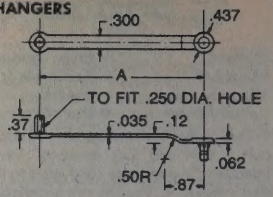
PACKAGE OF 100

Stock Number	Type	1-9	10-49	50-99	100-Up
81N2593	UMS-9 Without Tape	39.04	33.18	24.40	19.52
81N2594	UMS-9A With Tape	54.40	46.24	34.95	27.20

See pages 534–536 for Engineer's Kits and Lab Assortments.

CABLE HANGERS

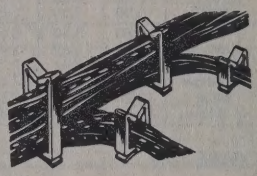


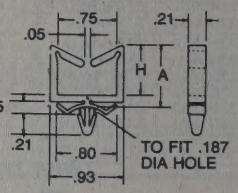


No tools required. Simply press cable hanger into a .250" dia. hole. Then wrap strap around load—the offset design allows more room to grab. Lock by inserting post into part—it fits easily and holds securely. Material is polypropylene.

Stock No.	Type	"A"	Holding Dia. Capacity	Pkg. of 100 1-9	10-49	50-99
23N3642	CH-03	1.75"	3/8"	8.40	7.14	5.25
23N3643	CH-05	2.75"	5/8"	9.08	7.72	5.68
23N3644	CH-08	3.75"	1"	12.12	10.31	7.58

SNAP-IN WIRE SADDLES

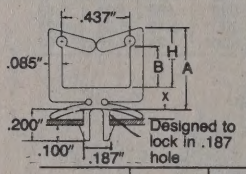




Nylon saddles to harness bundles of wire up to ¾" wide. Locking tip snaps into .187" dia. hole, expands to lock permanently in any position. Allows for quick top loading of cable. No special tools required.

Stk. No.	Type	Wire Bundle Ht. "H"	"A"	Package of 100 1-9	10-49	50-99
16N1060	WS-20	.50"	.77"	11.84	10.07	7.40
16N1061	WS-30	.85"	1.12"	12.92	10.99	8.08

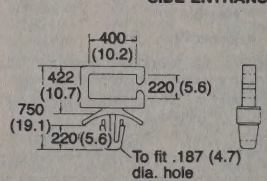
LOCKING WIRE SADDLES



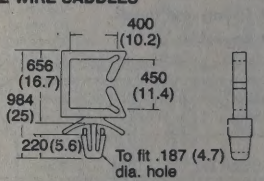
Voltrex Locking Wire Saddles channel a group of wires over a course and lock them firmly in position, inverted or at an angle. Pointed tips compress to snap into a .187" dia. hole. Arched clip base positions saddle permanently. Wires and cable are inserted into the saddle and locked in position by squeezing sides to engage spring action lapped-grooves. Reusable. To unload, slide lapped-grooves sideways. Then reload and lock. Material is high dielectric nylon.

Stk. No.	Type	H	A	B	Package of 100 1-9	10-49	50-99
23N3696	LWS-10	.375	.510	.135	8.60	7.31	5.38
23N3697	LWS-20	.578	.715	.340	8.80	7.48	5.50
23N3699	LWS-40	1.250	1.390	1.015	11.60	9.86	7.25

SIDE ENTRANCE WIRE SADDLES



SEWS-20



SEWS-30

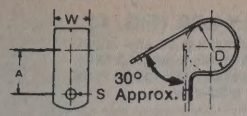
SEWS saddles harness bundles of wire up to .40" wide. Locking tips into .187" diameter hole, expands to lock permanently. Can be used on limited access applications where side loading is required to secure bundles around corners and on places where breakouts are made from the main bundle. No tools required. High Dielectric Nylon.

Stk. No.	Type	Package of 100 1-9	10-49	50-99
37N1827	SEWS-30	7.52	6.40	4.70

Wiring Accessories

VOLTREX® brand

CABLE CLAMPS



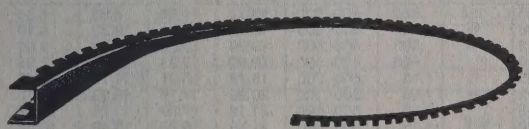
Anchor tubing, cable, wire bundles, rods, etc. securely and quickly with a single nail or screw. **Type ECC** ethyl cellulose clamps combine light weight and chemical resistance with excellent shock resisting properties in a temperature range from –40°F to 185°F.

Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	"A"	Pkg. of 100 1-9	Pkg. of 100 10-49
32N1269	ECC-2	1/8	1/2	#10	21/64	3.12	2.66
32N1270	ECC-3	3/16	1/2	#10	25/64	3.12	2.66
32N1271	ECC-4	1/4	1/2	#10	27/64	3.24	2.76
32N1272	ECC-5	5/16	1/2	#10	29/64	3.36	2.86
32N1273	ECC-6	3/8	1/2	#10	31/64	3.60	3.06
32N1275	ECC-8	1/2	1/2	#10	9/16	3.64	3.10
32N1277	ECC-10	5/8	1/2	#10	5/8	4.12	3.51
32N1279	ECC-12	3/4	1/2	#10	49/64	4.60	3.91
32N1281	ECC-16	1	1/2	#10	29/32	5.04	4.29

Type NCC cable clamps offer the same security and ease of installation as type ECC clamps above, but are made of nylon with a temperature range of from –90° + to 175° + continues.

Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	"A"	Pkg. of 100 1-9	Pkg. of 100 10-49
32N1284	NCC-2	1/8	3/8	#8	21/64	4.16	3.54
32N1285	NCC-3	3/16	3/8	#8	25/64	4.16	3.54
32N1286	NCC-4	1/4	3/8	#8	27/64	4.28	3.64
32N1287	NCC-5	5/16	3/8	#8	29/64	4.36	3.71
32N1288	NCC-6	3/8	3/8	#8	31/64	4.60	3.91
31N1290	NCC-8	1/2	3/8	#8	9/16	5.08	4.32
32N1292	NCC-10	5/8	1/2	#10	5/8	6.88	5.85
32N1294	NCC-12	3/4	1/2	#10	49/64	8.52	7.25
32N1296	NCC-16	1	1/2	#10	29/32	9.32	7.93

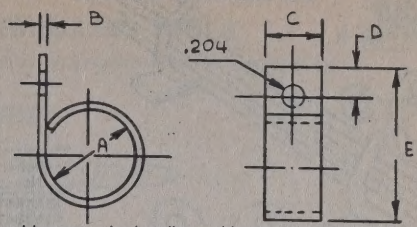
TEFLON GROMMET STRIPS



Meets MIL standard #21266
Length per piece: max. 12.75″ min. 12.62″

Stock No.	Type	Panel Thickness Range	Pcs. per pkg.	1-9	10-49	50-up
81N1443	CGT-2	.052-.085	10	48.82	40.69	32.55
81N1444	CGT-3	.085-.128	10	52.53	47.94	38.35
81N1445	CGT-4	.129-.192	5	41.03	34.19	27.35
81N1446	CGT-5	.192-.255	5	43.73	36.89	29.52
81N1447	CGT-7	.318-.380	5	51.53	42.93	34.35
81N1449	CGT-8	.380-.510	5	69.53	57.94	46.35

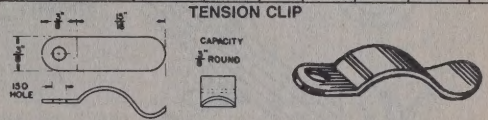
ELASTIC WIRE HARNESS CLIP



Anchor and harness wire bundles, cable, or rods in seconds. After initial mounting loading and unloading of material is accomplished quickly due to the Elastic 9/8 Nylon construction of the clip. There's no need to unfasten screw with each adjustment. Temperature range is from –90° + to 175° + continues rating. The clip has a .204 diameter hole for mounting with #10 screw.

Stock No.	Type	Cable Dia. A	B	C	D	E	Pkg. of 100 1-9	Pkg. of 100 10-49
37N2118	EHC-4	.250	.040	.40	.250	.83	12.44	10.58
37N2119	EHC-8	.500	.065	.40	.250	1 9/32	13.96	11.87
37N2120	EHC-12	.750	.080	.50	.187	1 9/32	15.32	13.03
37N2121	EHC-16	1.00	.093	.50	.187	1 17/32	16.68	14.18
37N2122	EHC-24	1.50	.100	.50	.187	2 1/8	20.72	17.62

TENSION CLIP

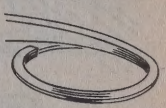


Celcon clips hold securely, permit easily removal. Cir: white.

Stock No.	Type	Pkg. of 100 1-9	Pkg. of 100 10-49	Pkg. of 100 50-99
23N3646	TC-1	10.32	8.78	6.45

CONTINUOUS GROMMET

- **For any size or shape opening**
- **In panels up to .250″ thick**



Line any shaped opening—for a smooth, safe, fray-free finishing touch. Protects wires, cables, and cords against damage from sharp panel edges. Eliminates the cost and space of stocking a variety of special grommets. Simply snip the grommet to the proper circumferential length and slip it over the panel edge. It fits snugly and securely and won't jar loose. Available in solid lengths of polyethylene in conveniently packaged 100 ft. lengths. Conforms to MIL-1-613D.

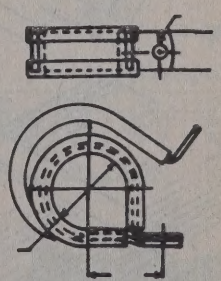
Stock No.	Type	Panel Thickness Range	100 Ft. Rolls 1-9	100 Ft. Rolls 10-49	100 Ft. Rolls 50-99
23N3658	CGP-1	To .036″(20 Ga.)	13.28	11.29	8.30
23N3659	CGP-2	.037-.105″(19-12 Ga.)	14.64	12.45	9.15
23N3660	CGP-3	.106-.164″(11-8 Ga.)	22.88	19.45	14.30
23N3661	CGP-4	.165-.187″	23.40	19.89	14.63
23N3662	CGP-5	.188-.250″	30.16	25.64	18.85

CUSHIONED CABLE CLAMPS

Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	Mounting Center "E"	Pkg. of 100 1-4	Pkg. of 100 5-up
81N2621	SVC-2	1/8	3/8	#10	.561	39.75	35.07
81N2622	SVC-3	3/16	3/8	#10	.592	40.32	35.58
81N2623	SVC-4	1/4	3/8	#10	.623	40.90	36.09
81N2624	SVC-5	5/16	3/8	#10	.656	41.51	36.63
81N2625	SVC-6	3/8	3/8	#10	.686	42.33	37.35
81N2626	SVC-7	7/16	3/8	#10	.717	43.01	37.95
81N2627	SVC-8	1/2	3/8	#10	.766	43.62	38.49
81N2628	SVC-10	5/8	3/8	#10	.829	46.68	41.19
81N2629	SVC-12	3/4	1/2	1/4	.951	48.25	42.57
81N2630	SVC-16	1	1/2	1/4	1.076	51.24	45.21

TYPE SSSC COMBINES STAINLESS STEEL (300 SERIES) AND SILICONE RUBBER (–85°F to + 450°F)

Stock No.	Type	Cable Dia. "D"	Clamp Width "W"	Screw Size "S"	Mounting Center "E"	Pkg. of 100 1-4	Pkg. of 100 5-up
81N2611	SSSC-2	1/8	3/8	#10	.561	48.45	42.75
81N2612	SSSC-3	3/16	3/8	#10	.592	51.10	45.09
81N2613	SSSC-4	1/4	3/8	#10	.623	53.72	47.40
81N2614	SSSC-5	5/16	3/8	#10	.656	56.41	49.77
81N2615	SSSC-6	3/8	3/8	#10	.686	59.06	52.11
81N2616	SSSC-7	7/16	3/8	#10	.717	61.68	54.42
81N2617	SSSC-8	1/2	3/8	#10	.766	64.33	56.76
81N2618	SSSC-10	5/8	3/8	#10	.829	69.56	61.38
81N2619	SSSC-12	3/4	1/2	1/4	.951	74.90	66.09
81N2620	SSSC-16	1	1/2	1/4	1.076	93.67	82.65



Cushioned cable clamps provide protection and routing support for tubes, pipes, wire bundles, and cables. Material thickness for diameters 1/8″ through 7/16″ is .032, and .050 for diameters 1/2″ through 1″.

Type SVC is made of pregalvanized low carbon steel (ASTM A 527), and cushioned with PVC (–40 F to + 250 F)

Type SSSC combines Stainless steel (300 series) and silicone rubber (–85F to + 450 F)

12

VOLTREX® brand

Wiring Accessories

FIG. A

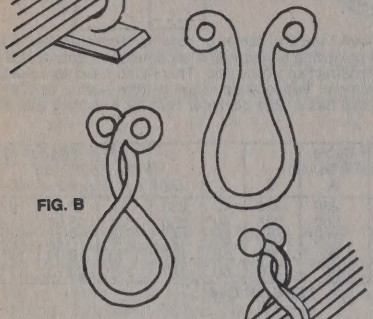
ADHESIVE KURLY-LOK (FIG. A)

Adhesive back permits mounting at any angle. Wire bundle loads & unloads with a fingertip twist. Made in natural nylon these fasteners neatly route wires for better assembly efficiency.

Adhesive: 0.25 lbs. max.; 200 F max.

Stock No.	Type	Bundle Dia.	Overall Height	Package of 100			
				1-9	10-49	50-99	100-Up
81N1641	LWTA-45	.450	1.23	7.32	6.22	4.58	3.66
81N1642	LWTA-75	.750	1.58	8.24	7.00	5.15	4.12

FIG. B

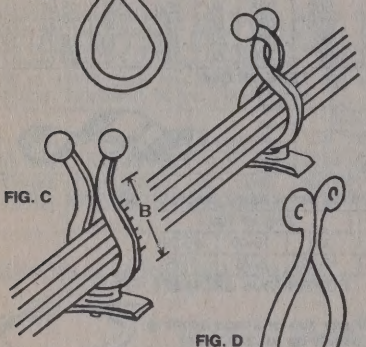


KURLY-LOK (FIG. B)

Nylon wire fasteners hold up to 20 lbs. tensile strength. Molded with no sharp edges to cut insulator. Fingertip twist loads or unloads bundle. Four sizes available.

Stock No.	Type	Approx. height	Wire bundle Diameter	Package of 100			
				1-9	10-49	50-99	100-Up
81N1628	LWT-3	.900	.200-.300	4.76	4.05	2.98	2.38
81N1629	LWT-4	1.032	.300-.400	5.04	4.28	3.15	2.52
81N1630	LWT-5	1.200	.400-.500	5.36	4.56	3.35	2.68
81N1631	LWT-8	1.550	.700-.800	6.28	5.34	3.93	3.14

FIG. C

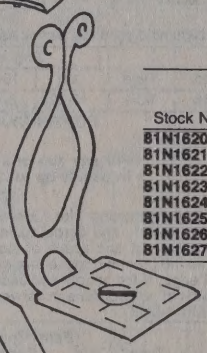


TWIST-LOK Standoff (FIG. C)

Nylon standoff Twist-Lok features patented "Barbed Arrow" tip. Locks into .187" dia. chassis hole. Wire bundle firmly secured with only a fingertip twist. Natural color only. Five spacing heights.

Stock No.	Type	Bundle Ht. above BD	B	Wire Bundle Diameter		Package of 100			
						1-9	10-49	50-99	100-Up
81N1620	TWTS-5-03	3/16	.980	.400-.500	13.72	11.66	8.58	6.86	
81N1621	TWTS-5-08	1/2	.980	.400-.500	16.36	13.91	10.23	8.18	
81N1622	TWTS-5-12	3/4	.980	.400-.500	19.20	16.32	12.00	9.60	
81N1623	TWTS-5-16	1"	.980	.400-.500	19.92	16.93	12.45	9.96	
81N1624	TWTS-6-08	1/2	1.18	.500-.600	18.72	15.91	11.70	9.36	
81N1625	TWTS-6-12	3/4	1.18	.500-.600	20.20	17.17	12.63	10.10	
81N1626	TWTS-6-16	1"	1.18	.500-.600	21.16	17.99	13.23	10.58	
81N1627	TWTS-6-20	1 1/4	1.18	.500-.600	21.56	18.33	13.48	10.78	

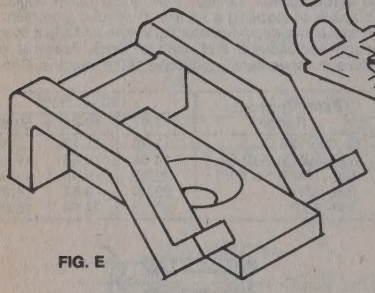
FIG. D



KURLY-LOK HINGED BASE (FIG. D)

Stock No.	Type	Approx. Overall	Wire bundle Diameter	Packages of 100			
				1-9	10-49	50-99	100-Up
81N2607	HTWT-8	.252	.700-.800	16.76	14.25	10.48	8.38

FIG. E

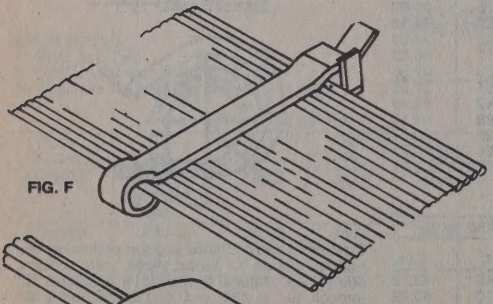


SPLIT FLAT CABLE CLIP (FIG. E)

Adhesive: 0.25 lbs. max.; 200 F max.

Stock No.	Type	Pkg. of 100			
		1-9	10-49	50-99	100-Up
81N2599	SFCC-1 (without adhesive)	8.04	6.84	5.03	4.02
81N2600	SFCC-1A (with adhesive)	12.08	10.27	7.55	6.04

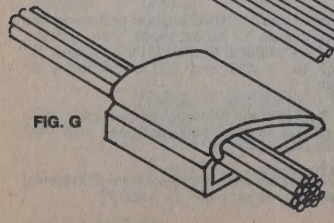
FIG. F



FLAT CABLE LOOP CLIP (FIG. F)

Stock No.	Type	Pkg. of 100			
		1-9	10-49	50-99	100-Up
81N2610	LFCC-5	14.16	12.04	8.85	7.08

FIG. G



ADHESIVE KWIP KLIP (FIG. G)

Adhesive: 0.25 lbs. max.; 200 F max.

Stock No.	Type	Bundle dia.	Overall height	Pkg. of 100			
				1-9	10-49	50-99	100-up
81N2603	ADC-2	1/4"	7/16"	14.64	12.81	10.98	9.15

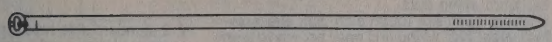
12

Ty-Rap Cable Ties

ACCESSORIES AND INSTALLING TOOLS

Cables and ties are U.L. listed as a recognized component in equipment where acceptability of the combination is determined by the U.L. laboratories.

A.



B.

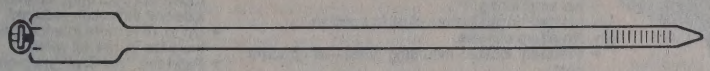
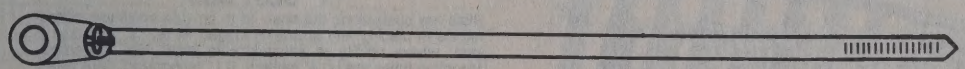


Fig.	Bundle Range	Min. Un-Locking Strength	Stock No.	Type	Pkg. of	Price Per Pkg. 1-9	Price Per Pkg. 10-up	Stock No.	Type	Pkg. of	Price Per Pkg. 1-24	Price Per Pkg. 25-49	Price Per Pkg. 50-99	Price Per Pkg. 100 & Up
A	5/8"	18 lbs.	**31F2658**	TY523M	100	4.88	3.90	**32F2654**	TY23M	1000	14.50	13.62	12.85	12.35
A	1½"	18 lbs.	**10F8228**	TY52315M	100	5.13	4.10	**10F8218**	TY2315M	1000	19.45	18.30	17.25	16.55
A	2"	18 lbs.	**31F2713**	TY5232M	100	5.63	4.50	**31F2650**	TY232M	1000	19.90	18.75	17.70	17.00
A	4"	18 lbs.	**31F2714**	TY5234M	100	9.50	7.60	**31F2651**	TY234M	1000	38.60	35.95	33.50	30.75
A	1¼"	40 lbs.	**31F2659**	TY524M	100	5.63	4.50	**31F2524**	TY24M	1000	20.10	18.90	17.80	17.10
A	2"	40 lbs.	**31F2715**	TY5242M	100	6.75	5.40	**31F2652**	TY242M	1000	25.15	23.65	22.30	21.40
A	3"	40 lbs.	**31F2716**	TY526M	100	11.50	9.20	**31F2605**	TY26M	1000	58.90	56.50	52.90	48.45
								Stk. No.	Type	Pkg.	1-4	5-9	10-24	25 & Up
A	4"	40 lbs.	**31F2717**	TY5244M	100	14.88	11.90	**31F2653**	TY244M	1000	76.55	72.55	66.00	60.00
								Stk. No.	Type	Pkg.	1-24	25-49	50-99	100 & Up
A	1¾"	50 lbs.	**31F2660**	TY525M	100	7.13	5.70	**31F269**	TY25M	1000	27.25	25.65	24.20	23.25
								Stk. No.	Type	Pkg.	1-4	5-9	10-24	25 & Up
A	3"	50 lbs.	**10F8229**	TY5253M	100	14.00	11.20	**10F8219**	TY253M	1000	69.60	66.15	63.20	60.10
A	4"	50 lbs.	**31F2718**	TY528M	100	16.38	13.10	**31F2502**	TY28M	1000	77.15	73.35	69.45	65.90
								Stk. No.	Type	Pkg.	1-9	10-19	20-49	50 & Up
A	2"	120 lbs.	**10F8230**	TY5272M	100	16.88	13.50	**31F2501**	TY27M	500	71.35	68.18	64.93	61.63
A	3½"	120 lbs.	**31F2719**	TY527M	50	23.13	18.50							
								Stk. No.	Type	Pkg.	1-4	5-9	10-24	25 & Up
A	9"	120 lbs.	**31F2720**	TY529M	50	47.00	37.60	**31F2721**	TY29M	1000	300.35	285.35	259.35	238.65
								Stk. No.	Type	Pkg.	1-9	10-24	25-49	50 & Up
B	1¾"	50 lbs.	**31F2663**	TY546M	100	21.13	16.90	**31F2504**	TY46M	1000	128.85	88.55	79.70	75.45
B	4"	50 lbs.	**10F8231**	TY548M	100	27.88	22.30							
B	5/8"	18 lbs.	**31F2724**	TY551M	1000	10.75	8.60	**31F2530**	TY51M	500	33.85	30.05	27.08	25.55

C

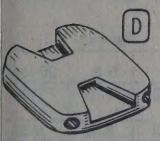


BOLT HOLE TY-RAPS

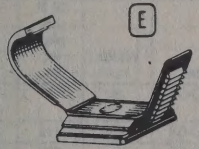
Fig.	Bundle Range	Screw Size	Unlocking Strength Min.	Stk. No.	Type	Pkg. Of	Per 1-9	Pkg. 10 & Up	Stk. No.	Type	Pkg. Of	Price Per Pkg. 1-9	Price Per Pkg. 10-24	Price Per Pkg. 24-49
C	5/8"	4	181 lbs.	**31F2722**	TY533M	100	8.38	6.70						
C	1½"	8	40 lbs.	**31F2661**	TY534M	100	9.63	7.70	**31F2527**	TY34M	1000	58.55	50.15	44.50
C	1¾"	10	50 lbs.	**31F2662**	TY535M	100	10.88	8.70						

12

D

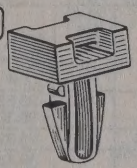


E



ACCESSORIES

F



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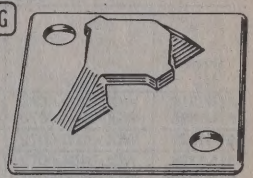


MOUNTING ACCESSORIES

Fig.	Stk. No.	Type	Description	Pk. of	1-4	5 & up	Stk. No.	Type	Pk. of	1-4	5 & up
D	**10F8223**	TC5342A	2-Way Adhesive Backed Mount	100	36.13	28.90	**31F2613**	TC342A	1000	180.40	168.55
E	**10F8224**	TC5354A	Adhesive Backed Clamp	25	11.63	9.30	**31F2656**	TC354A	100	26.27	22.97
F	**10F8225**	TC5823	¼" Push in Mount	100	10.38	8.30					
G	**10F8226**	TC5347A	4-Way Adhesive Backed Mount	100	28.63	22.90	**10F8227**	TC347A	1000	145.30	135.80

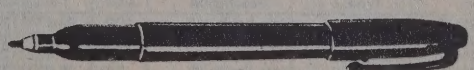
TY-RAP INSTALLING HAND TOOL

- **Ties to preset tension**
- **Cuts off excess tail**
- **Low insertion force design**
- **Insures uniform tension**

Model WT193. Cinches up tie to preset tension, locks and cuts off excess tail. Insures uniform tension on all ties. Good on 18, 40 and 50 lb. TY-RAPS.
31F2657. NET **58.30**
Model WT197. For .301" tie bodywidth. For 120 lb. TY-RAPS.
34F1254. NET **100.45**

COMPACT CABLE INSTALLATION TOOLS

Lightweight, hand-operated cable tying tools install cable ties up to .301 in. wide and .080 in. thick. High impact plastic and steel withstands shock and rough handling. Symmetrical design for both left and right hand operators. Tie cinched up with squeeze action. Excess tail cut away when twisted 180 degrees. Specially designed pawl cuts away tail if tension limit exceeded. Suited for spot-tying applications.
WT1. For tie widths from .091" to .187" and 18, 40 and 50 lbs.
31F2639. NET **8.80**
WT2. For tie width of .301". For 120 lb. TY-RAPS.
34F1256. NET **11.20**



NYLON MARKING PENS
Permanently marks TY-RAPS and other Nylon items

Stk. No.	Type	Color	Each
31F2507	WT163M-1	Black	2.75
10F8222	WT163M-3	Red	2.75

VOLTREX® brand Wiring Accessories

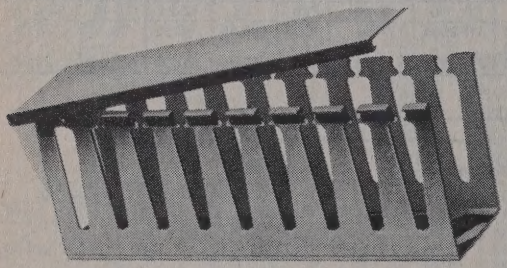
WIRING DUCT

OPEN SLOT VINYL DUCT

- Angled and interlocking lips on duct cover and sidewalls enable cover to be "snapped" on—cannot pop off.
- Continuous grooves facilitate use of plastic clips to mount wiring duct.
- Deepest open-slot (open slot) duct available—facilitates "flat" wiring and easy access to terminal strip wiring.
- Molded ridges secure clips in position.
- No sharp corners.
- Precisely located mounting holes—at no extra cost.
- Prescoring on interior side of both duct walls facilitates simple formation of clean duct junctions (tees, etc.) with no sacrifice of sidewall strength.
- One-piece construction—stronger sidewalls—no assembly required.
- Sidewall wire openings accurately and uniformly located directly across from one another.
- 2 standard side-hole types. Straight sided slots (open slot duct only) simplify wire insertion—no sidewall deflection required.
- Up to 18% more interior space for wire with no increase in overall width.
- Patented "No-Slip" snap-on cover* interlocks with duct sidewalls to prevent vibration slippage.
- Mounting holes on 4" centers.

Duct (Gray vinyl) — **Duct Cover to fit**

Stock No.	Type	WxH in.	24 ft. std. pkg. wt. lbs.	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 20-up	Stock No.	Type	Width in.	24 ft. std. pkg. wt. lbs.	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 20-up
81N1517	WDS-0202-0072	.5x.5	3	23.52	18.48	16.56	**81N1546**	WDC-02	.5	1	6.72	5.52	5.04
81N1519	WDS-0204-0072	.5x1	4	28.32	23.04	20.64							
81N1521	WDS-0303-0072	.75x.75	3½	28.32	23.04	20.64	**81N1547**	WDC-03	.75	1½	7.20	6.00	5.52
81N1523	WDS-0404-0072	1x1	4	30.48	24.72	22.08	**81N1548**	WDC-04	1	2½	8.64	7.20	6.24
81N1525	WDS-0406-0072	1x1.5	4½	35.52	28.56	25.68							
81N1527	WDS-0408-0072	1x2	5	42.72	34.08	30.48							
81N1529	WDS-0412-0072	1x3	8½	54.24	44.16	39.60							
81N1531	WDS-0606-0072	1.5x1.5	5	42.72	34.08	30.48	**81N1549**	WDC-06	1.5	2¼	10.32	8.64	7.68
81N1533	WDS-0608-0072	1.5x2	4¾	47.04	37.20	32.88							
81N1535	WDS-0612-0072	1.5x3	8½	58.80	47.04	41.52							
81N1537	WDS-0808-0072	2x2	5¾	47.28	37.44	33.12	**81N1550**	WDC-08	2	2½	13.20	11.04	9.84
81N1539	WDS-0812-0072	2x3	9½	60.72	48.72	42.96							
81N1541	WDS-1208-0072	3x2	8½	56.40	45.60	40.56	**81N1551**	WDC-12	3	3¼	18.72	15.84	14.40
81N1543	WDS-1212-0072	3x3	10½	70.08	56.88	49.44							



"V" SLOT DUCT

Slots are open along the open lip to provide maximum convenience in placing and arranging lugged wires. "V" slot duct is ideal where rigidity is secondary to rapid wire placement. Mounting holes are on 4" centers. U.L. recognized. CSA listed. Standard put ups 24 ft. in 4-6 ft. lengths.

12

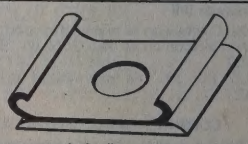
Wire Duct (Gray vinyl) — **Duct Cover to fit**

Stock No.	Type	WxH in.	24 ft. std. pkg. wt. lbs.	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 20-up	Stock No.	Type	Width in.	24 ft. std. pkg. wt. lbs.	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 20-up
81N1518	WDL-0202-0072	.5x.5	3	23.52	18.48	16.56	**81N1546**	WDC-02	.5	1	6.72	5.52	5.04
81N1520	WDL-0204-0072	.5x1	4	28.32	23.04	20.64							
81N1522	WDL-0303-0072	.75x.75	3½	28.32	23.04	20.64	**81N1547**	WDC-03	.75	1½	7.20	6.00	5.52
81N1524	WDL-0404-0072	1x1	4	30.48	24.72	22.08	**81N1548**	WDC-04	1	2½	8.64	7.20	6.24
81N1526	WDL-0406-0072	1x1.5	4½	35.52	28.56	25.68							
81N1528	WDL-0408-0072	1x2	5	42.72	34.08	30.48							
81N1530	WDL-0412-0072	1x3	8½	54.24	44.16	39.60							
81N1532	WDL-0606-0072	1.5x1.5	5	42.72	34.08	30.48	**81N1549**	WDC-06	1.5	2¼	10.32	8.64	7.68
81N1534	WDL-0608-0072	1.5x2	4¾	47.04	37.20	32.88							
81N1536	WDL-0612-0072	1.5x3	8½	58.80	47.04	41.52							
81N1538	WDL-0808-0072	2x2	5¾	47.28	37.44	33.12	**81N1550**	WDC-08	2	2½	13.20	11.04	9.84
81N1540	WDL-0812-0072	2x3	9½	60.72	48.72	42.96							
81N1542	WDL-1208-0072	3x2	8½	56.40	45.60	40.56	**81N1551**	WDC-12	3	3¼	18.72	15.84	14.40
81N1544	WDL-1212-0072	3x3	10½	70.08	56.88	49.44							

DUCT MOUNTING CLIPS—NATURAL NYLON

Non-conductive plastic mounting clips are a new simple and faster means of fastening ducting. Any standard duct segment snaps securely in place.

Stock No.	Type	Description	Pkg. size	Per Pkg. 1-4	Per Pkg. 5-up
81N1553	WDMC-04	Plain back—1"	100	29.07	24.22
81N1554	WDMC-06	Plain back—1.5"	100	31.38	26.15
81N1555	WDMC-08	Plain back—2"	100	33.48	27.90
81N1556	WDMC-12	Plain back—3"	50	18.95	15.83
81N1557	WDMC-04A	Adhsv. back—1"	100	44.67	37.23
81N1558	WDMC-06A	Adhsv. back—1.5"	100	48.24	40.20
81N1559	WDMC-08A	Adhsv.—2"	100	51.54	42.95
81N1560	WDMC-12A	Adhsv. back—3"	50	29.01	24.18



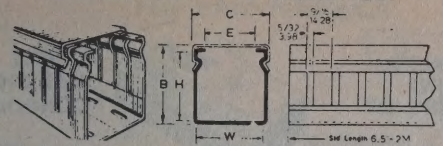
Instructions for use: The recommended clip spacing is one per foot, a minimum of two clips per piece of duct is required. Plain back clips may be attached with nylon rivets NMR-2 plated screws-10-32, self tapping screws. Adhesive backed clips need only be pressed in place. User should determine suitability for application regarding surface and environment. Adhesive back clips may be riveted or screwed in place using clip as drill guide.

Note: Adhesive shelf life one year.

Cable & Wiring Accessories

ELECTROVERT INC.

ELECTRO-DUCT® PVC WIRING DUCT



High-impact vinyl duct is non-flammable and warp-proof. Open slot design. Snap-on, non-slip cover. Mounting slots standard on all sizes. Temporary adhesive aids alignment and frees both hands for mounting. Scored snap-off plastic fingers permit slot enlargement for lead-offs; accommodate any size wire and/or bundle. Color: Grey. CSA approved. Supplied with channel and cover. Standard length, 6'6". U/L Recognized.

Stk. No.	Type	Nom. W x H	Max. No. of 14 AWG @ 50% fill	Std. Pkg. (feet)	Net Per Package
79W524	ELVB1010G	1 x 1	33	162	223.56
79W528	ELVB1020G	1 x 2	67	117	212.94
79W536	ELVB2010G	2 x 1	67	117	195.39
79W540	ELVB2020G	2 x 2	133	97	238.62
79W556	ELVB3030G	3 x 3	340	52	194.48

NYLON SPEED FASTENER

For quick, push fit mounting. Pkgs. of 100

35F2223 1-9 Pkgs.....**2.83** 10-24 Pkgs.....**2.57**

SLIP-ON "Z" MARKERS

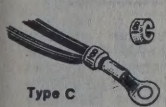
Feature flexible "accordion" type backs for easy installation and sturdy gripping. Made of durable PVC material. Comply with military, civil, and trade associations (J.I.C., MIL-E-5400B (ASG), MIL-E-4158A (USAF); etc.). White with black marking. Please specify Letter (A-Z) or Numeral (0-9) desired when ordering.

Minimum order is one package of 100 of any Letter or Numeral.

Stock No.	Type No.	For Cable Diameter	Per Package 1-25	26-65	66-125	126-250
30F833	Z1P	.045"-.065"				
30F834	Z2P	.060"-.085"				
30F835	Z3P	.080"-.120"	1.62	1.46	1.30	1.25
30F820	Z4P	.110"-.170"				
30F822*	Z5P*	.160"-.215"	1.64	1.48	1.32	1.27

* Non-stock items, available on special order.
Packages may be combined for quantity prices.

CLIP-ON "C" MARKERS



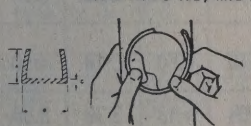
Designed for application either before or after terminal connection has been made. May be removed for re-coding without breaking terminal connection. Rigid PVC material. For single wire or cable. Same size fits a given range cable dia. Specify Letter (A-Z) or Numeral (0-9) when ordering. Minimum order is 1 pkg. of 100 of any letter or numeral.

Stk. No.	Type	AWG Size	For Cable Diameter	Per Package 1-25	26-65	66-125	126-250
47F014	C2P	18/20	.080-.100	2.31	2.08	1.85	1.61
47F015	C3P	18	.100-.118	2.31	2.08	1.85	1.61
47F016	C4P	16	.118-.138	2.35	2.12	1.89	1.64
47F017	C5P	14	.138-.156	2.40	2.16	1.92	1.67
47F018*	C6P	10/12	.156-.187	2.53	2.28	2.03	1.77
47F019*	C7P	9	.187-.218	2.85	2.57	2.29	1.99

* Non-stock item, available on special order.
Packages may be combined for quantity prices.

GROMMET STRIPS

Meets MIL-C-17D, MIL-W-76B, and MIL-C-915A



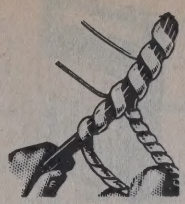
Advantage of one strip only, application to round, square, rectangular, and oval holes. For all gauges, from 20 gauge to ¼" thick. Easily applied. No special tools required. Other materials available.

NATURAL POLYETHYLENE

Stk. No.	Type	Application Min.-Max.	Per Package Pkg.	1-5	6-49	50-99
30F315	GS-2-CP	.020-.039	100 ft.	7.84	7.06	6.28
30F320	GS-2A-CP	.040-.062	100 ft.	8.55	7.70	6.85
30F316	GS-3-CP	.063-.099	100 ft.	9.14	8.22	7.32
30F317	GS-4-CP	.100-.144	100 ft.	10.49	9.44	8.40
				1-11	12-99	100-199
30F318	GS-5-CP	.145-.187	50 ft.	9.17	8.26	7.35
30F319	GS-6-CP	.187-.250	50 ft.	13.24	11.91	10.61

Contact Newark for Complete Electrovert Catalog.

SPIROBAND



Spiral wrapping for flexible electric harnesses and cables. Unusual flexibility and elasticity make it ideal for temporary and experimental as well as permanent applications. Permits leadoffs or additions of wire at any point. High dielectric strength provides excellent insulation. Nylon and Teflon types for high temperature applications. (Nylon to 250°F; Teflon to 500°F).

NATURAL POLYETHYLENE

Stock No.	Type & Size	Wall Thick	Bundle Range	Std. Pkg.	Per Package 1-9	10-99	100-199
30F839	SP⅛"CP	.032	1/16"-½"	100'	5.06	4.91	4.82
30F840	SP¼"CP	.045	3/16"-2"	100'	8.40	8.15	7.98
47F005	SP⅜"CP	.055	5/16"-3"	50'	6.32	6.13	6.01

NYLON & TEFLON

Stk. No.	Type & Size	Bundle Range (in.)	Std. Pkg.	Per Package 1-9	10-19	20-99	100-199
47F006†*	SP⅛"NN	1/16-½	100'	14.87	14.42	14.12	13.42
47F007†*	SP¼"NN	3/16-2	100'	26.83	26.02	25.50	24.23
47F008†	SP⅜"NN	5/16-3	50'	42.12	40.86	40.04	38.03
				1-39	40-399		400-799
47F009†	SP½"NN	⅜-4	25'	22.41	21.74		21.29
47F010‡*	SP⅛"TF	1/16-½	25'	61.12	59.28		58.10

* Wall Thickness .03". † Nylon. ‡ Teflon.

ADJUSTABLE P-CLIPS

Ratchet teeth provide positive locking action. Virgin nylon, light weight, abrasion resistance. Tensile strength: 11,000 psi. Melting point: 482—500°F self extinguishing. Endurance limit: 3000 psi; no failures to 2,000,000 cycles.

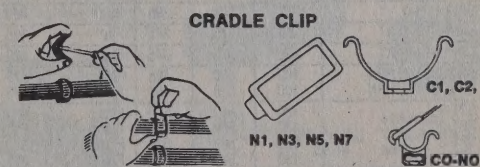
Stk. No.	Size No.	Bundle Dia. Min.-Max.	Screw Clear.	Per pkg. of 100 1-9	10-59	60-109
30F842	AP-0	⅛-3/16	No. 4	5.39	4.84	4.36
30F843	AP-1	3/16-¼	No. 4	4.56	4.10	3.69
30F844	AP-2	¼-⅜	No. 6	4.73	4.25	3.78
30F845	AP-3	⅜-9/16	No. 6	6.83	6.14	5.53
47F001	AP-5	⅞-1 3/16	No. 10	13.22	11.90	10.71

ELECTRO-TY CABLE TIES

An improved cable tie with a one-piece design, all nylon, self-locking head Application is by tool or hand. Tip has a fixed bend (except size 13) for 90° insertion and serrated grip for easier, quicker installation. Integral mounting provides for quick panel or chassis attachment.

Stk. No.	Type	Bundle Diameter Max.	Description	MIL No.	Per Pkg. of 100 1-24	25-49
30F847	ET-4C	15/16	Miniature	—4	2.85	2.71
30F848	ET-7C	1¾	Intermediate	—1	4.46	4.24
30F849	ET-14C	3½	Standard	—3	11.82	10.75
47F000	ET-13C	4	Hvy. Duty	—2	13.20	12.54

CRADLE CLIP



On the spot wiring changes without replacement or tools. Only 5 seconds per fixing point. Binders and cradles are nylon; clips are neoprene. Secure design will withstand vibration without damage to wire insulation. Color: black.

Stk. No.	Type	Descrip.	Per Pkg. of 100 1-9	10-19	20-29
30F300	C1	Cradle	11.00	10.67	10.45
30F301	C2	Cradle	12.99	12.60	12.35
30F302	C3	Cradle	13.83	13.41	13.14
30F308	N1	Clip	12.30	11.93	11.69
30F309	N3	Clip	13.50	13.10	12.83
30F310	N5	Clip	20.10	19.50	19.10
30F311	N7	Clip	30.30	29.39	28.79
30F312	CO-NO**	Crd. & Clip	17.10	16.59	16.25

** cradle with captive clip * with captive nut
Cradles and Binders may be combined for quantity prices.
Clips may be combined for quantity prices.

VOLTREX brand Wiring Accessories

MINI WIRE MARKING KIT SERIES VM

This general purpose mini wire marking kit comes in compact book form containing 10 rolls of white crepe tape marked with appropriate numbers or letters. User can dispense any amount desired to mark from No. 14 gauge wire to heavy cable. Includes enough tape to mark 900 pieces. Size, 5½ x 2½ x½". Weight 3 oz., loaded.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-Up
37N1711	VMK-1	0-9				
37N1718	VMK-2	10-19				
37N1719	VMK-3	20-29				
37N1720	VMK-4	30-39	10.44	8.88	6.53	5.22
37N1721	VMK-5	A-J				
37N1722	VMK-6	K-T				
37N1723	VMK-7	U-Z				

MINI KIT REFILLS

Use with VMK-1 thru 7 & VM (Tape only)

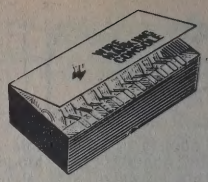
Stock No.	Type	Cont	1-24	25-49	50-99	100 & up
37N1724	VMM-1	0-9				
37N1725	VMM-2	10-19				
37N1726	VMM-3	20-29				
37N1727	VMM-4	30-39				
37N1728	VMM-5	A-J	6.60	5.61	4.13	3.30
27N1729	VMM-6	K-T				
37N1730	VMM-7	U-Z				

COMPLETE MINI MARKING KIT

- 210 feet of marking tape
- Dispense any amount desired
- High Tac adhesion
- High temperature range
- Weight - 2½ pounds

Contains letters A to Z and numbers 0 to 39. Each marking kit book contains 10 rolls of marking tape with built in cutter. Comes complete with carrying case and 7 books.

Stk. No.	Type	1-24	25-49	50-99	100-Up
37N1731	VM	62.12	54.81	45.68	36.54



WIRE MARKING CONSOLE

Shipped pre-packed in dispenser with 10 rolls of tape. Any length desired can be dispensed. ⅛" characters, 20 yd. rolls. ¼" wide.

Stk. No.	Type	Cont.	1-24	25-49	50-99	100-Up
37N1732	VIM-1	0-9				
37N1733	VIM-2	10-19				
37N1734	VIM-3	20-29				
37N1735	VIM-4	30-39	60.18	53.10	44.25	35.40
37N1736	VIM-5	A-J				
37N1737	VIM-6	K-T				
37N1738	VIM-7	U-Z				

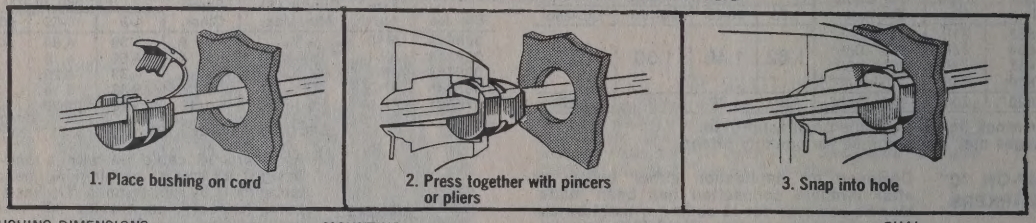
WIRE MARKING CONSOLE REFILLS

(Tape only)

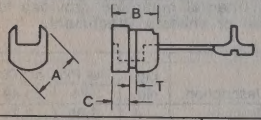
Replacement rolls of tape. 20 yards per roll for use with console VIM-1 thru 7. SPECIFY letter or number when ordering (A-Z-0-39) Each.

Stock No.	Type	1-24	25-49	50-99	100-up
10N001	V1-1 thru 7	7.08	6.02	4.43	3.54

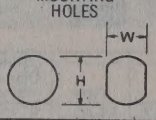
VOLTREX CORD STRAIN RELIEF BUSHINGS



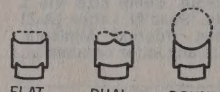
BUSHING DIMENSIONS



MOUNTING HOLES



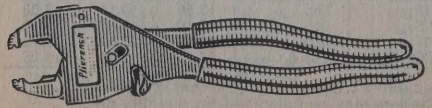
KEY-CONTOUR STYLES



DUAL

One-piece nylon-construction bushings withstand temperatures to 300°F. Easily installed with specially designed pincers or an ordinary pliers. Locked in place until deliberately removed for servicing. Eliminates strain that tears cords loose from contacts or connections. Won't injure insulation.

Cords Accommodated Wires	Cord Type	Thick. "T"	Max. Panel Dia. "H"	"W"	Key Contour	"A"	"B"	"C"	Stock No.	Type	Packages of 100 1-9	10-49	50-99	100-Up
2-#18	SP-1, SPT-1	.062	.437	.395	Dual	.460	.410	.160	16N1041	SRD-10	5.98	3.56	2.84	2.46
2-#18	SP-1, SPT-1, XT	.062	.375	.345	Flat	.425	.410	.155	16N1042	SRF-10	4.10	2.44	1.94	1.69
2-#18	SP-1, SPT-1, XT	.125	.375	.345	Flat	.425	.410	.155	16N1043	SRF-20	4.10	2.44	1.94	1.69
2-#18 2-#16	SP-2, SPT-2, HPN SP-2, SPT-2, HPN	.100 .100	.500 .515	.465 .465	Flat Flat	.570 .570	.500 .500	.171 .171	16N1044	SRF-30	6.58	3.92	3.13	2.71
2-#18 3-#18 2-#16 3-#16	SPT-3 SPT-2 SPT-3 HPN	.130 .130 .130 .130	.562 .562 .562 .562	.530 .530 .530 .530	Flat Flat Flat Flat	.610 .610 .610 .610	.600 .600 .600 .600	.240 .240 .240 .240	16N1045	SRF-40	9.19	5.47	4.36	3.79
2-#18 3-#18 2-#16 3-#16	SPT-3 SPT-3 SPT-3 SPT-3	.125 .125 .125 .125	.730 .730 .730 .730	.560 .560 .560 .560	Flat Flat Flat Flat	.775 .775 .775 .775	.680 .680 .680 .680	.275 .275 .275 .275	16N1046	SRF-50	10.92	6.50	5.18	4.50
2-#18 3-#18 2-#16	HPD, SV, SVT SV, SVT HPD	.100 .100 .100	.500 .515 .515	.465 .465 .465	Round Round Round	.560 .560 .560	.430 .430 .430	.165 .165 .165	16N1047	SRR-10	6.95	4.13	3.30	2.86
2-#18 3-#18 4-#18 2-#16 3-#16	SJ, SST, SJO SJ, SJT, SJO SJ, SJT, SJO SJ, SJT, SJO SJ, SJT, SJO	.125 .125 .125 .125 .125	.625 .625 .625 .625 .625	.570 .570 .570 .570 .570	Round Round Round Round Round	.678 .678 .678 .678 .678	.585 .585 .585 .585 .585	.255 .255 .255 .255 .255	16N1048	SRR-20	10.71	6.37	5.08	4.41



PINCERS INSERTION TOOL FOR VOLTREX CORD STRAIN RELIEF BUSHINGS

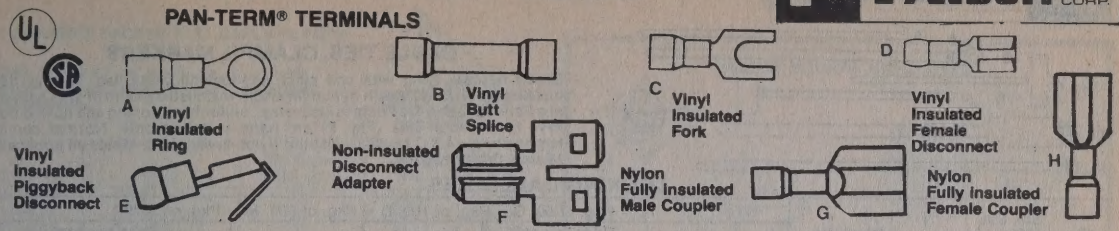
Tool makes assembly for Voltrex cord strain relief bushings a snap. Specially designed for use with the Voltrex line, this one tool will install all sizes of Voltrex strain reliefs.

23N3647 8408-050. NET 56.95

Terminals and Wiring Duct

PANDUIT CORP.

PAN-TERM® TERMINALS



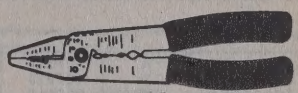
Stock No.	Type	Fig.	Wire Range	Stud Size	Pkg. of 100
76F854	PV18-6R-C	A	18-22	6	14.42
76F855	PV18-8R-C	A	18-22	8	14.42
76F856	PV14-6R-C	A	14-16	6	14.42
76F857	PV14-8R-C	A	14-16	8	14.42
76F858	PV14-10R-C	A	14-16	10	11.57
76F859	BSV18X-C	B	18-22	....	15.08
76F860	BSV14X-C	B	18-22	....	15.08
76F861	PV18-6F-C	C	18-22	6	8.78
76F862	PV18-8F-C	C	18-22	8	8.78
76F863	PV14-6F-C	C	14-16	6	8.78
76F864	PV14-8F-C	C	14-16	8	8.78

Stock No.	Type	Fig.	Wire Range	Stud Size	Pkg. of 100
76F865	PV14-10F-C	C	14-16	10	8.78
76F866	DVF18-250C	D	18-22	.25″	20.90
76F867	DVF14-250-C	D	14-16	.25″	20.90
81F4591	DV18-250P-C	E	22-18	.25″	33.69
81F4592	DV14-250P-C	E	16-14	.25″	33.69
81F4593	D-250A-C	F	.....	.25″	16.59
81F4594	DNF18-250F1M-C	G	22-18	.25″	21.23
81F4595	DNF14-250F1M-C	G	16-14	.25″	21.23
81F4596	DNF18-250F1B-C	H	22-18	.25″	21.23
81F4597	DNF14-250F1B-C	H	16-14	.25″	21.23

CT-160 CRIMPING TOOL

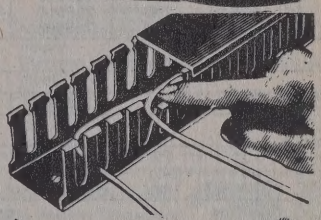
Multi-purpose tool crimps insulated and non-insulated terminals, splices, disconnects 22 AWG to 10 AWG bolt cutter, wire cutter and stripper. Plier nose. Cushioned handles.

81F4598 ..... **15.63**



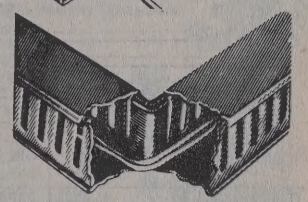
PLASTIC SNAP-SLOT WIRING DUCT

Vinyl plastic ducts. Standard 6 ft. sections can be cut with hacksaw. Snap-slot design permits easy insertion of wires. Wire can be removed with no electrical disconnect. Use ducts with CS-1 corner strips. Order cover, below. Standard put-up 24-ft., in four 6-ft. lengths. Supplied in light gray.



WIRING DUCT						DUCT COVER TO FIT					
Stock No.	WxH In.	24-ft. Std. Pkg. Wt., Lbs.	Per Pkg. 1-4	5-19	20-Up	Stock No.	Width In.	24-ft. Std. Pkg Wt., Lbs.	Per Pkg. 1-4	5-19	20-Up
78W301	.5 x .5	3	21.12	15.60	14.40	78W328	.5	1	5.76	4.56	4.08
78W304	.5 x 1	4	25.44	19.68	18.48						
78W308	.75 x .75	3½	25.44	19.68	18.48	78W332	.75	1½	6.00	4.80	4.56
78W312	1 x 1	4	27.36	21.12	19.92	78W336	1	2½	7.20	5.76	5.28
78W316	1 x 1.5	4½	33.84	26.40	24.96						
78W320	1 x 2	5	38.40	29.28	27.36						
78W352	1 x 3	8½	48.72	37.92	35.52	78W348	1.5	2¼	8.88	7.65	6.96
78W325	1.5 x 1.5	5	31.92	24.48	23.04						
78W356	1.5 x 2	4¾	42.24	31.92	29.28						
78W360	1.5 x 3	8½	52.80	40.32	37.44						
78W364	2 x 2	5¾	42.48	32.16	29.52	78W380	2	2½	11.04	8.64	8.16
78W368	2 x 3	9½	54.58	41.76	38.40						
78W372	3 x 2	8½	50.64	38.88	36.48	78W384	3	3¼	15.34	12.96	11.76
78W376	3 x 3	10½	62.88	48.72	44.88						
81F4599	4 x 4	11	97.92	83.52	74.16	81F5743	4		17.76	14.16	13.44
81F4600	4 x 5	11½	127.68	111.60	98.40						

78W340 Model CS-1 Four 6' lengths per pkg. ..... NET per pkg. 19.78
81F4601 NRI-C Nylon Rivets. Standard pkg. 1,000 ..... NET 3.26



CS-1 Corner Strip Duct for Making Smooth Rounded Corners

TNR Rivet Installation Tool. Long narrow design allows work in narrow ducts. Heat treated.
81F4606 NET 22.68
DNT Notching Tool. Fast easy "T" and corner junctions. Locking clasp. Plastic grip handles. Heat treated.
81F4605 NET 27.00

81F4605
DNT NOTCHING TOOL
NET 22.50

81F4606
TNR RIVET TOOL
NET 18.90

ADHESIVE BACKED LATCHING DUCT

Used to run wires on building interiors. 6 ft. lengths. Snaps open and closed for easy revisions. Std. ctn. 120 ft.

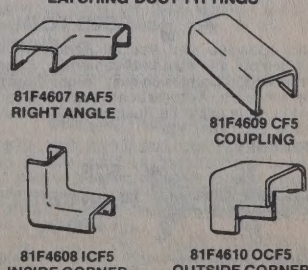
Stock No.	Type	Color	1-4	5-19	20-Up
78W385	LD5LG6-A	Lt. Gray	42.00	35.70	33.60
78W386	LD5WH6-A	White			
78W387	LD5BR6	Brown			
81F4603	LD5BL6-A	Black			
81F4604	LD5BG6-A	Beige			

LATCHING DUCT FITTINGS

Stock No.	Type	Description	Package 10
81F4607	RAF5 WH-X	Right Angle	6.10
81F4608	ICF5 WH-X	Inside Corner	
81F4609	CF5 WH-X	Coupling	
81F4610	OCF5 WH-X	Outside Corner	

Contact local Newark office for pricing and available colors.

LATCHING DUCT FITTINGS



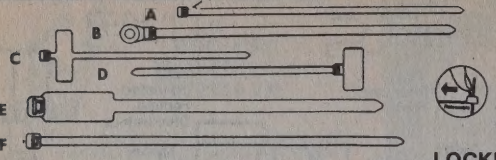
81F4607 RAF5 RIGHT ANGLE

81F4609 CF5 COUPLING

81F4608 ICF5 INSIDE CORNER

81F4610 OCF5 OUTSIDE CORNER

Cable Ties and Tools



CABLE TIES, CLAMPS, MARKERS

Speed harness tying with one piece self-locking cable ties. Permits tight installation on bundle with minimum effort. Installed by hand or with easy-to-use Panduit Cable Tie Tools to insure fast, uniform tensioning and flush cutoff. PRT Releasable Ties (Fig. F) are hand installed only. Normal service temperature −40° C to 85° C. Natural nylon is standard. Meets all applicable Military Specifications.

LOCKING CABLE TIES

Fig.	Bdl. Dia. Max.	Length	Stock No.	Type	Price per pkg. 1-9	Price per pkg. 10-24	Stock No.	Type	Price per pkg. 1-24	Price per pkg. 25-49	Price per pkg. 50-99
				L = Pkg. of 50; C = Pkg. of 100; D = Pkg. of 500; M = Pkg. of 1000							
A	¾"	3⅞"	**78F506**	PLT1M-C	4.80	3.84	**78F536**	PLT1M-M	15.60	14.69	13.86
A	1¼"	5⅝"	**78F507**	PLT1.51-C	5.71	4.57	**78F537**	PLT1.51M	20.01	18.86	17.80
A	1¾"	7⅞"	**78F508**	PLT25-C	7.23	5.79	**78F538**	PLT25-M	26.27	24.67	23.28
A	4"	14½"	**78F511**	PLT4H-L	23.76	19.01	.....	.....	.....	.....	.....
					1-4	5-9					
A	3"	11½"	**78F509**	PLT3S-C	14.22	11.38	**78F539**	PLT3S-M	69.61	66.13	63.18
A	4"	14½"	**78F510**	PLT4S-C	16.70	13.38	**78F540**	PLT4S-M	77.17	73.31	69.43
A	2"	8"	**78F581**	PLT2M-C	5.69	4.56	**78F587**	PLT2M-M	19.55	18.36	17.34
A	2"	8"	**78F582**	PLT21-C	6.87	5.48	**78F588**	PLT21-M	24.66	23.13	21.87
A	3"	11⅝"	**78F584**	PLT31-C	11.81	9.44	**78F590**	PLT31-M	58.91	56.51	52.93
A	4"	14⅝"	**78F585**	PLT41-C	15.07	12.06	**78F591**	PLT41-M	71.55	67.96	63.85

LOCKING CABLE CLAMPS AND MARKERS

Fig.	Bdl. Dia. Max.	Length	Stock No.	Type	1-4	5-9	Stock No.	Type	1-9	10-24	25-49
B	1¾"	7⅞"	**78F512**	PLC2S-S10C	10.96	8.76	**78F542**	PLC2S10-M	64.58	57.34	51.66
C	¾"	3⅞"	**78F513**	PLM1M-C	10.51	8.40	**78F543**	PLM1M-M	67.82	59.65	53.62
E	1¾"	7⅜"	**78F514**	PLM2S-C	21.14	16.92	.....	.....	.....	.....	.....
D	¾"	4⅜"	**78F592**	PLF1M-C	10.51	8.40	**78F593**	PLF1M-M	67.82	59.65	53.62

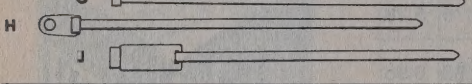
RELEASABLE CABLE TIES

Fig.	Bdl. Dia. Max.	Length	Stock No.	Type	1-4	5-9	Stock No.	Type	1-4	5-9	10-24
F	1¾"	7⅜"	**78F515**	PRT2S-C	11.90	9.53	**78F545**	PRT2S-M	53.56	50.88	48.69

STAINLESS STEEL TIES

G	2"	7⅞"	**81F4590**	MLT2S-CP	41.19	34.32	Steel ties can be installed by hand or with special Panduit tools. Consult local Newark office for tools.
G	4"	14⅛"	**81F4585**	MLT4S-CP	48.33	40.28	
G	4"	14⅛"	....	.....	.....	.....	

STA-STRAP® SERIES SS CABLE TIES AND CLAMPS



Permanent nylon ties for fast harnessing of wire bundles. Available as ties (SST-Fig. A) clamps with integral mounting tab (SSC-Fig. B) and identification markers (SSM-Fig. C) Type "M" = miniature tie, "I" = intermediate, "S" = standard, "H" = heavy duty. Sta-Straps meet applicable MIL specifications.
Recognized under the Components Program of Underwriters Laboratories, Inc.

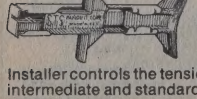
Fig.	Bundle Dia. Max.	Wt. Period	Stk. No.	Type	Price per pkg. 1-9	Price per pkg. 10-24	Stk. No.	Type	Price per 1000 1-24	Price per 1000 25-49	Price per 1000 50-99
				LP = Pkg. of 50; CP = Pkg. of 100; D = Pkg. of 500; M = Pk. of 1000							
G	¾"	4 oz.	**78F516**	SST1M-CP	5.23	4.19	**78F529**	SST1M-M	17.15	16.16	15.24
G	1¾"	6 oz.	**78F609**	SST2S-CP	7.49	6.00	.....	.....	.....	.....	.....
					1-4	5-9					
G	1½"	4 oz.	**78F517**	SST1.5M-CP	5.44	4.34	**78F530**	SST1.5M-M	21.01	19.74	18.65
G	1¼"	3 oz.	.....	.....	.....	.....	**78F610**	SST1.51-M	22.01	20.75	19.58
G	1¾"	5 oz.	**78F518**	SST21-CP	7.12	5.68	**78F531**	SST21-M	27.12	25.44	24.06
G	3"	5 oz.	**78F519**	SST31-CP	12.25	9.80	**78F532**	SST31-M	64.81	62.18	58.18
									1-4	5-9	10-24
G	3"	6 oz.	**78F520**	SST3S-CP	14.78	11.82	**78F533**	SST3S-M	76.67	72.84	69.51
G	4"	9 oz.	**78F521**	SST41-CP	15.64	12.51	**78F534**	SST41-M	82.73	77.00	70.53
G	4"	1¼ lbs.	**78F522**	SST4H-LP	24.66	19.73	**78F535**	SST4H-D	154.09	144.42	138.89
G	8"	2¼ lbs.	**78F523**	SST84-LP	52.09	41.67	.....	.....	.....	.....	.....
									1-9	10-24	25-49
H	1¾"	6 oz.	**78F524**	SSC2S-S10-CP	11.50	9.18	**78F501**	SSC2S-S10-M	67.41	59.85	53.95
H	4"	10 oz.	**78F525**	SSC4S-S10-CP	28.22	22.57	**78F502**	SSC4S-S10-M	143.92	127.79	115.18
H	4"	1¼ lbs.	**78F526**	SSC4H-S25-LP	36.57	29.20	.....	.....	.....	.....	.....
JC	1¾"	6 oz.	**78F527**	SSM2S-CP	22.10	17.71	**78F504**	SSM2S-D	134.59	91.35	83.23
JC	4"	10 oz.	**78F528**	SSM4S-CP	28.43	22.74	.....	.....	.....	.....	.....

CABLE TIE INSTALLATION TOOLS

GS2B TOOL

Hand operated tool ties all Panduit miniature, intermediate and standard cable ties, clamps, and markers. Incorporates an easy-to-use three position selector knob. Automatically tightens to pre-set tension, cuts cable tie flush, and ejects the cut off portion. Shpg. wt., 1 lb.

78F547 NET 67.75



STS PLUNGER-TYPE TOOL

Installer controls the tension. Cuts off miniature, intermediate and standard ties.

81F4588 NET 9.75

STH TOOL

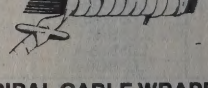
Cuts off standard and heavy ties.

81F4589 NET 10.25

GS4H TOOL

Heavy duty cabling tool. Designed for PANDUIT STANDARD AND HEAVY DUTY CABLE TIES AND CLAMPS. SHPG. WT., 1½ lbs.

78F566 NET 118.35



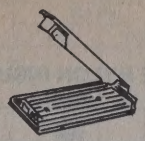
SPIRAL CABLE WRAPPING

Stock No.	Type	Outside Dia.	Bdl. Dia. Max.	Description	Coil Length	PRICE PER 100' 1-9	10-49	50-Up
78F548	T25F	¼"	2"	Polyethylene (clear)	100'	16.74	15.29	13.29
78F549	T25R	¼"	2"	Poly-Flame retardant (white)	100'	24.68	22.53	19.59
78F546	T25N	¼"	2"	Nylon Heat stabilized (clear)	100'	37.62	34.35	29.86
78F498	T25F-0	¼"	2"	Poly-Weather resistant (black)	100'	20.09	18.34	15.95
78F499	T25T	¼"	2"	TEFLON (white)	250'	300.00	260.87	.....
81F4587	T50N	½"	4"	Nylon Heat stabilized (clear)	250'	103.98	94.94	82.56

Wire Mounts and Markers

PANDUIT CORP.

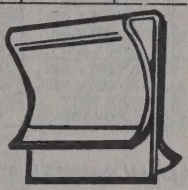
ADHESIVE BACKED FLAT CABLE CLAMPS



Used to mount flat cable up to 3" wide. Maximum stack height of 1¼". Releasable and reusable.

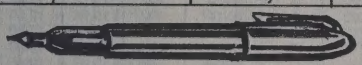
Stock No.	Type	For Cable Width up to	Pkg. of 100	
			1-4	5-9
81F4611	FCM1-A-C14	1"	37.54	30.02
78F628	FCM2-A-C14	3"	41.71	33.35
81F4612	FCM3-A-L14	3"	47.97	38.37

ADHESIVE BACKED FLAT CABLE CLIP



One size for any width flat cable. Maximum stack height of 1¼".

Stock No.	Type	Cable Width	Pkg. of 100	
			1-4	5-9
81F4613	FCC-A-C8	Any	8.19	7.25

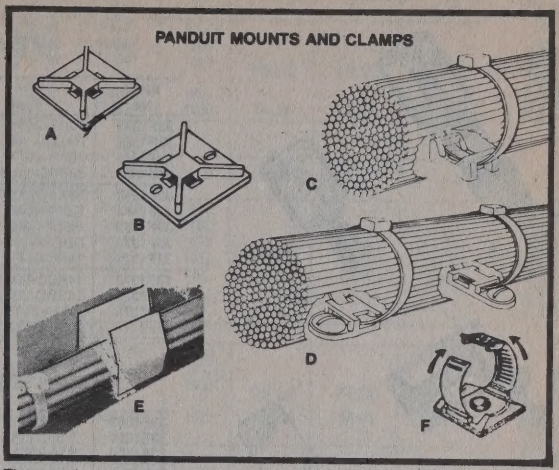


NYLON MARKING PENS

Used for permanently marking nylon parts.

Stock No.	Type	Color	Each	
			12-36	48 & over
78FX626	PX-0	Black	2.80	2.65
78FX627	PX-2	Red	2.80	2.65

PANDUIT MOUNTS AND CLAMPS



These make it easy to mount wires and cables to any surface in any position.

Stock No.	Type	Fig.	Description	Pkg. of 100	
				1-4	5-Up
78F622	ABMM-A-C	A	Miniature adhesive Backed mount	29.07	23.26
78F623	ABM2S-A-C	B	Standard adhesive Backed mount	33.31	26.64
78F624	TM2S8-C	C	Tie mount	9.47	7.58
78F620	TA1S8-C	D	Tie anchor	9.34	7.49
76F868	ACC-38-A-C	E	Cord Clip	19.89	15.90
78F869	ARC-68-A-C	F	Releasable Clamp	25.30	22.11

COLD SHRINK CONNECTOR INSULATORS

The 3M Brand Cold Shrink Connector Insulator protects without compromise, giving a seal against moisture and life long dependability One unit per bag; 10 bags per Carton.

Stock No.	Type	Conductor Size	Cable Dia., Inches:	Per Carton	
				1-9	10-up
81F1379	8404-7	#10-4	.166-.32	5.48	4.17
81F1380	8405-7	2 AWG-2/0**	.34-.72	4.79	3.65
81F1381	8406-9	2/0-250***	.34-74	5.71	4.35

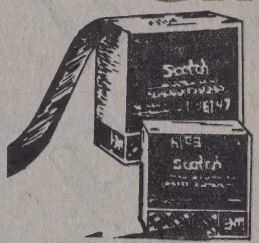
*Insulation, jacket (for 1000V) or connector.
**Designed for all IPCEA-NEMA power cables and most partial tension connectors, copper and/or aluminum, specifically the 5/8-inch common O.D. connector.
***Designed for IPCEA-NEMA power cables and all partial tension connectors, copper and/or aluminum, specifically the 15/16-inch common O.D. connector.
FOR PRICES, SEE PRICE PAGE SECTION D.

SEALING COMPOUND

Auto-Electric Sealing Compound

3M

Scotch Brand Auto-Electric Sealing Compound provides a quick, easy and sure method of protecting against corrosion and moisture on electrical connections in cars, trucks and trailers. The mastic forms a moisture-tight seal around connections and the tough elastic vinyl backing provides additional protection against vibration, road grime and abrasion — constant problems encountered on a vehicle. The roll form is designed for those large or odd-shaped jobs. The patch was specifically designed for that everyday splice or sealing job — no other product like it.



Stock No.	Part No.	Size	Type of Pkg.	Rolls/ box	Rolls/ case	Net Cost/Roll Less Than $300	Net Cost/Roll Over $300
81F1383	06147	2½" x 10'	Boxed	1	10	3.77	3.28

Stock No.	Part No.	Size	Type of Pkg.	Patches/ box	Boxes/ case	Net Cost/Box Less Than $300	Net Cost/Box Over $300
81F1383	06149	2½" x 2½"	BOXED	25	10	3.13	2.72

3M COMPANY SCOTCH TAPE

ELECTRICAL TAPE

Type 33. General purpose insulation. Di-electric strength: 10,000 volts. .007" thick with black plastic backing.

Stk. No.	Type	Size	Color	1-9	10-99
36F898	33	¾" x 66"	Blk.	1.91	1.58
36F899	33	¼" x 20"	Blk.	.74	.61
36F907	35	¼" x 66"	Gray	2.13	1.76

COLOR CODED TAPE

Type 35. Vinyl plastic electrical tape for color coding and general purpose insulation. Strong and comfortable.

Stk. No.	Type	Size	Color	1-9	10-99
36F900	35	½" x 20"	Red	.66	.55
36F901	35	½" x 20"	Wh.		
36F902	35	½" x 20"	Yel.		
36F903	35	½" x 20"	Gray		

TINNED COPPER SHIELDING TAPE

Type 24. All metal 100% tinned copper shielding braid continues electrostatic shielding. Knitted from No. 36AWG wire. Highly conformable.

Stk. No.	Type	Size	Color	1-9	10-99
36F904	24	1" x 15"	Tin	7.04	5.36

GLASS-CLOTH INSULATED TAPE

Tape 27. For operating temperatures requiring high-heat insulated wires. Thermosetting pressure-sensitive adhesive assures a permanent bond at temperatures up to 300°F. High tensile strength.

Stk. No.	Type	Size	Color	1-9	10-99
36F905	27	½" x 66"	Wh.	3.98	3.05

ALL-WEATHER TAPE

Type 88. A super-tough flame-retardant black plastic backing provides excellent resistance to abrasion, oil, acids, etc. Extra pliability and conformability at temperatures down to 0°F. The thickness is .0085".

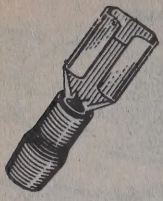
Stk. No.	Type	Size	Color	1-9	10-99
36F886	88	¼" x 66"	Blk.	2.32	1.91

SILICONE RUBBER TAPE

Type 70. High temperature splicing tape composed of fully cured inorganic silicone backing with a silicone pressure sensitive adhesive. Excellent conformability, high temperature characteristics, electric strength, and ozone resistance. Self cleaning rubber backing.

Stk. No.	Type	Size	Color	1-9	10-99
36F906	70	1" x 30"	Blk.	14.75	11.24

Thomas & Betts STA-KON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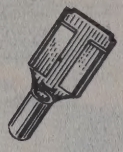
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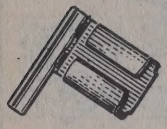
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D

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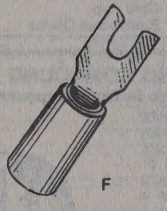
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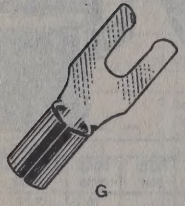
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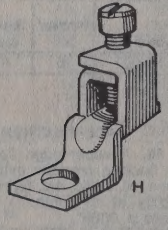
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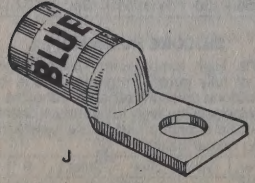


J

FEMALE NYLON INSULATED DISCONNECTS

Stock No.	Type	Tab Size	Fig.	Wire Size	Pkg. Of	Per Pkg. 1-9	Per Pkg. 10-Up
33F1362	RA18-250F	.250 x .032	A	22-18	100	23.00	18.40
33F1363	RAD18-203	.187/.205 x .032	A	22-18	100	23.13	18.50
33F1365	18RA-2577	.250 x .032	E	22-18	100	23.25	18.60
33F1366	18RAD-20377	.187/.205 x .032	A	22-18	100	24.13	19.30
33F1367	18RAD-20277	.187/.205 x .020	A	22-18	100	24.13	19.30
33F1368	RB14-250F	.250 x .032	A	16-14	100	23.00	18.40
33F1369	RBD14-203	.187/.205 x .032	A	16-14	100	23.13	18.50
33F1370	RBD14-202	.187/.205 x .020	A	16-14	100	23.13	18.50
33F1371	14RB-2577	.250 x .032	E	16-14	100	23.25	18.60
33F1372	14RBD-20377	.187/.205 x .032	A	16-14	100	24.13	19.30
33F1373	14RBD-20277	.187/.205 x .020	A	16-14	100	24.13	19.30
33F1375	RC10-250F	.250 x .032	A	12-10	50	14.82	11.85
33F1376	10RC-2577	.250 x .032	E	12-10	50	14.94	11.95

FEMALE NON-INSULATED DISCONNECTS

						1-4	5-9	10-Up
33F1305	A18-250*	.250 x .032	B	22-18	100	13.00	10.40	
33F1308	A18-250A	.250 x .032	C	22-18	100	16.00	12.80	
33F1309	B14-250*	.250 x .032	B	16-14	100	13.00	10.40	
33F1310	BD14-203	.187/.205 x .032	B	16-14	100	15.75	12.60	
33F1311	BD14-202	.187/.205 x .020	B	16-14	100	15.75	12.60	
33F1312	B14-250A	.250 x .032	C	16-14	100	16.00	12.80	
33F1313	C10-250F*	.250 x .032	B	12-10	100	23.63	18.90	
33F1314	C10-250A	.250 x .032	C	12-10	50	13.07	10.45	
						1-4	5-9	10-Up
31F2514	B250*	.250 x .032	B	16-14	1000	48.60	37.40	35.40

INSULATED MALE TABS

						1-9	10-Up
33F1321	18RA-250T	.250 x .032	D	22-18	100	22.50	18.00
33F1322	18RA-251T	.250 x .032		22-18	50	23.25	18.60
33F1323	14RB-250T	.250 x .032	D	16-14	100	22.50	18.00
33F1324	14RB-251T	.250 x .032		16-14	50	23.25	18.60
33F1325	10RC-250T	.250 x .032	D	12-10	50	13.07	10.45
33F1326	10RC-251T	.250 x .032		12-10	25	14.94	11.95

VINYL INSULATED LOCKING FORK TERMINALS FIG. F

Stock No.	Wire Size	Screen Size	Type	Pkg. Of	Per Pkg. 1-4	Per Pkg. 5&Up	
33F1331	22-18	6	18RA-6FL*	100	17.13	13.70	
33F1332	22-18	8	18RA-8FL*	100	17.13	13.70	
33F1333	22-18	10	18RA-10FL*	100	17.13	13.70	
33F1334	16-14	6	14RB-6FL*	100	17.13	13.70	
33F1335	16-14	8	14RB-8FL*	100	17.13	13.70	
33F1336	16-14	10	14RB-10FL*	100	17.13	13.70	
33F1337	12-10	6	10RC-6FL*	50	11.50	9.20	
33F1338	12-10	8	10RC-8FL*	50	11.50	9.20	
33F1339	12-10	10	10RC-10FL*	50	11.50	9.20	
33F1340	12-10	¼"	10RC-14FL*	50	13.94	11.15	
					1-4	5-9	10-Up
31F2550	22-18	6	RA2217*	1000	67.60	52.00	49.60

COLOR KEYED COMPRESSION CONNECTORS FOR CODE, NAVY AND FLEXIBLE COPPER CABLE FIG. J

Stock No.	Type	Cable Size	Bolt Size	Unit Quan.	Std. Pkg.	Net Cost per 100 Unit Quan.	Net Cost per 100 Std. Pkg.
81D1859	54104	#8 Str. or #8 Weld	10	50	500	57.50	46.00
81F1860	54105	#6 Str. or #6 Weld	¼	50	500	63.25	50.60
81F1861	54106	#4 Str. or #4 Weld	¼	50	500	82.88	66.30
81F1862	54107	#2 Str.	¼	25	250	160.00	128.00
81F1863	54108	#1 Str. or #2 Weld	¼	20	200	168.75	135.00
81F1864	54109	1/0 AWG or #1 Weld	⅜	10	100	180.00	144.00
81F1865	54110	2/0 AWG or 1/0 Weld	⅜	10	100	208.75	167.00
81F1866	54111	3/0 AWG or 2/0 Weld	⅜	10	100	246.25	197.00
81F1867	54112	4/0 AWG or 3/0 Weld	⅜	10	100	282.50	226.00
81F1868	54113	250 MCM	½	10	100	333.75	267.00
81F1869	54114	300 MCM	½	10	100	376.25	301.00
81F1870	54115	350 MCM	½	10	100	403.75	323.00
81F1871	54116	400 MCM	½	6	60	467.50	374.00
81F1872	54118	500 MCM	½	6	60	576.25	461.00

LUG-IT® CONNECTORS FIG. H

81F1856	35301	#14 to #6	#10	100	500	70.63	56.50
81F1857	35401	#8 to #2	¼	50	250	92.63	74.10
81F1858	35501	#4 to 2/0	¼	20	100	190.00	152.00

Standard Sta-Kon Terminals Thomas & Betts

VINYL INSULATED RING TERMINALS (*) U.L. Listed. C&A approved

Wire Size	Screw Size	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-Up	Stk. No.	Type	Pkg. of	Per Pkg. 1-4	Per Pkg. 5-9	Per Pkg. 10-24
22-16	4	65F701	18RA-4	100			31F107	RA77	1000			
22-16	6	65F702	18RA-6	100			31F108	RA857	1000			
22-16	8	65F703	18RA-8	100	15.38	12.30	31F109	RA867	1000	65.00	49.90	47.40
18-14	6	65F704	14RB-6	100			.....	.....	....			
18-14	8	65F705	14RB-8	100			31F114	RB867	1000			
18-14	10	65F706	14RB-10	100			31F115	RB877	1000	784.20	65.00	47.40
12-10	8	65F707	10RC-8	50	9.94	7.95	.....	.....	....	.....	.....	.....
12-10	10	65F708	10RC-10	50			.....	.....	....	.....	.....	.....
12-10	¼"	65F709	10RC-14	50	11.75	9.40	.....	.....	....	.....	.....	.....

VINYL INSULATED FORK TERMINALS

22-16	6	65F710	18RA-6F	100			31F129	RA1167	1000			
22-16	8	65F711	18RA-8F	100			31F130	RA1147	1000			
22-16	10	65F712	18RA-10F	100	15.38	12.30	31F131	RA1157	1000	65.00	49.90	47.40
18-14	6	65F713	14RB-6F	100			31F132	RB647	1000			
18-14	8	65F714	14RB-8F	100			31F133	RB657	1000	784.50	65.00	47.40
18-14	10	65F715	14RB-10F	100			.....	.....	....	.....	.....	.....
12-10	10	65F716	10RC-10F	50	9.94	7.95	.....	.....	....	.....	.....	.....

NYLON INSULATED FORK TERMINALS

22-16	6	65F728*	RA18-6F	100			31F236	RA1103*	1000			
22-16	8	65F729*	RA18-8F	100			31F237	RA1123*	1000			
22-16	10	65F730*	RA18-10F	100	21.75	17.40	31F238	RA1153*	1000	96.60	74.00	70.20
18-14	6	65F731*	RB14-6F	100			.....	.....	....			
18-14	8	65F732*	RB14-8F	100			31F232	RB1123*	1000	125.50	96.60	70.20
18-14	10	65F733*	RB14-10F	100			.....	.....	....	.....	.....	.....
12-10	8	65F734*	RC10-8F	50	13.00	10.40	.....	.....	....	.....	.....	.....
12-10	10	65F735*	RC10-10F	50			.....	.....	....	.....	.....	.....
12-10	¼"	31F235*	RC10-14F	50	14.19	11.35	.....	.....	....	.....	.....	.....

NON-INSULATED RING TERMINALS

22-16	6	65F736	A18-6	100			.....	.....	....	.....	.....	.....
22-16	8	65F737	A18-8	100			.....	.....	....	.....	.....	.....
22-16	10	65F738	A18-10	100	9.38	7.50	.....	.....	....	.....	.....	.....
18-14	6	65F739	B14-6	100			31F202	A87	1000	41.70	32.00	30.50
18-14	8	65F740	B14-8	100			.....	.....	....	.....	.....	.....
18-14	10	65F741	B14-10	100			.....	.....	....	.....	.....	.....
12-10	8	65F742	C10-8	50	6.63	5.30	31F209	C77	500	30.30	23.20	22.05
12-10	10	65F743	C10-10	50			.....	.....	....			
12-10	¼"	65F744	C10-14	50	7.50	6.00	31F211	C71	500	34.70	26.55	25.10

NON-INSULATED FORK TERMINALS

22-16	6	65F745	A18-6F*	100	9.38	7.50	31F214	A116*	1000	41.70	32.00	30.50
22-16	8	65F746	A18-8F*	100			31F138	A114*	1000			
22-16	10	65F747	A-18-10F*	100			.....	.....	....			
18-14	6	65F748	B14-6F*	100			.....	.....	....			
18-14	8	65F749	B14-8F*	100	9.38	7.50	31F140	B65*	1000	41.70	32.00	30.50
18-14	10	65F750	B14-10F*	100			.....	.....	....	.....	.....	.....
12-10	8	65F751	C10-8F*	50	6.63	5.30	.....	.....	....	.....	.....	.....
12-10	10	65F752	C10-10F	50			.....	.....	....	.....	.....	.....
12-10	¼"	65F753	C10-14F*	50	7.50	6.00	.....	.....	....	.....	.....	.....

12

TERMINAL KITS

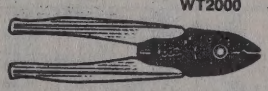
Stock No.	Cat. No.	Contents		Price
81F9218	PK-2005	1 ABMK-3 Installing Tool 1 WT2000 Installing Tool 100 TY-523M Cable Ties 200 TY-525M Cable Ties 1 WM-0-45 Marker Book 1 WM-A-Z Marker Book 100, 2RA-18X Butt Splices	100 2RB-14X Splices 50 2RC-10X Splices 100 18RA-6FL Terminals 100 14RB-8FL Terminals 100 14RB-10FL Terminals 50 10RC-10FL Terminals	185.00
81F9219	PM-1002 INCLUDES TERMINALS WT-2000 & STEEL BOX	100 18RA-6FL Terminals 100 18RA-8FL Terminals 100 14RB-8FL Terminals 100 14RB-10FL Terminals	50 10RC-10FL Terminals 100 2RA-18X Splices 100 2RB-14X Splices 50 2RC-10X Splices	150.00
81F9220	PK-1003 INCLUDES DISCONNECT TERMINALS WT-2000 & STEEL BOX	100 18RA-250F Disconnects 100 14RB-250F Disconnects 50 10RC-250F Disconnects 100 A18-250F Disconnects	100 B14-250 Disconnects 50 C10-250F Disconnects 50 B14-250A Disconnects 100 14RB-250T Disconnects	160.00
81F9221	ORG-2	HEAVY DUTY STEEL DRAWER With (17) Compartments to Hold STA-KON® Terminals, Color-Keyed® Lugs, TY-RAP® Cable Ties, and Other Small Parts. DRAWER Does Not Include T&B Products		16.00

NYLON INSULATED RING TERMINALS

22-16	4	- 148	65F719	RA18-4	100			
22-16	6	- 102	65F720	RA-18-6	100			
22-16	8	- 149	65F721	RA18-8	100	21.75	17.40	
18-14	6	- 107	65F722	RB14-6	100			
18-14	8	- 153	65F723	RB14-8	100			
18-14	10	- 108	65F724	RB14-10	100			
12-10	8	- 156	65F725	RC10-8	50	13.00	10.40	
12-10	10	- 112	65F726	RC10-10	50			
12-10	¼"	- 157	65F727	RC10-14	50	14.19	11.35	

INSTALLATION TOOLING AND WIRE STRIPPER

WT2000



WT111M

ABMK-1

WT145C WT130A

COMPRESSION TOOLS

TBM5

Installs connectors, joints, lugs, splices, and taps over a wire range of #8 AWG through 250 MCM copper, and #12 AWG through 4/0 AWG aluminum.
81F2297 . . . . . Net: $182.00

TBM2

Installs connectors and lugs over a wire range of #8 AWG through #2 AWG copper, and #12 AWG through #6 AWG aluminum. Also installs copper taps from two #10 AWG to two #6 AWG, and copper pigtails from three #12 AWG to three #8 AWG. This tool features a COLOR-KEYED® dial which the operator rotates to match the color-coded connectors. It is equipped with the SHURE STAKE® mechanism.
81F2296 . . . . . Net: $93.00

WT2000 Accommodates insulated and non-insulated terminals from #22-10 wire range. Use for installing terminals, wire cutters, stripper and all purpose electricians' plier type tool.
34F1259. NET. 16.50

ABMK-1 Self adjusting wire stripper, ranges from 30-12 AWG strips. Stranded or solid, and aluminum or copper.
31F2606. NET. 49.00

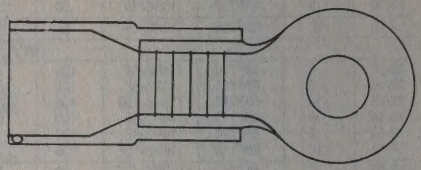
WT111M Accommodates non-insulated terminals from #22-10 wire range. Can be used as wire cutter.
31F265. NET 14.50
SHURE STAKE Mechanism prevents dies from releasing terminal until proper compression has been fully completed. For insulated #22-10 AWG use WT145C non-ins. use WT130A.
31F266. Type WT145C . . . 105.00
31F267. Type WT130A 82.00

VOLTREX® brand Solderless Terminals and Connectors

Listed E58918 | OSHA Acceptable | Certified LR22190-GM

SUPERIOR TERMINAL CONSTRUCTION OFFERS MANY ADVANTAGES

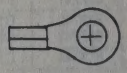
Wire guide barrel provides excellent electrical and mechanical connection. One piece, burr free construction for maximum electrical conductivity. Electro-tin plating for maximum corrosion resistance. Constructed of pure electrolytic (ETP) copper annealed to relieve stress points and to assure maximum installed strength. Barrel to pad transition designed to minimize flexing and bending. Multiple "V" grooves in barrel give maximum holding power and current flow. Insulation is molded of tough, resistant electrical grade vinyl or nylon. Color coding. Molded flange for accurate location of crimper. Open-end design permits visual inspection of wire location before and after crimping.



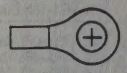
- Open end design
- ETP copper annealed
- Color coded
- One piece construction
- Electro-tin plating

Stock No.	Type	WIRE RANGE	STUD SIZE	Std. Pkg.	Price per Pkg. 1-9	10-49	50-99	100-249
31N2800	CRS-TO-2200	26*	0	100	7.07	6.06	5.05	4.04
31N2801	CRS-TO-2202	to	2	100	7.07	6.06	5.05	4.04
31N2802	CRS-TO-2204	24	4	100	7.07	6.06	5.05	4.04
31N2803	CRS-TO-2206	Wire	6	100	6.44	5.52	4.60	3.68
31N546	CRS-TO-1802		2	100	7.07	6.06	5.05	4.04
31N547	CRS-TO-1804	22	4	100	7.07	6.06	5.05	4.04
31N548	CRS-TO-1806	to	6	100	7.07	6.06	5.05	4.04
31N549	CRS-TO-1808	18	8	100	7.07	6.06	5.05	4.04
31N550	CRS-TO-1810	Wire	10	100	7.07	6.06	5.05	4.04
31N551	CRS-TO-1825		1/4	100	10.15	8.70	7.25	5.80
31N2804	CRS-TO-1404	16	4	100	7.77	6.66	5.55	4.44
31N555	CRS-TO-1406	to	6	100	7.07	6.06	5.05	4.04
31N556	CRS-TO-1408	14	8	100	7.07	6.06	5.05	4.04
31N557	CRS-TO-1410	Wire	10	100	7.07	6.06	5.05	4.04
31N558	CRS-TO-1425		1/4	100	9.31	7.98	6.65	5.32
31N2805	CRS-TO-1006		6	50	5.25	4.50	3.75	3.00
31N2806	CRS-TO-1008	12	8	50	5.25	4.50	3.75	3.00
31N562	CRS-TO-1010	to	10	50	5.25	4.50	3.75	3.00
31N563	CRS-TO-1025	10	1/4	50	6.16	5.28	4.40	3.52
31N564	CRS-TO-1031	Wire	5/16	50	6.16	5.28	4.40	3.52
31N565	CRS-TO-1037		3/8	50	6.16	5.28	4.40	3.52
31N121	CRS-ZO-1804	22	4	100	11.97	10.26	8.55	6.84
31N200	CRS-ZO-1806	to	6	100	11.97	10.26	8.55	6.84
31N201	CRS-ZO-1808	18	8	100	11.97	10.26	8.55	6.84
31N202	CRS-ZO-1810	Wire	10	100	11.97	10.26	8.55	6.84
31N204	CRS-ZO-1406	16	6	100	11.97	10.26	8.55	6.84
31N205	CRS-ZO-1408	to	8	100	11.97	10.26	8.55	6.84
31N206	CRS-ZO-1410	14	10	100	11.97	10.26	8.55	6.84
31N207	CRS-ZO-1425	Wire	1/4	100	14.14	12.12	10.10	8.08
31N208	CRS-ZO-1006	12	6	50	9.59	8.22	6.85	5.48
31N209	CRS-ZO-1008	to	8	50	9.59	8.22	6.85	5.48
31N210	CRS-ZO-1010	10	10	50	9.59	8.22	6.85	5.48
31N211	CRS-ZO-1025	Wire	1/4	50	10.50	9.00	7.50	6.00
31N2810	CRS-ZO-0810		10	25	9.73	8.34	6.95	5.56
31N2811	CRS-ZO-0825	#8	1/4	25	9.73	8.34	6.95	5.56
31N2812	CRS-ZO-0831	Wire	5/16	25	13.23	11.34	9.45	7.56
31N2813	CRS-ZO-0837		3/8	25	13.23	11.34	9.45	7.56
31N2814	CRS-ZO-0850		1/2	20	1.33	11.40	9.50	7.60
31N2815	CRS-ZO-0610		10	20	12.67	10.86	9.05	7.24
31N2816	CRS-ZO-0625	#6	1/4	20	11.97	10.26	8.55	6.84
31N2817	CRS-ZO-0631	Wire	5/16	20	12.11	10.38	8.65	6.92
31N2818	CRS-ZO-0637		3/8	20	12.11	10.38	8.65	6.92
31N2819	CRS-ZO-0650		1/2	10	7.56	6.48	5.40	4.32
31N2820	CRS-ZO-0425	#4	1/4	10	8.75	7.50	6.25	5.00
31N2821	CRS-ZO-0431	Wire	5/16	10	8.75	7.50	6.25	5.00
31N2822	CRS-ZO-0437		3/8	10	8.75	7.50	6.25	5.00
31N569	CRS-TV-1802		2	100	13.37	11.46	9.55	7.64
31N570	CRS-TV-1804	22	4	100	13.37	11.46	9.55	7.64
31N571	CRS-TV-1806	to	6	100	13.37	11.46	9.55	7.64
31N572	CRS-TV-1808	18	8	100	13.37	11.46	9.55	7.64
31N573	CRS-TV-1810	Wire	10	100	13.37	11.46	9.55	7.64
31N574	CRS-TV-1825		1/4	100	15.47	13.26	11.05	8.84
31N2807	CRS-TV-1404	16	4	100	13.37	11.46	9.55	7.64
31N578	CRS-TV-1406	to	6	100	13.37	11.46	9.55	7.64
31N579	CRS-TV-1408	14	8	100	13.37	11.46	9.55	7.64
31N580	CRS-TV-1410	Wire	10	100	13.37	11.46	9.55	7.64
31N581	CRS-TV-1425		1/4	100	15.47	13.26	11.05	8.84
31N2808	CRS-TV-1006		6	50	8.47	7.26	6.05	4.84
31N2809	CRS-TV-1008	12	8	50	10.85	9.30	7.75	6.20
31N585	CRS-TV-1010	to	10	50	8.47	7.26	6.05	4.84
31N586	CRS-TV-1025	10	1/4	50	9.87	8.46	7.05	5.64
31N587	CRS-TV-1031	Wire	5/16	50	9.87	8.46	7.05	5.64
31N588	CRS-TV-1037		3/8	50	9.87	8.46	7.05	5.64

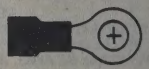
Type "CRS" Ring Tongue Terminal Style "TO" Non-Insulated, Butted Seam Barrel



Type "CRS" Ring Tongue Terminal Style "ZO" Non-Insulated, Brazed Seam Barrel



Type "CRS" Ring Tongue Terminal Style "TV" Vinyl Insulated, Butted Seam Barrel



(*) 26-24 Wire Range Only, Not UL listed.

12

Solderless Terminals and Connectors

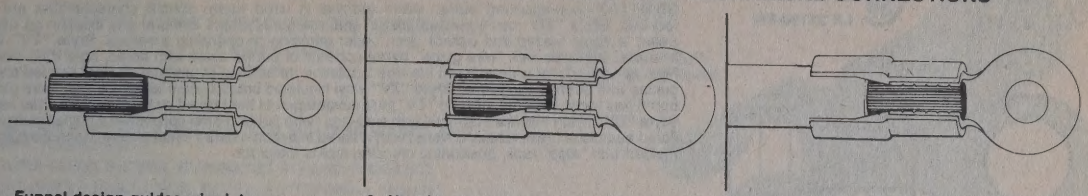
VOLTREX® brand

Listed E58918

OSHA Acceptable

Certified LR22190-GM

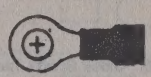
WIRE GUIDE BARREL FOR RELIABLE ELECTRICAL AND MECHANICAL CONNECTIONS



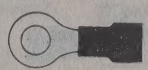
1. Funnel design guides wire into position.
2. No wire strand hang-up as wire is inserted. Fast, positive installation.
3. Wire in place, ready for crimping.

Stock No.	Type	Wire RANGE	Stud SIZE	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99
31N107	CRS-ZV-1804	22	4	100			
31N108	CRS-ZV-1806	to	6	100	19.74	16.92	14.10
31N109	CRS-ZV-1808	18	8	100			
31N113	CRS-ZV-1406	16	6	100			
31N114	CRS-ZV-1408	to	8	100	19.74	16.92	14.10
31N115	CRS-ZV-1410	14	10	100			
31N116	CRS-ZV-1425	Wire	¼	100	22.12	18.96	15.80
31N117	CRS-ZV-1006	12	6	50			
31N119	CRS-ZV-1010	to	10	50	13.30	11.40	9.50
31N120	CRS-ZV-1025	10	¼	50	15.26	13.08	10.90
31N670	CRS-ZV-0810		10	25			
31N671	CRS-ZV-0825		¼	25	12.60	10.80	9.00
31N672	CRS-ZV-0831	#8 Wire	5/16	25			
31N673	CRS-ZV-0837		3/8	25	15.75	13.50	11.25
31N674	CRS-ZV-0850		½	20	15.26	13.08	10.90
31N675	CRS-ZV-0610		10	20			
31N676	CRS-ZV-0625		¼	20	14.35	12.30	10.25
31N677	CRS-ZV-0631	#6 Wire	5/16	20			
31N678	CRS-ZV-0637		3/8	20	14.49	12.42	10.35
31N679	CRS-ZV-0650		½	10	8.61	7.38	6.15
31N680	CRS-ZV-0410		10	10			
31N681	CRS-ZV-0425		¼	10			
31N682	CRS-ZV-0431	#4 Wire	5/16	10	9.66	8.28	6.90
31N683	CRS-ZV-0437		3/8	10			
31N684	CRS-ZV-0450		½	10			
31N100	CRS-DY-2202	26 to	2	100			
31N101	CRS-DY-2204	22	4	100	43.68	37.44	31.20
31N2823	CRS-DY-2206	Wire	6	100			
31N105	CRS-DY-1804		4	100			
31N219	CRS-DY-1806	22	6	100			
31N220	CRS-DY-1808	to	8	100	20.37	17.46	14.55
31N221	CRS-DY-1810	18	10	100			
31N222	CRS-DY-1825	Wire	¼	100	24.92	21.36	17.80
31N2824	CRS-DY-1404		4	100			
31N223	CRS-DY-1406	16	6	100			
31N224	CRS-DY-1408	to	8	100	20.37	17.46	14.55
31N225	CRS-DY-1410	14	10	100			
31N226	CRS-DY-1425	Wire	¼	100	24.92	21.36	17.80
31N228	CRS-DY-1008	12	8	50			
31N229	CRS-DY-1010	to	10	50	12.88	11.04	9.20
31N230	CRS-DY-1025	10	¼	50	14.07	12.06	10.05
32N056	CSS-TO-2200	26 to	0	100			
31N2825	CSS-TO-2204	22*	4	100	7.07	6.06	5.05
32N058	CSS-TO-2206	Wire	6	100			
31N2826	CSS-TO-1806	22 to	6	100			
31N2827	CSS-TO-1808	18	8	100	7.07	6.06	5.05
31N2828	CSS-TO-1810	Wire	10	100			
31N2829	CSS-TO-1406	16 to	6	100			
31N2830	CSS-TO-1408	14	8	100	7.07	6.06	5.05
31N524	CSS-TO-1410	Wire	10	100			
31N525	CSS-TO-1010	12-10 Wire	10	50	5.25	4.50	3.75
31N2831	CSS-TV-1806	22 to	6	100			
31N2832	CSS-TV-1808	18	8	100	13.37	11.46	9.55
31N2833	CSS-TV-1810	Wire	10	100			
31N2834	CSS-TV-1406	16 to	6	100			
31N2835	CSS-TV-1408	14	8	100	13.37	11.46	9.55
31N538	CSS-TV-1410	Wire	10	100			
31N2836	CSS-TV-1006	12 to	6	50			
31N2837	CSS-TV-1008	10	8	50	8.47	7.26	6.05
31N539	CSS-TV-1010	Wire	10	50			
31N2838	CSS-DY-2204	26 to 22	4	100	43.68	37.44	31.20
31N2839	CSS-DY-2206	Wire	6	100			
31N2840	CSS-DY-1806	22 to 18	6	100	20.37	17.46	14.55
31N2842	CSS-DY-1810	Wire	10	100			
31N2843	CSS-DY-1406	16 to	6	100	20.37	17.46	14.55
31N2844	CSS-DY-1408	14	8	100			

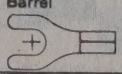
Type "CRS" Ring Tongue Terminal Style "ZV" Vinyl Insulated, Brazed Seam Barrel



Type "CRS" Ring Tongue Terminal Style "DY" Nylon Insulated, "Sure-Grip" Barrel



Type "CSS" Spade Tongue Terminal Style "TO" Non-Insulated, Butted Seam Barrel



Type "CSS" Spade Tongue Terminal Style "TV" Vinyl Insulated, Butted Seam Barrel

Type "CSS" Spade Tongue Terminal Style "DY" Nylon Insulated, "Sure-Grip" Barrel

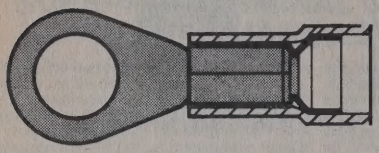
*) 26-24 Wire Range Only. Not UL Listed.

12

LISTED E58918

CERTIFIED LR 22190-6M

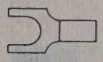
OSHA Acceptable



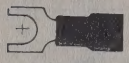
Style "TO" non-insulated butted seam terminal is used where special characteristics are not required. **Style "ZO"** non-insulated brazed seam terminal allows crimp at any location on barrel. Seam is silver brazed and cannot open under crimping or operating pressure. **Style "TV"** vinyl insulated terminals with "wire guide" barrel consists of butted seam with flared, rigid PVC sleeve. Flexure occurs over wide area on the wire insulation rather than at juncture. Funnel shaped sleeve guides wire strands into barrel. **Style "ZV"** vinyl insulated brazed seam terminals with "wire guide" barrel has same features as style "TV" plus advantages of the brazed seam over the butted seam. **Style "DY"** nylon insulated terminal with sure-grip "wire guide" barrel consists of a butted seam with flared seamless brass sleeve covered with a flared injection molded nylon sleeve. Because nylon is molded with "step" radii, positioning crimping tool is foolproof.

Type "CBS" Block Spade Tongue Style "TO" Non-Insulated Butted Seam Barrel

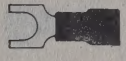
Type "CBS" Block Spade Tongue Style "ZO" Non-Insulated Brazed Seam Barrel



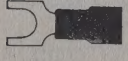
Type "CBS" Block Spade Tongue Style "TV" Vinyl Insulated Butted Seam Barrel



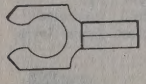
Type "CBS" Block Spade Tongue Style "ZV" Vinyl Insulated Brazed Seam Barrel



Type "CBS" Block Spade Tongue Style "DY" Nylon Insulated "Sure-Grip" Barrel



Type "CLS" Snap Spade Tongue Style "TO" Non-Insulated Butted Seam Barrel



Type "CLS" Snap Spade Tongue Nylon Insulated "Sure Grip" Barrel

Stock No.	Type	Wire Range	Stud Size	Std. Pkg.	PRICE PER PKG. 1-9	10-49	50-99
31N518	CBS-TO-1804	22 to 18	4	100	7.07	6.06	5.05
31N519	CBS-TO-1806		6	100			
31N520	CBS-TO-1808		8	100			
31N522	CBS-TO-1406	16 to 14	6	100	7.07	6.06	5.05
31N523	CBS-TO-1408		8	100			
31N214	CBS-ZO-1806	22 to 18	6	100	11.97	10.26	8.55
31N138	CBS-ZO-1808		8	100			
31N216	CBS-ZO-1406	16 to 14	6	100	11.97	10.26	8.55
31N140	CBS-ZO-1408		8	100			
31N142	CBS-ZO-1006	12-10	6	50	9.66	8.28	6.90
31N532	CBS-TV-1804	22 to 18	4	100	13.37	11.46	9.55
31N533	CBS-TV-1806		6	100			
31N534	CBS-TV-1808		8	100			
31N535	CBS-TV-1810		10	100			
31N536	CBS-TV-1406	16 to 14	6	100	13.37	11.46	9.55
31N537	CBS-TV-1408		8	100			
31N2847	CBS-TV-1410		10	100			
31N129	CBS-ZV-1806	22 to 18	6	100	19.74	16.92	14.10
31N130	CBS-ZV-1808		8	100			
31N131	CBS-ZV-1810		10	100			
31N132	CBS-ZV-1406	16 to 14	6	100	19.74	16.92	14.10
31N133	CBS-ZV-1408		8	100			
31N134	CBS-ZV-1410		10	100			
31N2848	CBS-DY-1804	22 to 18	4	100	20.37	17.46	14.55
31N236	CBS-DY-1806		6	100			
31N237	CBS-DY-1808		8	100			
31N238	CBS-DY-1810		10	100			
31N231	CBS-DY-1406	16 to 14	6	100	20.37	17.46	14.55
31N232	CBS-DY-1408		8	100			
81N233	CBS-DY-1410		10	100			
31N127	CBS-DY-1006	12 to 10	6	50	12.88	11.04	9.20
31N234	CBS-DY-1010		10	50			
31N2850	CLS-TO-1806	22-18	6	100	7.70	6.60	5.50
31N2853	CLS-TO-1406	16 to 14	6	100	7.70	6.60	5.50
31N2855	CLS-TO-1408		8	100			
31N2857	CLS-TO-1006	12 to 10	6	50	5.74	4.92	4.10
31N2864	CLS-DY-1804	22 to 18	4	100	21.91	18.78	15.65
31N2865	CLS-DY-1806		6	100			
31N2866	CLS-DY-1808		8	100			
31N2869	CLS-DY-1406	16 to 14	6	100	21.91	18.78	15.65
31N2870	CLS-DY-1408		8	100			
31N2872	CLS-DY-1006	12 to 10	6	50	15.12	12.96	10.80
31N2873	CLS-DY-1008		8	50			
31N2874	CLS-DY-1010		10	50			
31N235	CLS-DY-1025	12 to 10	¼	50	17.22	14.76	12.30

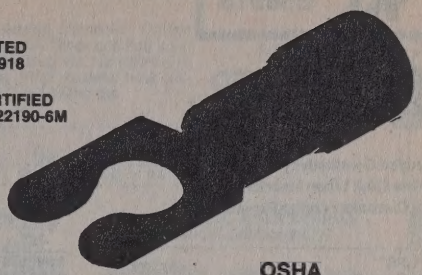
MAKE NEWARK YOUR DEPENDABLE SOURCE FOR ALL ELECTRONIC PARTS AND EQUIPMENT

Solderless Terminals and Connectors VOLTREX® brand

TYPE "CLS" SNAP-SPADE TERMINAL FEATURES:

LISTED E58918

CERTIFIED LR 22190-6M



OSHA Acceptable

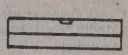
- MULTIPLE "V" GROOVES FOR MAX. HOLDING POWER AND MIN. RESISTANCE
- WIRE GUIDE BARREL ELIMINATES STRAND HANGUPS
- FUNNELED INSULATION, BEVELLED TERMINAL MOUTH FOR EASY WIRE INSERTION
- NON-SLIP INSULATION FOR EASE OF POSITIONING CRIMPING TOOL
- MAX. CORROSION PROTECTION, INSTALLATION STRENGTH, FLEXING RESISTANCE

Stock No.	Type	Wire Range	Stud Size	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99
31N2860	CLS-TV-1804	22	4	100			
31N2550	CLS-TV-1806	to	6	100	14.35	12.30	10.25
31N2552	CLS-TV-1808	18	8	100			
31N2553	CLS-TV-1810		10	100			
31N2861	CLS-TV-1404		4	100			
31N2554	CLS-TV-1406	16	6	100	14.35	12.30	10.25
31N2556	CLS-TV-1408	to	8	100			
31N2557	CLS-TV-1410	14	10	100			
31N2862	CLS-TV-1425		1/4	100	17.29	14.82	12.35
31N2863	CLS-TV-1006	12	6	50			
31N666	CLS-TV-1008	to	8	50	10.57	9.06	7.55
31N667	CLS-TV-1010	10	10	50			
31N668	CLS-TV-1025		1/4	50	12.04	10.32	8.60

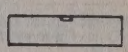
Type "CLS"
Snap Spade Tongue
Style "TV" Vinyl Insulated
Butted Seam

Stock No.	Type	Wire Range	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99
31N566	CCS-TO-1818	22-18	100			
31N567	CCS-TO-1414	16-14	100	7.42	6.36	5.30
31N568	CCS-TO-1010	12-10	50	6.16	5.28	4.40
31N247	CCS-ZO-1818	22-18	100			
31N248	CCS-ZO-1414	16-14	100	20.16	17.28	14.40
31N249	CCS-ZO-1010	12-10	50	13.37	11.46	9.55
31N2903	CCS-ZO-0808	8	50	24.71	21.18	17.65
31N2904	CCS-ZO-0606	6	25	19.81	16.98	14.15
31N589	CCS-TV-1818	22-18	100	14.14	12.12	10.10
31N590	CCS-TV-1414	16-14	50	7.49	6.42	5.35
31N591	CCS-TV-1010	12-10	50	9.10	7.80	6.50
31N250	CCS-ZV-1818	22-18	100	22.02	17.16	14.30
31N251	CCS-ZV-1414	16-14	50	10.43	8.94	7.45
31N252	CCS-ZV-1010	12-10	50	13.30	11.40	9.50
31N2906	CCS-ZV-0808	8	20	12.95	11.10	9.25
31N2907	CCS-ZV-0606	6	10	10.29	8.82	7.35
31N2909	CCS-DY-2222	26-22	100	33.53	28.74	23.95
31N2910	CCS-DY-1818	22-18	100	40.11	34.38	28.65
31N2911	CCS-DY-1414	16-14	50	20.09	17.22	14.35
31N2912	CCS-DY-1010	12-10	50	23.87	20.46	17.05
31N163	CCP-TO-1818	22-18	100	6.79	5.82	4.85
31N164	CCP-ZO-1414	16-14	100	13.51	11.58	9.65
31N165	CCP-ZO-1010	12-10	100	18.76	16.08	13.40
31N260	CCP-ZV-1818	22-18	100	22.26	19.08	15.90
31N261	CCP-ZV-1414	16-14	100			

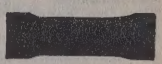
Type "CCS" Butt Splice
Style "TO" Non-Insulated
Butted Seam Barrel



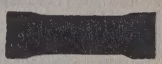
Type "CCS" Butt Splice
Style "ZO" Non-Insulated
Brazed Seam or
Seamless Barrel



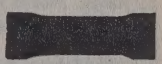
Type "CCS" Butt Splice
Style "TV" Vinyl Insulated
Butted Seam Barrel



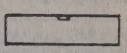
Type "CCS" Butt Splice
Style "ZV" Vinyl Insulated
Brazed Seam or
Seamless Barrel



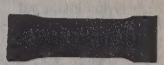
Type "CCS" Butt Splice
Style "DY" Nylon Insulated
"Sure-Grip" Barrel

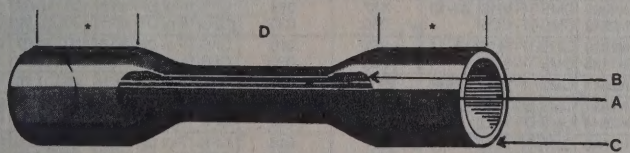


Type "CCP" Parallel Splice
Style "ZO" Non-Insulated
Brazed Seam or Seamless
Barrel



Type "CCP" Parallel Splice
Style "ZV" Vinyl Insulated
Brazed Seam or
Seamless Barrel





A: Seamless butt splice
B: Nylon insulation
C: Polyolefin jacket
D: Normal crimping area

*Sealing & encapsulating area - Application of heat (340 to 480 F) results in polyolefin shrinking around wire insulation while inner wall of polyolefin melts and seals

NYLON/POLYOLEFIN INSULATED SELF SEALING "ENCAPSULATED" SEAMLESS BUTT SPLICE

Stock No.	Type	Wire Range	L*	Std. Pkg.	Price per pkg. 1-9	10-49	50-99
81N5332	CCS-ZM-1818	22-18	1.875"	25	17.02	14.89	12.77
81N5333	CCS-ZM-1414	16-14	1.875"	25			
81N5334	CCS-ZM-12-10	12-10	1.875"	25	21.62	18.92	16.22

*Length of clear polyolefin insulating jacket

VOLTREX® brand Solderless Terminals and Connectors

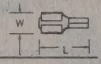
E58918

CERTIFIED LR 22190-6M

- **Improved Conductivity**
- **Audible Click When Inserted**
- **More Corrosion/Arcing Resistance**

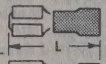
Type "CFS"
Female Quick Disconnect
Style "TO"
Non-Insulated
Butted Seam Barrel

.187/.250 TAB



Type "CFS"
Female Quick Disconnect
Style "TV"
Vinyl Insulated
Butted Seam Barrel

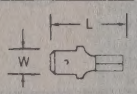
.187/.250 TAB



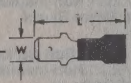
Type "CFS"
Female Quick Disconnect
Style "DY"
Nylon Insulated
"Sure-Grip" Barrel

.110 TAB

Type "CMS"
Male Quick Disconnect
Style "TO"
Non-Insulated
Butted Seam Barrel



Type "CMS"
Male Quick Disconnect
Style "TV"
Vinyl Insulated
Butted Seam Barrel

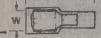


Type "CMS"
Male Quick Disconnect
Style "DY"
Nylon Insulated
"Sure-Grip" Barrel

12

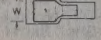
Type "CFS"
Female Quick Disconnect
Style "TF"
Fully Nylon Insulated
Butted Seam Barrel

187/.250 TAB



Type "CFS"
Female Quick Discoonnect
Style "DF"
Nylon Insulated
"Sure-Grip" Barrel

.110 TAB

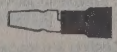


Type "CMS"
Male Quick Disconnect
Style "TF"
Fully Nylon Insulated
Butted Seam Barrel

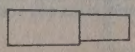
Type "CMS"
Male Quick Disconnect
Style "DF"
Fully Nylon Insulated
"Sure-Grip" Barrel

Quick Disconnect Plugs

Type "CBP"
Male Quick Disconnect Plug
Style "DY"
Nylon Insulated
"Sure-Grip" Barrel



Type "CBR"
Female Quick Disconnect Plug
Style "DY"
Nylon Insulated
"Sure-Grip" Barrel



IMPROVED FEMALE QUICK DISCONNECT DESIGN FEATURES:

- Stable Spring Pressure For Multiple Usage
- Accepts & Retains Thicker Male Blades
- Less Metal Fatigue Stabilizes Insertion & Pull-Out Force
- Funnel Barrel Prevents Strand Hangups

STOCK NO.	TYPE	WIRE RANGE	MATES WITH MALE TAB WIDTH "W"	MATES WITH MALE TAB THICKNESS	STD. PKG.	PRICE PER PKG. 1-9	10-49	50-99
31N2875	CFS-TO-1818	22–18	.187–.205	.016	100	7.28	6.24	5.20
31N2513	CFS-TO-1825		.250	.030	100	7.28	6.24	5.20
30N071	CFS-TO-1412		.110–.125	.016	100	7.28	6.24	5.20
30N070	CFS-TO-1418	16–14	.187–.205	.016	100	7.28	6.24	5.20
31N593	CFS-TO-1425		.250	.030	100	7.28	6.24	5.20
31N2877	CFS-TV-1818	22–18	.187–.205	.016	100	14.49	12.42	10.35
31N2510	CFS-TV-1825		.250	.030	100	14.49	12.42	10.35
30N073	CFS-TV-1412		.110–.125	.016	100	14.49	12.42	10.35
30N072	CFS-TV-1418	16–14	.187–.205	.016	100	13.02	11.16	9.30
31N595	CFS-TV-1425		.250	.030	100	13.02	11.16	9.30
31N2512	CFS-TV-1025	12–10	.250	.030	50	9.10	7.80	6.50
31N2617	CFS-DY-1818	22–18	.187–.205	.016	100	18.69	16.02	13.35
31N110	CFS-DY-1825		.250	.030	100	20.65	17.70	14.75
31N2625	CFS-DY-1412	16	.110–.125	.030	100	20.16	17.28	14.40
31N2622	CFS-DY-1418	to	.187–.205	.016	100	18.69	16.02	13.35
31N175	CFS-DY-1425	14	.250	.030	100	18.69	16.02	13.35
31N2878	CFS-DY-1025	12–10	.250	.030	50	13.65	11.70	9.75
31N2879	CMS-TO-1818	22–18	.187	.016	100	6.65	5.70	4.75
31N2880	CMS-TO-1825		.250	.030	100	6.93	5.94	4.95
31N2881	CMS-TO-1418	16–14	.187	.016	100	6.93	5.94	4.95
31N592	CMS-TO-1425		.250	.030	100	6.72	5.76	4.80
31N2882	CMS-TO-1025	12–10	.250	.030	50	4.97	4.26	3.55
31N2883	CMS-TV-1818	12–18	.187	.016	100	12.81	10.98	9.15
31N2884	CMS-TV-1825		.250	.030	100	12.81	10.98	9.15
31N2885	CMS-TV-1418	16–14	.187	.016	100	15.82	13.56	11.30
31N594	CMS-TV-1425		.250	.030	100	12.81	10.98	9.15
31N2637	CMS-TV-1025	12–10	.250	.030	50	7.63	6.54	5.45
31N2886	CMS-DY-1818	12–18	.187	.016	100	23.66	20.28	16.90
31N2887	CMS-DY-1825		.250	.030	100	23.66	20.28	16.90
31N2888	CMS-DY-1418	16–14	.187	.016	100	23.66	20.28	16.90
31N2889	CMS-DY-1425		.250	.030	100	18.69	16.02	13.35
31N2890	CMS-DY-1025	12–10	.250	.030	50	14.77	12.66	10.55

STOCK NO.	TYPE	WIRE MATES WITH MALE TAB RANGE	WIDTH "W"	THICKNESS	MATES WITH FULLY INSULATED CAT NO.	STD. PKG.	1-9	10-49	50-99
31N2891	CFS-TF-2012	26–20	.110–.125	.016	—	100	22.89	19.62	16.35
31N2892	CFS-TF-1818	22–18	.187–.205	.016	CMS-TF or DF-1818	100	20.86	17.88	14.90
31N2638	CFS-TF-1825		.250	.030	CMS-TF or DF-1825	100	20.86	17.88	14.90
31N2893	CFS-TF-1418	16–14	.187–.205	.016	CMS-TF or DF-1418	100	19.95	17.10	14.25
16N1119	CFS-TF-1425		.250	.030	CMS-TF or DF-1425	50	9.94	8.52	7.10
31N2639	CFS-TF-1025	12–10	.250	.030	CMS-TF or DF-1025	50	13.72	11.76	9.80
16N1120	CFS-DF-2012	26–20	.110–.125	.016	—	100	25.41	21.78	18.15
31N2894	CFS-DF-1818	22–18	.187–.205	.016	CMS-TF or DF-1818	100	26.60	22.80	19.00
31N2640	CFS-DF-1825		.250	.030	CMS-TF or DF-1825	100	26.60	22.80	19.00
16N1122	CFS-DF-1418	16–14	.187–.205	.016	CMS-TF or DF-1418	100	25.41	21.78	18.15
16N1123	CFS-DF-1425		.250	.030	CMS-TF or DF-1425	50	13.72	11.76	9.80
31N2641	CFS-DF-1025	12–10	.250	.030	CMS-TF or DF-1025	50	16.94	14.52	12.10
31N2895	CMS-TF-1818	22–18	.187	.016	CFS-TF or DF-1818	100	10.92	9.36	7.80
31N2642	CMS-TF-1825		.250	.030	CFS-TF or DF-1825	50	10.92	9.36	7.80
31N2896	CMS-TF-1418	16–14	.187	.016	CFS-TF or DF-1418	100	11.97	10.26	8.55
16N1125	CMS-TF-1425		.250	.030	CFS-TF or DF-1425	50	10.92	9.36	7.80
31N2643	CMS-TF-1025	12–10	.250	.030	CFS-TF or DF-1025	25	7.70	6.60	5.50
31N2897	CMS-DF-1818	22–18	.187	.016	CFS-TF or DF-1818	100	14.00	12.00	10.00
31N2644	CMS-DF-1825		.250	.030	CFS-TF or DF-1825	50	14.35	12.30	10.25
31N2898	CMS-DF-1418	16–14	.187	.016	CFS-TF or DF-1418	100	14.00	12.00	10.00
16N1126	CMS-DF-1425		.250	.030	CFS-TF or DF-1425	50	14.35	12.30	10.25
31N2645	CMS-DF-1025	12–10	.250	.030	CFS-TF or DF-1025	25	9.24	7.92	6.60

STOCK NO.	TYPE	WIRE RANGE	SNAP DIAM. S	STD. PKG.	PRICE PER PKG. 1-9	10-49	50-99
81N1513	CBP-DY-1815	22–18	.157	100	20.65	17.70	14.75
81N1514	CBP-DY-1415	16–14	.157	100			
81N1515	CBR-DY-1815	22–18	.157	100	31.21	26.75	22.30
81N1516	CBR-DY-1415	16–14	.157	100			

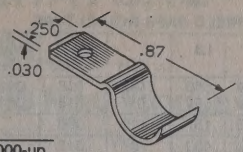
Solderless Terminals and Connectors

VOLTREX® brand

SPECIAL PURPOSE CONNECTORS

MALE FUSE CLIP ADAPTOR

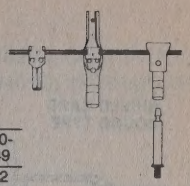
Ideal when fuse clip connections are not easily accessible. Instant electrical connection for add-on accessories. Sturdy brass construction. Beveled edges for easier insertion. Excellent conductivity. Easy fuse removal. Std. Pkg. 100.



Stock No.	Type	1-99	100-999	1000-up
16N1096	2316	10	.08	.07

"T" TAP CONNECTOR

Totally insulated connector. Crimps to any hot wire. Other end has insulated crimp plug for connection of 16-14 wire. Vinyl insulator boot covers entire T-tap brass clip.



Stock No.	Type	1-9	10-24	25-99	100-249
16N1093	16N1093	.56	.44	.37	.32

INSULATED WIRE NUTS

Crimp-type wire nuts have Nylon insulation. Simply insert the two wires to be connected, and crimp. Pkg. of 50.

Stk. No.	Type	Wire	1-9	10-49	50-99	100-249
31N239	CCN-ZY-1818	22-18	6.30	5.40	4.50	3.60
31N240	CCN-ZY-1010	16-10	7.56	6.48	5.40	4.32

QUICK DISCONNECT ADAPTER

Three-way adapter consists of two male tabs and one female tab. The male tabs are in an over-and-under arrangement. Accepts two ¼" females and one ¼" male. Pkg. of 100.

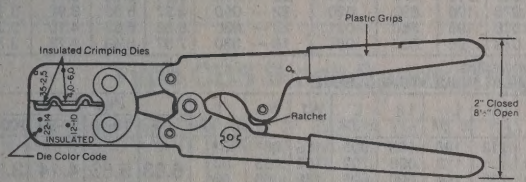
Stk. No.	Type	1-9	10-49	50-99
31N2519	MMF-XO-2525	19.88	17.04	14.20

INSULATED MALE DOUBLE QUICK-DISCONNECT

Has ¼" male terminals on both ends. Accepts female quick-disconnects. Vinyl sleeve. Pkg. of 25.

Stk. No.	Type	1-9	10-49	50-99
31N2518	MMS-XV-2525	8.47	7.26	6.05

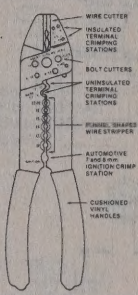
8403-003 RATCHET CRIMPING TOOL



VOLTREX

MULTI-PURPOSE

CRIMP TOOL



- **Funnel-shaped wire stripper with knife edge assures clean crimp—No rotational movement needed.**
- **Insulated terminal crimp stations in the nose for easy access and fast action.**
- **Critical positioning of crimping stations gives high strength-to-weight ratio.**
- **Wire cutter designed into tip for ease of handling.**
- **5 bolt cutting station for the most popular bolt sizes.**
- **Cushioned vinyl handles reduce hand fatigue.**
- **Insulated and non-insulated terminals and connectors and ignition parts crimped easily.**
- **Made with heat-treated alloy steel for durability.**

For Crimping 22-10 AWG Insulated And Non-Insulated Terminals And Connectors. Tool Capability: Crimps barrel and insulation grip independently on No. 22-10 AWG (0,35-6,0mm²) insulated and non-insulated terminals and connectors; nylon or vinyl insulation, butted or brazed seam, standard or short barrel. Crimping Dies: Insulated No. 22-14 AWG (0,35-2,5mm²) red and blue color coded. Insulated No. 12-10 AWG (4,0-6,0mm²) yellow color coded. Non-Insulated No. 22-14 AWG (0,35-2,5mm²). Non-Insulated No. 12-10 AWG (4,0-6,0mm²). Positive Closure: Ratchet requires full closure of handles to ensure proper crimp. Materials and Finish: Hardened steel jaws and handles with corrosion resistant finish. Grips: Plastic, orange color. Weight: 8 lbs.

8N1257 ..... 134.95

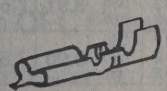
HANDLES 6 MOST COMMON WIRING FUNCTIONS

8403-001 is a compact, high-quality crimping tool designed to handle the six most common electrical wiring functions with ease and reliability. Features: wire cutter, insulated terminal crimping stations, bolt cutters, uninsulated terminal crimping stations, funnel-shaped wire stripper, automotive 7 and 8 mm ignition crimp station.

35N1267. NET 14.85

QUICK CONNECT TERMINALS

Fig. A

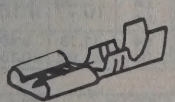


FEMALE .125 TERMINAL Fig. A.

CFS-UO-1812/2 .010 brass electro-tin plated for .020 male tab for 22-18 wire.

Stock No.	Type	Packages of 100			
		1-9	10-49	50-99	100-up
81N1182	1812-2	8.72	7.26	6.54	5.81

Fig. B



FEMALE .205 TERMINAL Fig. B.

CFS-UO-1820/2 .012 brass electro-tin plated for .020 tab for 22-18 wire.

CFS-UO-1820/3 .012 brass electro-tin plated for .032 tab for 22-18 wire.

Stock No.	Type	Packages of 100			
		1-9	10-49	50-99	100-up
81N1174	1820-2	6.59	5.49	4.94	4.39
81N1175	1820-3	9.38	7.82	7.04	6.26

Fig. C

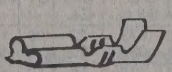
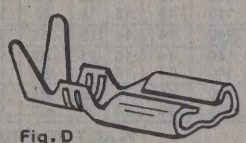


Fig. D



FEMALE .110 TERMINAL Fig. C.

CFS-UO-1810/3 for 22-18 wire. .010 brass electro-plated for .032 male tab.

CFS-UO-1810/2 .010 brass electro-tin plated for .020 male tab.

Stock No.	Type	Packages of 100			
		1-9	10-49	50-99	100-up
81N1177	1810-3	8.72	7.26	6.54	5.81
81N1179	1810-2	6.17	5.14	4.62	4.11

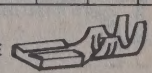
FEMALE .187 TERMINAL Fig. D

CFS-UO-1818/2 for 22-16 wire. .012 brass electro-tin plated for .020 tab.

CFS-UO-1818/3 .012 brass electro-tin plated for .032 tab.

Stock No.	Type	Packages of 100			
		1-9	10-49	50-99	100-up
81N1180	1818-2	5.90	4.92	4.42	3.93
81N1181	1818-3	9.39	7.83	7.04	6.26

Fig. E



FEMALE .250 TERMINAL Fig. E

CFS-UO-1425 .016 brass electro-tin plated for 18-14 wire.

CFS-UO-1825 .016 brass electro-tin plated for 22-18 wire.

Stock No.	Type	Packages of 100			
		1-9	10-49	50-99	100-up
81N1176	1425	6.41	5.34	4.81	4.27
81N1178	1825	7.36	6.13	5.52	4.90

12

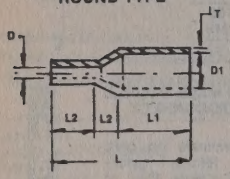
VOLTREX® brand

SHIELD CAPS

PVC-105

The new Voltrex insulating cap easily slips on the terminal without the use of tools, chemicals or heat. This simple application process results in a cost reduction while maintaining the highest possible safety standards. These U.L. recognized caps come in a variety of sizes to fit your particular insulation requirements.

SHIELD CAPS ROUND TYPE

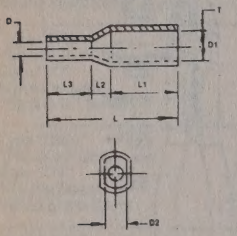


SHIELD CAPS ROUND TYPE

Stock No.	Type MIS-	D1	D	L1	L2	L3	L ± .004	T ± .008	Wire O.D. Range	Pkg. of 100 1-9	10-49	50-99	100-up
81N1455	311813	.070	.051	.157	.078	.550	.787	.015	.042 - .050	5.87	4.99	3.67	2.93
81N1456	312116	.082	.063	.157	.078	.550	.787	.015	.042 - .060				
81N1457*	312309	.090	.031	.236	.078	.157	.472	.008	.030	5.94	5.05	3.71	2.97
81N1458	312314	.090	.055	.276	.078	.433	.787	.012	.042	6.16	5.23	3.85	3.08
81N1459	312715	.106	.060	.336	.020	.079	.433	.024	.042 - .060				
81N1460	313015	.118	.060	.433	.040	.118	.590	.020	.042 - .060	6.23	5.29	3.89	3.11
81N1461	313020	.118	.079	.390	.040	.118	.550	.031	.058 - .080				
81N1462	313314	.130	.055	.433	.040	.197	.670	.024	.042	6.27	5.33	3.92	3.14
81N1463	313320	.130	.078	.275	.078	.433	.787	.012	.058 - .068	6.34	5.39	3.96	3.17
81N1464	313525	.138	.100	.315	.078	.118	.512	.024	.080	7.06	6.00	4.42	3.53
81N1465	314420	.173	.078	.512	.120	.236	.866	.040	.058 - .080	7.51	6.38	4.69	3.78
81N1466	314428	.173	.078	.552	.040	.236	.827	.031	.058 - .078	7.72	6.56	4.82	3.86
81N1467	315131	.200	.122	.394	.040	.157	.590	.028	.080 - .123	8.08	6.86	5.05	4.04
81N1468	315228	.205	.110	.552	.040	.240	.830	.070	.068 - .080				
81N1469*	315242	.205	.165	.787	.040	.550	1.380	—	.125 - .140	10.98	9.33	6.86	5.49
81N1470	315530	.220	.118	.470	.040	.078	.590	.020	.080 - .113	7.86	6.68	4.92	3.93
81N1471	316228	.240	.110	.590	.078	.275	.950	.035	.068 - .080	10.41	8.85	6.51	5.20
81N1472	317045	.280	.177	.520	.059	.100	.670	.020	.140 - .170	10.37	8.81	6.48	5.18
81N1473	317240	.283	.157	.630	.040	.315	.980	.035	.091 - .140	11.13	9.46	6.96	5.57
81N1474*	318665	.338	.256	.787	.078	.512	1.380	.040	.182 - .214	20.85	17.72	13.03	10.42

*Not U.L. Recognized

SHIELD CAP FLAT TYPE

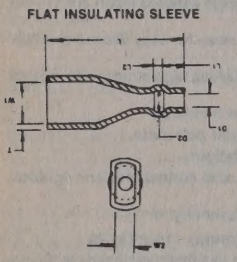


SHIELD CAP FLAT TYPE

Stock No.	Type MIS-	D1	D2	D	L1	L2	L3	L ± .004	T ± .008	Wire O.D. Range (Nom.)	Pkg. of 100 1-9	10-49	50-99	100-up
81N1486	322315	.090	.060	.060	.315	.040	.118	.472	.031	26 — .042	5.94	5.05	3.71	2.97
81N1487	323215	.126	.094	.060	.315	.078	.196	.590	.020	22 — .060	6.27	5.33	3.92	3.14
81N1488	324125	.161	.094	.098	.315	.078	.196	.560	.031	20 — .080	6.55	5.57	4.10	3.28
81N1489	324332	.169	.146	.126	.315	.078	.196	.560	.031	18 — .080	7.57	6.43	4.73	3.78

NOTE: All dimensions rounded-off to nearest hundredths.

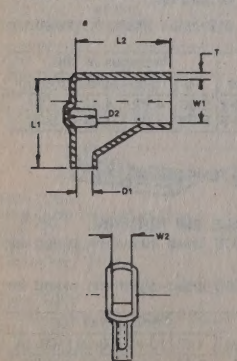
FLAT INSULATING SLEEVE



FLAT INSULATING SLEEVE

Stock No.	Type MIS-	Wire O.D. Range (Nom.)	Wire Ga.	D1	D2	L1 ± .04	L2	L ± .04	W1	W2	T ± .008	Pkg. of 100 1-9	10-49	50-99	100-up
81N1475	234015	.042 - .060	26/22	.06	.118	.196	.098	.905	.159	.08	.031	6.63	5.63	4.14	3.31
81N1476	234016	.042 - .060	22	.063	.134	.118	.098	.709	.159	.083	.031				
81N1477	234018	.058 - .065	20	.070	.130	.196	.098	.826	.159	.083	.031				
81N1478	234020	.058 - .080	20	.080	.138	.196	.098	.905	.159	.080	.031				
81N1479	234025	.058 - .080	20/18	.098	.138	.196	.098	.905	.159	.080	.031	6.70	5.70	4.19	3.35
81N1480	234028	.068	18	.110	.170	.196	.098	.826	.159	.083	.031				
81N1481	234030	.068 - .113	18	.118	.150	.196	.098	.905	.159	.080	.031				
81N1482	234035	.071 - .125	16	.138	.177	.196	.098	.905	.159	.080	.031	7.07	6.01	4.42	3.53
81N5303	235815	.042 - .060	26/22	.060	.120	.196	.118	.90	.233	.086	.031	7.65	6.50	4.78	3.82
81N5304	235818	.042 - .065	24/22	.070	.130	.196	.098	.90	.233	.086	.031				
81N5305	235820	.058 - .080	20	.080	.140	.196	.098	.90	.233	.086	.031				
81N5306	235822	.058 - .080	20	.087	.146	.196	.098	.90	.233	.086	.031	7.72	6.56	4.82	3.86
81N5307	235825	.058 - .080	20/18	.098	.140	.196	.098	.90	.233	.086	.031				
81N5308	235830	.068 - .113	18	.118	.157	.196	.098	.90	.233	.086	.031	7.86	6.68	4.92	3.93
81N5309	235835	.071 - .125	16	.138	.177	.196	.118	.90	.233	.086	.031				
81N5310	235840	.091 - .140	14	.157	.196	.196	.118	.90	.233	.086	.031	7.97	6.77	4.98	3.98
81N5311	236520	.042 - .073	22/24	.08	.138	.196	1.20	.94	.256	.12	.035	8.91	7.57	5.57	4.45
81N5312	236525	.058 - .080	20	.098	.138	.196	1.20	.94	.256	.12	.035				
81N5313	236530	.068 - .113	18	.118	.157	.196	1.20	.94	.256	.12	.035				
81N5314	236535	.071 - .125	16	.138	.177	.196	1.20	.94	.256	.12	.035	8.98	7.64	5.62	4.49
81N5315	236540	.091 - .140	14	.157	.196	.196	1.20	.94	.256	.12	.035				
81N5316	236548	.140 - .190	14/12	.190	.236	.196	1.20	.94	.256	.12	.035				

FLAG TYPE INSULATOR SLEEVE



FLAT INSULATING SLEEVE

Stock No.	Type MIS-	Wire O.D. Range (Nom.)	Wire Ga.	D1	D2	L1 ± .04	L2	L ± .04	W1	W2	T ± .008	Pkg. of 100 1-9	10-49	50-99	100-up
81N5317	238020	.042 - .073	22	.08	.13	.20	.12	.94	.31	.14	.04	10.41	8.85	6.51	5.20
81N5318	238025	.058 - .080	20	.10	.18	.20	.12	.94	.31	.14	.04				
81N5319	238030	.068 - .113	18	.12	.18	.20	.14	.94	.31	.14	.04	10.55	8.97	6.60	5.28
81N5320	238032	.068 - .113	18	.13	.19	.20	.10	.94	.31	.14	.04				
81N5321	238035	.091 - .140	14	.14	.18	.20	.12	.94	.31	.14	.04	10.70	9.09	6.69	5.35
81N5322	238038	.091 - .140	14	.15	.21	.20	.10	1.00	.31	.14	.04	10.77	9.16	6.73	5.39
81N5323	238040	.091 - .140	14	.16	.20	.20	.12	.96	.31	.14	.04				
81N5324	238048	.113 - .190	12	.19	.25	.20	.10	1.00	.31	.14	.04	11.13	9.46	6.96	5.57
81N5325	238060	.182 - .214	10	.24	.30	.20	.10	1.06	.31	.14	.04	11.94	10.15	7.46	5.97

FLAG TYPE INSULATOR SLEEVE

Stock No.	Type MIS-	D1	D2	L1 ± .004	L2 ± .004	W1	W2	T ± .008	Wire O.D. Range (Nom.)	Pkg. of 100 1-9	10-49	50-99	100-up
81N1483	246225	.098	.138	.55	.67	.224	.090	.040	22-.058/.080	9.63	8.19	6.02	4.82
81N1484	246230	.118	.157	.55	.55	.230	.087	.031	20-.080/.113	9.70	8.25	6.07	4.85
81N1485	246232	.126	.165	.55	.55	.220	.090	.040	18-.113/.125	9.77	8.31	6.11	4.89
81N5326	248525	.098	.138	.63	.67	.315	.138	.040	22-.058/.080	11.81	10.04	7.38	5.91
81N5327	248530	.112	.157	.67	.67	.315	.138	.040	20-.080/.113	12.02	10.22	7.52	6.01
81N5328	248532	.126	.165	.63	.67	.315	.138	.040	18-.080/.125	12.09	10.28	7.56	6.05
81N5329	248540	.157	.196	.67	.67	.315	.138	.040	14-.091/.140	12.16	10.34	7.60	6.08
81N5330	248548	.189	.228	.63	.67	.315	.138	.040	14-.113/.190	13.21	11.23	8.26	6.61
81N5331	248550	.196	.236	.67	.67	.315	.138	.040	12-.182/.190	13.28	11.29	8.30	6.64

NOTE: All dimensions rounded-off to nearest hundredths.

12

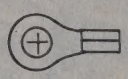
VOLTREX® brand

HIGH TEMPERATURE TERMINALS

MATERIAL: ALLOY STEEL
PLATING: NICKEL
TEMPERATURE RATING: 900°F (482°C) CONTINUOUS
1200°F (649°C) INTERMITTENT

Type CRS Ring Tongue Terminal

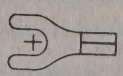
Stock No.	Type	Wire Range	Stud Size	Std. Pkg.	Price Per Pkg 1-9	10-49	50-99	100-249
81N1498	CRS-TO-1806-HT	22-18	4-6	100	7.38	6.32	5.27	4.22
81N1499	CRS-TO-1810-HT		8-10	100	7.38	6.32	5.27	4.22
81N1500	CRS-TO-1825-HT		12-1/4	100	10.46	8.96	7.47	5.98
81N1501	CRS-TO-1406-HT	16-14	4-6	100	7.38	6.32	5.27	4.22
81N1502	CRS-TO-1410-HT		8-10	100	7.38	6.32	5.27	4.22
81N1503	CRS-TO-1425-HT		12-1/4	100	10.46	8.96	7.47	5.98
81N1504	CRS-TO-1006-HT	12-10	4-6	50	5.54	4.75	3.96	3.16
81N1505	CRS-TO-1010-HT		8-10	50	5.54	4.75	3.96	3.16
81N1506	CRS-TO-1025-HT		12 1/4	50	6.42	5.50	4.59	3.67
81N1507	CRS-TO-1037-HT		5/16-3/8	50	6.42	5.50	4.59	3.67



Style "TO" Non-Insulated, Butted Seam Barrel

Type CSS Spade Tongue Terminal

81N1508	CSS-TO-1810-HT	22-18	8-10	100	7.38	6.32	5.27	4.22
81N1509	CSS-TO-1410-HT	16-14	8-10	100	7.38	6.32	5.27	4.22
81N1510	CSS-TO-1010-HT	12-10	8-10	50	6.42	5.50	4.59	3.67



Style "TO" Non-Insulated Butted Seam Barrel

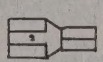
Type CBS Block Spade Tongue Terminal

81N1511	CBS-TO-1806-HT	22-18	4-6	100	7.38	6.32	5.27	4.22
81N1512	CBS-TO-1406-HT	16-14	4-6	100	7.38	6.32	5.27	4.22

Style "TO" Non-Insulated Butted Seam Barrel

Type CFS Female Quick Disconnect Terminal

Stock No.	Type	Wire Range	Mates with Male Tab Width W	Thickness	Std. Pkg.	Price Per Pkg 1-9	10-49	50-99	100-249
81N1490	CFS-TO-1418-HT	16-14	.187	.016	100	8.30	7.11	5.93	4.74
81N1491	CFS-TO-1425-HT		.250	.030	100	8.30	7.11	5.93	4.74



Style "TO" Non-Insulated Butted Seam Barrel

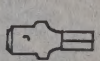
Type CFC Female Flag Quick Disconnect Terminal

81N1494	CFL-TO-1425-HT	16-14	.250	.030	100	9.77	8.38	6.98	5.58

Style "TO" Non-Insulated Butted Seam Barrel

Type CMS Male Quick Disconnect Terminal

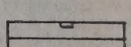
81N1492	CMS-TO-1418-HT	16-14	.187	.016	100	7.67	6.58	5.48	4.38
81N1493	CMS-TO-1493-HT		.250	.030	100	7.67	6.58	5.48	4.38



Style "TO" Non-Insulated Butted Seam Barrel

Type CCS Butt Splice Terminal

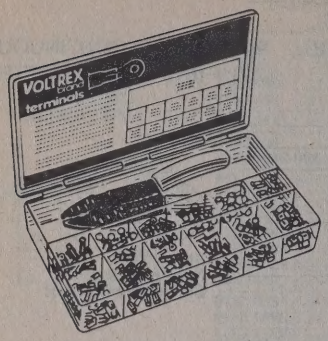
Stock No.	Type	Wire Range	Std. Pkg.	Price Per Pkg. 1-9	10-49	50-99	100-249
81N1495	CCS-TO-1818-HT	22-18	100	7.67	6.58	5.48	4.38
81N1496	CCS-TO-1414-HT	16-14	100	7.67	6.58	5.48	4.38
81N1497	CCS-TO-1010-HT	12-10	50	6.42	5.50	4.59	3.67



Style "TO" Non-Insulated Butted Seam Barrel

12

VOLTREX® brand Terminal Kits



TERMINAL FEATURES

- **Beveled terminal mouth to facilitate wire insertion**
- **Multiple "V" grooves for maximum holding power and minimum contact resistance**
- **Open barrel construction for visual inspection**
- **Barrel to pad transition designed to provide maximum resistance to flexing and bending**
- **Constructed from pure electrolytic copper annealed to facilitate proper flow for maximum installed strength**
- **One piece, burr free construction for economy, mechanical strength, and maximum electrical conductivity**
- **Uniform electro-tin plating for maximum corrosion protection**

These handy kits contain an assortment of 300 of our most popular electrical connectors in a durable plastic box. They are just right for on-the-job repairs or in the design lab. Each kit comes with a crimp tool and convenient identification chart.

Additional specifications on terminals are on pages 482-487.

12

QUICK DISCONNECT KIT
Type 8403-QD

CFS-TV

TYPE #	WIRE GA.
1818 1825	22-18
1425 1412 1418	16-14

CMS-TV

1818 1825	22-18
1425	16-14

CFS-DF

1818	22-18
1425	16-14

CMS-DF

1818	22-18
1425	16-14

Kit includes 25 each of the above 12 terminals plus crimp tool

23N3622 .....40.95

"SURE GRIP" KIT
Type 8403-DY

CRS-DY

TYPE #	WIRE GA.
1806 1810	22-18
1406 1410	16-14
1010	12-10

CMS-DY

1425	16-14

CFS-DY

1425	16-14

CGS-DY

1408	16-14

CBS-DY

1806	22-18
1406	16-14
1010	12-10

Kit includes 25 each of the above terminals plus crimp tool

31N006.....42.95

VINYL INSULATED KIT
Type 8403-TV

CRS-TV

TYPE #	WIRE GA.
1806 1810	22-18
1406 1410	16-14
1010	12-10

CBS-TV

1806	22-18
1406	16-14

CGS-TV

1810	22-18
1410	16-14

GMS-TV

1425	16-14

CFS-TV

1425	16-14

CCS-TV

1414	16-14

Kit includes 25 each of the above terminals plus crimp tool

31N005.....35.95

NON-INSULATED KIT
Type 8403-TO

CRS-TO

TYPE #	WIRE GA.
1806 1810	22-18
1406 1410	16-14
1010	12-10

CBS-TO

1806	22-18
1406	16-14

CGS-TO

1810	22-18

CMS-TO

1425	16-14

CFS-TO

1425	16-14

CCP-ZO

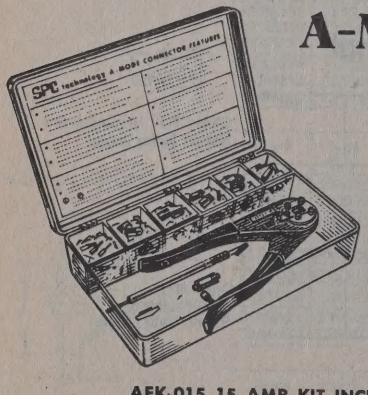
1414	16-14

CCS-TO

1414	16-14

Kit includes 25 each of the above terminals plus crimp tool.

31N004.....29.95



A-MODE™ brand Connector Kits

A-Mode Connector Features

- **Self-mating**
- **Stackable**
- **Mountable**
- **Low contact resistance**
- **High dielectric**
- **Color coded housings**
- **UL recognized**
- **Snap action**
- **Self-cleaning**
- **High reliability**
- **Maximum conductivity**
- **High voltage protection**
- **Vibration Protected**
- **CSA listed**

These kits are an engineer's dream come true. Because of the unique features of the A-Mode, one kit covers all your lab and design needs. The kit contains 50 connectors, a crimp tool, and an insertion/extraction tool in a tough clear plastic box. **See index for complete line of A-mode connectors.**

AEK-015 15 AMP KIT INCLUDES:

50—15 Amp Contacts
50—Housings In Assorted Colors of Red, Black, Green, White
1—Insertion/Extraction Tool
1—Crimp Tool

13N1988. NET..... 189.95

AEK-030 30 AMP KIT INCLUDES:

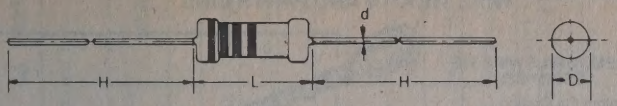
50—30 Amp Contacts
50—Housings In Assorted Colors Of Red, Black, Green, White
1—Insertion/Extraction Tool
1—Crimp Tool

13N1989. NET..... 189.95

Resistor Kits

SPC technology

DEPOSITED CARBON FILM FIXED RESISTOR ASSORTMENTS

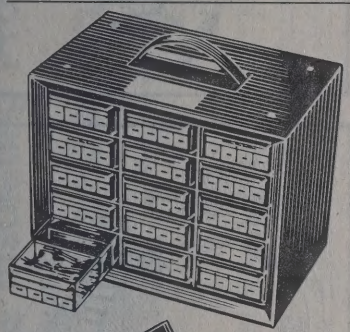


Specifications	AR25	AR50
Rated Wattage @ 70°C	0.25W	0.50W
Max. Working Voltage	250V	350V
Max. Overload Voltage	500V	700V
Body Length	.252 ± .012"	.346 ± .040"
Body Diameter	.095 ± .008"	.146 ± .008"
Lead Length	1.0" min.	1.0" min.
Lead Diameter	.024 ± .001"	.027 ± .001"

RESISTOR FEATURES:

- **±5% Resistance Tolerance**
- **Conformal Multi-Coating**
- **EIA Standard Color Coding**
- **Solder-Coated Leads**
- **−55°C to +155°C Temp. Range**

These ¼ and ½ watts have been designed for miniature circuits that require resistors with greater stability and reliability than carbon composition types, but the same small physical size. Carbon film resistors exceed performance characteristics of MIL-R-11F carbon composition types.



60 VALUE CABINET RESISTOR ASSORTMENT

RESISTANCE VALUES IN OHMS INCLUDED:

2.2	47	560	5.6K	56K
2.7	68	680	6.8K	82K
3.9	75	820	8.2K	100K
4.7	100	1.0K	10K	120K
6.8	120	1.2K	12K	150K
8.2	150	1.5K	15K	220K
10	180	1.8K	18K	270K
18	220	2.2K	22K	390K
22	270	2.7K	27K	470K
27	330	3.3K	33K	560K
33	390	3.9K	39K	1.0M
39	470	4.7K	47K	2.2M

Top quality deposited carbon film resistors in the most commonly used values. Provides finger-tip convenience. Cabinet finished in metallic blue with 15 see-thru drawers each with four individual compartments. Can be stacked or wall mounted.

Stock No.	Type	Watt	Quan./Value	Total Pieces	Each
37N1739	AR25-6025	¼	25	1500	112.95
37N1740	AR25-6050	¼	50	3000	149.95
37N1741	AR50-6025	½	25	1500	123.95

AR25-4220, 42 VALUE RESISTOR ASSORTMENT

VALUES INCLUDED, IN OHMS

.68	15	330	6.8K	150K	3.3M
1.0	22	470	10K	220K	4.7M
1.5	33	680	15K	330K	
2.2	47	1K	22K	470K	
3.3	68	1.5K	33K	680K	
4.7	100	2.2K	47K	1M	
6.8	150	3.3K	68K	1.5M	
10	220	4.7K	100K	2.2M	

- **.250" Body Length**
- **.095" Body Diameter**
- **±5% Resistance Tolerance**
- **Conformal Multi-Coating**
- **Special Solder-Coated Leadwire**

¼ watt resistors, designed for miniature circuits that require resistors with greater stability and reliability than carbon composition types. Exceeds performance characteristics of MIL-R-11F carbon composition types. Each resistor value is pre-packaged in a plastic case. Removable cover clearly indicates location of each resistor. 20 pieces of each value, 840 pieces total.

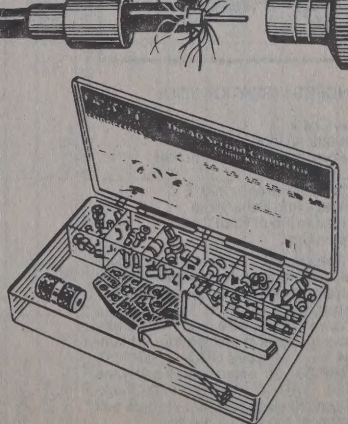
37N1742. NET 47.95

12

EASY-ON™ brand Connector Kits

- **50 or 75 Ohm Impedance**
- **<.1 db Insertion Loss at 2 ghz**
- **500 VRMS Peak Rating**
- **VSWR 1.05 at 1 Ghz, 1.2 at 2 Ghz**
- **1500 VRMS Dielectric Withstanding**
- **No Contact Crimp or Soldering**

This unique family of connectors reduces installation time from four minutes to forty seconds, because the self-extinguishing, pre-loaded, center contact is made by simply pushing the trimmed center conductor home. The termination is completed by simply sliding the braid crimp stress relief ferrule over the end of the unit and crimp. See page 411 for a complete description of the Easy-On family. Each kit contains crimp-type connectors from the Easy-On family and include the crimping tool and cable stripper, everything needed to make termination of your coaxial cable fast, simple and reliable.



Type 8411-UG88/1. Easy-On kit for terminating RG58/U cable with a type BNC connector. Contains: 25 pieces of type CP88-1 connector, a pre-set cable stripper, and ratchet type crimp tool.

23N3623. NET 222.95

Type 8411-UG88/2. Easy-On kit for terminating RG59/U and RG62/U cable with a type BNC connector. Contains: 25 pieces of type CP88-2 connector, a pre-set cable stripper, and ratchet type crimp tool.

23N3624. NET 222.95

VOLTREX® brand Product Assortments

CABLE CLAMP ASSORTMENTS

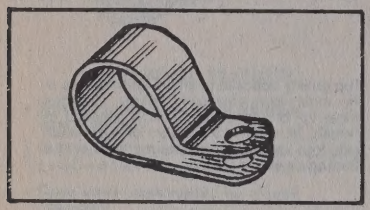
ADHESIVE BACKED CABLE CLAMP ASSORTMENT

- For Cable, Tube, Pipe or Rod Up To ½" diameter
- Made From Strong, Resilient CPVC Plastic
- No Holes To Bore, No Screws To Fasten

Kit 8408-ACC contains 355 pieces, 12 different parts, of quickly installed adhesive mounted cable clamps packaged in sturdy polystyrene sectioned storage box with handy identification chart in the lid. Contents: 40 ALC-2, ALC-4, 10 ALC-6, 50 ACC-1, 50 ACC-2, 25 ACC-3, 15 ACC-4, 10 ACC-6, 50 AUC-1, 50 AUC-2, AUC-3, and 15 AUC-4.

Adhesive: 0.25 lbs. max.; 200°F. max.

23N3617. NET 77.95



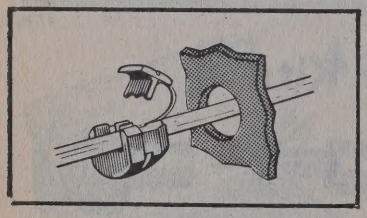
SCREW MOUNTED CABLE CLAMP ASSORTMENTS

Quickly and securely fasten tubing, rod, cable, etc. to a flat surface with just a single screw or nail. Assortment contains 50 pieces each for ⅛" and ¼" diameter; 25 pieces each for ⅜" and ½" diameter; 15 pieces for ¾" diameter; and 10 pieces for 1" diameter. Packaged in a sturdy polystyrene sectioned storage box with handy identification chart in the lid.

Stk. No.	Type	Description	NET
23N3618	8408-ECC	Ethyl Cellulose Clamp Assortment	12.95
23N3619	8408-NCC	Nylon Cable Clamp Assortment	14.95

See SPC Technology Voltrex Brand Wiring Accessories Pages For More Information on the Parts in the Assortments Listed Above.

CORD STRAIN RELIEF BUSHING ASSORTMENT



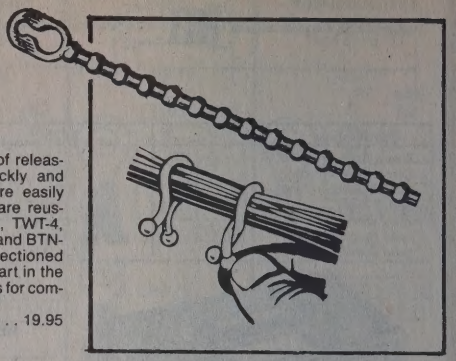
WITH PINCERS INSERTION TOOL

- Cut Assembly Costs
- Prevents Insulation/Conductor Injury
- Rugged One-piece Nylon Construction
- Lengthens Cord Life
- Withstands Temperatures to 300°F
- Compact—Snaps Into Panel Hole
- Eliminates Need to Tie or Knot Cord
- Non-slip Grip on Cord

8408-SRF. An assortment of sizes and cord contours, 120 total, of cord stain relief bushings that eliminate the strain that tears cord loose from contacts or connections without injuring the insulation. Comes complete with specially designed pincers for ease in installation. Kit contains 10 pieces each of types SRD-10, SRF-10, SRF-20 and SRF-30; 20 pieces each of types SRF-40, SRF-50, SRR-10, and SRR-20. Packaged in sturdy polystyrene sectioned storage box with handy identification chart in the lid.

23N3612. NET 88.95

WIRE TIE KITS AND PARTS BINS

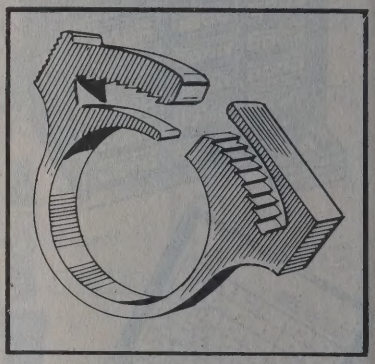


REMOVABLE WIRE TIE ASSORTMENT

- Variety of Colors For Coding
- Reusable
- Polyethylene and Nylon
- Fast and Secure

8408-TWT. This kit contains a number of releasable cable bundling devices that quickly and reliably secure wire harnesses, but are easily removed to allow wiring changes and are reusable. Contents: 50 pieces each TWT-3, TWT-4, TWT-5, TWT-8, BTP-4 (in mixed colors), and BTN-4. Packaged in sturdy polystyrene sectioned storage box with handy identification chart in the lid. See Voltrex Wiring Accessories pages for complete description.

23N3621. NET 19.95



CABLE/HOSE CLAMP ASSORTMENTS

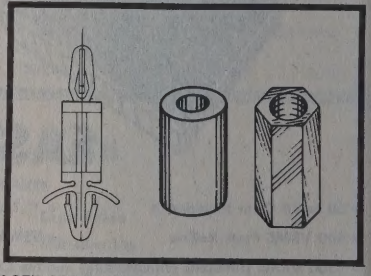
- Reduces Installation Costs
- Easily Adjustable and Removable
- Durable, Secure, Fast, Economical
- Installs In Seconds With Pliers

8408-CHC. Kit contains an assortment of 8 sizes, 239 pieces total, of the unique type CHC cable/hose clamp. These clamps can be installed in seconds with a standard pair of pliers, sometimes with only two fingers, and can be removed by a simple twist action with pliers. Clamps are packaged in a sturdy polystyrene sectioned storage box with a handy identification chart in the lid. Contents: 50 pieces each CHC-19 and -21; 25 pieces each CHC-28, -32, -35 and -38; 20 pieces CHC-52; and 10 pieces CHC-58. See Voltrex Wiring Accessories pages.

23N3620. NET 56.95

SPACER ASSORTMENTS

AMERLOK™ brand



8404-HSS CPVC PLASTIC SPACER ASSORTMENT

- Self-Extinguishing
- Temperature Resistance To 225°F
- High Dielectric Strength
- Takes #4, #6, #8 and #10 Screws

Assortment contains 9 of the most popular sizes of type HSS, self-tapping spacers and 9 of the most popular sizes of type RP, through-hole spacers: 18 different parts with a total of 800 spacers made of rugged polyvinyldichloride. Packaged in a sturdy polystyrene sectioned storage box with a handy identification chart on the lid. Contains: 50 each of HSS-44, HSS-46, HSS-64, HSS-66, HSS-68, RP4-250, RP4-500, RP4-750, RP6-250, RP6-500, RP6-750, RP8-500, and RP8-750. 25 each of HSS-48, HSS-85, HSS-86, HSS-88 and RP8-1000.

23N3613. NET 54.95

8404-PCS SNAP-IN SPACER ASSORTMENT

- Finger Grip Insertion—No need For Tools
- Locking Tension Flange Secures Boards
- Makes Repair or Replacement Easy
- Ample Chassis For Assembled PC Boards

Type PCS molded nylon spacers snap into .187" hole in the chassis; PC board with .156" holes snaps onto the spacer for quick assembly. Kit contains 50 pieces each of ¼", ⅜", ½", ¾", 1" and 1¼" heights, 300 pieces total, packaged in a sturdy polystyrene sectioned box with a handy identification chart in the lid.

23N3616. NET 38.95

METAL SPACER ASSORTMENTS

Kit contains 25 pieces each of 6 of the most popular sizes of round, thru-hole, round tapped, and hex tapped metal spacers, a total of 450 pieces. Sizes included are #4 screw ¼" and ⅜" lengths; #6 screw ½", ¾", and 1" lengths; and #8 screw 1" length. Packaged in a sturdy polystyrene sectioned storage box with handy identification chart in lid.

Stock No.	Type	Description	Each
23N3614	8404-RTA	Aluminum Spacer Kit	55.95
23N3615	8404-RTB	Brass Spacer Kit	68.95

VOLTREX® brand Heat Shrinkable & Insulating Products

QUICK-SCAN PROPERTY CHART

A complete line of heat shrinkable tubing products from SPC Technology. Many types are UL Recognized for electronic/electrical use. Meets military specifications for MIL-I-23053, AMS-3632, MIL-I-631D.

UL E52331

PROPERTY	POLYOLEFIN			PVC-105	PVC-125	KYNAR POLYVINYLIDENE	NEOPRENE	TEFLON			TEFZEL
	FLEXIBLE	SEMI-RIGID	MELT WALL					TFE	FEP	TFE/FEP	
ELECTRICAL											
DIELECTRIC STRENGTH	900 VOLTS/MIL	800 VOLTS/MIL	600 VOLTS/MIL	600 VOLTS/MIL	800 VOLTS/MIL	> 8 KV	300 VOLTS/MIL	600 VOLTS/MIL	600 VOLTS/MIL	600 VOLTS/MIL	2000 VOLTS/MIL
DIELECTRIC CONSTANT	2.5@.1 MHZ MAX	2.5@.1 MHZ MAX	2.5@.1 MHZ MAX	1.76@.1 KHZ	4.8@1 KHZ	5.5@.1 MHZ MAX	9.0@.1 MHZ	2.1@.1 MHZ	2.1@.1 MHZ	2.1@.1 MHZ	2.6@.1 MHZ
VOLUME RESISTIVITY	10^{15} Ω-CM MIN	10^{15} Ω-CM MIN	10^{15} Ω-CM MIN	10^{113} Ω-CM MIN	2.01x10 Ω-CM	10^{14} Ω-CM MIN	10^{11} Ω-CM	> 10^{18} Ω-CM	> 10^{18} Ω-CM	> 10^{11} Ω-CM	> 10^{11} Ω-CM
PHYSICAL											
SHRINKAGE—DIAMETRICAL	50%	50%	50%	50%	50%	50%	40-50%	30-50%	40%	30-50%	33%
SHRINKAGE—LONGITUDINAL	5%	5%	10%	20%	15%	10%	10%	NONE	NONE	NONE	NONE
TENSILE STRENGTH	2400 PSI MIN	2600 PSI MIN	2200 PSI	2000 PSI MIN	2800 PSI	7000 PSI MIN	1500 PSI	2500-6000 PSI	2700-3500 PSI	2500 PSI	6500 PSI
SPECIFIC GRAVITY	1.20 GM/CM² MAX	1.35 GM/CM² MAX	1.01 GM/CM²	1.63 GM/CM²	1.33 GM/CM²	1.7 GM/CM² MAX	1.3 GM/CM²	2.1-2.2 GM/CM²	2.15 GM/CM²	2.15 GM/CM²	1.70 GM/CM²
OPER. MIN.	−67°F (−55°C)	−67°F (−55°C)	−67°F (−55°C)	−4°F (−20°C)	−4°F (−20°C)	−67°F (−55°C)	−67°F	−275°F (−170°C)	−275°F	−275°F	−156°F (−104°C)
TEMP. MAX.	+275°F (+135°C)	+275°F (135°C)	+275°F (135°C)	+221°F (105°C)	+221°F (105°C)	+347°F (175°C)	+194°F 90°C	+500°F (260°C)	+400°F (204°C)	+450°F (232°C)	+350°F (177°C)
SHRINK MIN.	121°C	275°F	275°F (135°C)	200°F (93°C)	180°F (82°C)	347°F (175°C)	27F°5 135°C	621°F (327°C)	300°F (149°C)	621°F	300°F
TEMP. REC.	350-470°F (176-243°C)	340-480°F (171-249°C)	340-480°F (171-240°C)	250°F (121°C)	250°F (121°C)	462-662°F (239-350°C)	390-480°F 199-249°C)	621°F	300°F	621°F	300°F
ABRASION RESISTANCE	Good	Good	Good	Excellent	Excellent	Excellent	Excellent	Good	Good	Gooa	Excellent
CHEMICAL											
WATER ABSORPTION	0.2%	0.2%	<0.1%	NIL	NIL	0.2%	.5%	<0.01%	.001%	<0.01%	<0.1%
FLAMMABILITY	Colors Are Self-Ext. Clear is Flammable	Self Extinguishing	Self Extinguishing	5 Sec. Flame Res. (MIL-I-631D)	VW − 1	Self Extinguishing	Self Extinguishing	NON	NON	NON	Self Extinguishing
FUNGUS RESISTANCE	Inert	Inert	Inert	O (MIL-I-631D)	O (MIL-I-631D)	Excellent	INERT	Excellent	Excellent	Excellent	Excellent
OIL RESISTANCE	Good	Good	Good	95% Ret (ASTMD-922)	95% Ret (ASTMD-922)	Excellent	Good	Excellent	Excellent	Excellent	Excellent
ACID RESISTANCE	Excellent	Excellent	Excellent	Generally Resist. to mild acids & alkalines, solvents, esters, waxes, and alcohol. Trial operation is recommended.	Generally Resist. to mild acids & alkalines, solvents, esters, waxes, and alcohol. Trial operation is recommended.	Excellent	Good	Excellent	Excellent	Excellent	Excellent
ALKALI RESISTANCE	Excellent	Excellent	Excellent			Excellent	Good	Excellent	Excellent	Excellent	Excellent
SOLVENT RESISTANCE	1000 psi 400 V/MIL	1600 psi 400 V/MIL	Excellent			> 4500 psi > 76.5kv	> 1200psi > 175%	Excellent	Excellent	Excellent	Excellent
WEATHER-ABILITY	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
VOLTREX TUBING TYPES	FPG FPS FPA	SRS SRC	SRM	PVS PVI	HTV	KYS	NPS	TTS TTI TSI	SST	TFM	TZS

VOLTREX® brand

Tubing

E52331

TYPE FPS-VOLTREX FLEXIBLE POLYOLEFIN SHRINK TUBING

MIL-23053/5. Excellent gen. purpose heat shrinkable tubing offering the best price-performance trade-off. Highly resistant to fungus/chemicals. Shrinks to less than half of supplied diameter. Lengthwise shrinkage less than 5%. Shrinks uniformly. Perfect insulation cover. Does not cold flow. Split resistant. COLORS: Black and clear in all sizes and put-ups. Red, white, and blue in 6 in. put-ups, sizes 3⁄32 thru 3⁄4 only.

Size	Recom. Usable ID Range	Recovered Nom.-Wall Thick.	Type	4 Foot Lengths Stock No.	No. of Lengths	Total Footage	Per Box 1-99	100-499	500-999	1000-4999	6-Inch Lengths Stock No.	No. of Lengths	Total Footage	Per Box
3⁄64"	.025 to .042	.016	FPS-003	**37N398**	25	100 ft.	37.48	33.46	28.44	25.10	**37N1165**	40	20 ft.	8.24
1⁄16"	.034 to .056	.017	FPS-004	**37N399**	25	100 ft.	39.94	35.66	30.31	26.75	**37N1166**	36	18 ft.	
3⁄32"	.051 to .083	.020	FPS-006	**37N401**	25	100 ft.	45.27	40.42	34.36	30.32	**37N1168**	32	16 ft.	
1⁄8"	.068 to .112	.020	FPS-008	**37N403**	25	100 ft.	47.91	42.78	36.36	32.09	**37N1170**	28	14 ft.	
3⁄16"	.102 to .168	.020	FPS-012	**37N404**	25	100 ft.	58.17	51.94	44.15	38.96	**37N1171**	24	12 ft.	
1⁄4"	.138 to .225	.025	FPS-016	**37N406**	25	100 ft.	73.65	65.76	55.90	49.32	**37N1173**	20	10 ft.	
3⁄8"	.206 to .338	.025	FPS-024	**37N407**	25	100 ft.	82.03	73.24	65.25	54.93	**37N1174**	16	8 ft.	
1⁄2"	.275 to .450	.025	FPS-032	**37N409**	5	20 ft.	18.52	16.54	14.06	12.41	**37N1176**	14	7 ft.	
3⁄4"	.413 to .675	.030	FPS-048	**37N411**	5	20 ft.	24.75	22.10	18.79	16.58	**37N1178**	12	6 ft.	
1"	.550 to .900	.035	FPS-064	**37N413**	5	20 ft.	34.70	30.98	26.33	23.24	**37N1180**	8	4 ft.	
1 1⁄2"	.825 to 1.35	.040	FPS-096	**37N397**	5	20 ft.	62.20	55.54	47.21	44.66	**37N194**	5	2.5 ft.	
2"	1.100 to 1.80	.045	FPS-128	**37N395**	5	20 ft.	85.84	76.64	65.14	57.48	**37N195**	3	1.5 ft.	

TYPE FPA—SHRINKABLE FLEXIBLE POLYOLEFIN ASSORTMENT

Packaged assortments of 6" lengths of flexible polyolefin tubing in various sizes and colors. Each length has diameter stamped on it for easy identification.

Type	Stock No.	Tubing Size	Lengths Per Box	Net
FPA-003-6030-AST	**37N1182**	3⁄64x3⁄16	30	10.32
FPA-016-6016-AST	**37N1183**	1⁄4-3⁄4	16	20.71
FPA-064-6010-AST	**37N1184**	1"-4"	10	19.29

TYPE FPG-VOLTREX FLEXIBLE POLYOLEFIN GROUND IDENTIFICATION

E52331

A flexible polyolefin shrinkable tubing providing identification of ground wires or terminals. Yellow/green stripes positively identify ground in accordance with internationally accepted standards. Tubing is dual color extruded so colors will not fade, wear or rub off. Applicable specification: N.E.C. article 250-57B, -59B and EE 0293.

Size	Usable ID Range	Recovered Nom. Wall Thick	Stripes	6-Inch Lengths Type	Stock No.	No. of lth.	Tl. ft.	Per Pkg.	1-Inch Lengths Type	Stock No.	No. of lth.	Per Pkg.
1⁄8"	.062-.125	.020	4	FPG-008-6028-YG	**81N5335**	28	14	12.84	FPG-008-IN50-YG	**81N5339**	50	10.84
1⁄4"	.125-.250	.025	4	FPG-016-6020-YG	**81N5336**	20	10	12.84	FPG-016-IN24-YG	**81N5340**	24	10.84
3⁄8"	.187-.375	.025	6	FPG-024-6016-YG	**81N5337**	16	8	12.84	FPG-024-IN16-YG	**81N5341**	16	10.84
1⁄2"	.250-.500	.025	6	FPG-032-6014-YG	**81N5338**	14	7	12.84	FPG-032-IN10-YG	**81N5342**	10	10.84

TYPE SRS-VOLTREX SEMI-RIGID POLYOLEFIN SHRINK TUBING

MIL-I-23053/6. Superior cut-through and abrasion resistance. Provides mechanical protection, electrical/chemical insulation. Particularly suitable for application requiring additional strength. Shrinks to less than 50% of supplied diameter in heat exceeding 275°F. Shrinks less than 5% in length. Tough protective covering. Color: black. 4-foot lengths marked in accordance with U.L. requirements.

Size	Recom. Usable ID Range	Recov. Nom. Wall Thick.	Type SRS-	4-Foot Lengths Stock No.	No. of Lgths.	Total Foota ge	Per Box 1-4	5-9	10-49	6-Inch Lengths Stock No.	No. of Lgths.	Total Footage	Per Box
3⁄64"	.025 to .042	.016	003	**37N280**	25	100 ft.	49.80	45.40	41.60	**37N260**	40	20 ft.	10.38
1⁄16"	.034 to .056	.017	004	**37N281**	25	100 ft.	52.25	47.64	43.64	**37N261**	36	18 ft.	
3⁄32"	.051 to .083	.020	006	**37N282**	25	100 ft.	49.80	45.60	41.60	**37N262**	32	16 ft.	
1⁄8"	.068 to .112	.020	008	**37N283**	25	100 ft.	62.91	57.35	52.54	**37N263**	28	14 ft.	
3⁄16"	.102 to .168	.020	012	**37N284**	25	100 ft.	76.88	70.10	64.22	**37N264**	24	12 ft.	
1⁄4"	.138 to .225	.025	016	**37N285**	25	100 ft.	95.83	87.38	80.05	**37N265**	20	10 ft.	
3⁄8"	.206 to .338	.025	024	**37N286**	25	100 ft.	106.54	97.15	89.00	**37N266**	16	8 ft.	

LR41513M5—6M

Type HTV Voltrex High Temperature Vinyl Shrinking Tubing

E52331

- **Excellent Mechanical & Tensile Strength**
- **Withstands Heavy Oil Immersion**
- **Tolerance High Ultra-Violet Exposure**
- **Superb Weatherability**
- **Resists Splitting and Deformation for wave soldered PC Boards**

Newly developed heat shrinkable PVC tubing considerably exceeds 105° sustained duty capability. Voltrex Type HTV exceeds or equals the performance of Polyolefin tubing in: flammability; dielectric strength; oil resistances; tensile strength; and ultra violet weatherability at PVC prices. Available in sizes from 1⁄16" to 2" diameter. Sizes through 3⁄8" diameter. Supplied pressurized. Standard color: Black.

Size	Recom. Usable ID Range	Recov. Nom. Wall Thick.	Type	Std. Spool Size	Stock No.	Price Per Std. Spool 1-4	5-9	10-49	100 Fg. Spool Stock No.	Per Spool	25 Ft. Spool Stock No.	Per Spool
1⁄16"	.034-.056"	.020	HTV-004	1000'	**37N2123WM**	232.89	213.38	192.32	**37N2123WA**	29.52	**37N2123WC**	8.03
3⁄32"	.051-.083"	.020	HTV-006	1000'	**37N2124WM**	268.35	245.85	221.60	**37N2124WA**	33.39	**37N2124WC**	9.09
1⁄4"	.068-.112"	.020	HTV-008	1000'	**37N2125WM**	284.13	260.32	234.63	**37N2125WA**	35.32	**37N2125WC**	9.56
3⁄16"	.102-.168"	.020	HTV-012	1000'	**37N2126WM**	345.62	316.64	285.40	**37N2126WA**	43.01	**37N2126WC**	11.70
1⁄4"	.138-.225"	.025	HTV-016	1000'	**37N2127WM**	437.14	400.51	361.02	**37N2127WA**	54.41	**37N2127WC**	14.74
3⁄8"	.206-.338"	.025	HTV-024	500'	**37N2128WF**	266.88	243.35	222.94	**37N2128WA**	60.54	**37N2128WC**	16.42
1⁄2"	.275-.450"	.025	HTV-032	500'	**37N2129WF**	306.85	277.79	256.30	**37N2129WA**	68.23	**37N2129WC**	18.52
3⁄4"	.413-.675"	.030	HTV-048	500'	**37N2130WF**	441.24	374.94	343.48	**37N2130WA**	91.43	**37N2130WC**	24.85
1"	.550-.900"	.035	HTV-064	250'	**37N2131WE**	287.85	262.43	240.43	**37N2131WA**	128.01	**37N2131WC**	34.83
1 1⁄2"	.825-1.35"	.040	HTV-096	250'	**37N2132WE**	542.72	474.84	453.34	**37N2132WA**	241.35	**37N2132WC**	65.57
2"	1.10-1.80"	.045	HTV-118	250'	**37N2133WE**	779.96	711.15	651.53	**37N2133WA**	346.85	**37N2133WC**	90.52

TYPE SRM-MULTIPLE WALL HEAT SHRINKABLE POLYOLEFIN

Multiple wall, semi-rigid, heat shrinkable polyolefin tubing. At excess of 135°C, outer tubing shrinks to geometry of surrounding, inner tubing melts for positive environmental seal. Insulates and encapsulates connections, splices, breakouts, and components. Suited for strain relief of solder joints and wire terminations. Tubing easily marked for identification. Meets AMS3634 and MIL-1-23052/4 requirements. Color: black.

Size	Expand ID (Min.)	Recover ID (Max.)	Rec. Nominal Wall Thick.	Meltable Wall (Nom.)	Type SRM-	4-FOOT LENGTHS Stock No.	No. of Lengths	Total Footage	PER BOX 1-4	5-9	10-49	6-INCH LENGTH Stock No.	No. of Lengths	Total Ft.	Per Box
1/8	.125"	.023"	.038"	.020"	008	**37N332**	25	100	110.23	92.40	81.05	**37N1818**	14	7	15.20
3/16	.187"	.060"	.043"	.025"	012	**37N333**	25	100	132.26	110.87	97.25	**37N1819**	12	6	14.64
1/4	.250"	.080"	.047"	.027"	016	**37N334**	25	100	167.49	140.40	123.15	**37N1820**	10	5	14.24
300	.300"	.050"	.100"	.065"	019	**37N335**	25	100	406.20	340.49	298.68	**37N1821**	4	2	23.12
3/8	.375"	.135"	.050"	.030"	024	**37N336**	25	100	186.63	156.44	137.23	**37N1822**	8	4	12.80
1/2	.500"	.195"	.055"	.035"	032	**37N337**	5	30	44.44	37.25	32.68	**37N1823**	6	3	13.56
3/4	.750"	.313"	.065"	.040"	048	**37N338**	5	20	70.55	59.14	51.88	**37N1824**	4	2	17.44
1	1.000"	.400"	.075"	.040"	064	**37N339**	5	20	90.72	76.04	66.70	**37N1825**	2	1	16.20

TYPE MLT-VOLTREX MELT LINER TUBING

Thermo-plastic tubing, especially designed to bé compatible with polyolefins. When used between heat shrinkable tubing and whatever is to be sealed, it melts and flows upon application of heat to provide an environmental seal around the geometry to be covered. MLT flows and adheres to most low temperature plastics, fabrics and many metals. Applications such as sealing ends of wire harnesses or filling a void in a component are made quicker and more effectively than by using potting compounds or messy epoxies. Order the type MLT tubing in the size equivalent to the expanded I.D. of the heat shrinkable tubing to be applied. Operational temperature range, −75°C to 110°C. Dielectric strength; 800 volts/mil. Color: Clear.

Size	O.D.	I.D.	Type. Recov. I.D.	Type MLT-	100' Stock No.	Price for Standard Spool 1-4	5-9	10-Up	25' Stock No.	Price Per Standard Spool 1-4	5-9	10-Up
1/8	.115	.085	.000	008	**37N287WA**	18.70	15.68	13.75	**37N287WC**	5.52	4.70	3.94
3/16	.177	.147	.000	012	**37N288WA**	19.72	16.53	14.50	**37N288WC**	5.80	4.93	4.14
1/4	.240	.202	.050	016	**37N289WA**	20.06	16.82	14.75	**37N289WC**	5.92	5.04	4.22
3/8	.364	.326	.100	024	**37N290WA**	28.90	24.23	21.25	**37N290WC**	8.52	7.25	6.08
1/2	.489	.451	.150	032	**37N291WA**	31.62	26.51	23.25	**37N291WC**	9.32	7.93	6.65
3/4	.739	.693	.250	048	**37N292WA**	43.52	36.48	32.00	**37N292WC**	12.80	10.88	9.12
1	.976	.940	.325	064	**37N293WA**	54.74	45.89	40.25	**37N293WC**	16.12	13.71	11.49
1 1/2	1.486	1.440	.500	096	**37N294WA**	74.80	62.70	55.00	**37N294WC**	22.00	18.70	15.68

TYPE KYS-VOLTREX KYNAR SHRINK TUBING

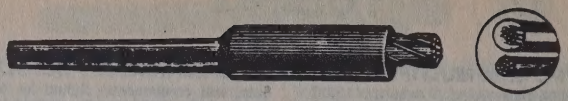
MIL-1-23053/8. AMS 3632B. Single best heat shrinkless tubing choice for applications involving extreme combinations of moisture, corrosive chemicals, strong solvents, oils, heat, stress, abrasion, high voltage and high mechanical strength. Voltrex Type KYS is a heat shrinkable tubing manufactured from poly-vinylidene fluoride with a thin wall and superior dielectric, abrasion, and cut-through properties. Kynar's stiffness makes this material an excellent strain relief, while the thin wall accommodates high density solder packs. Widely used as a component jacket for resistors and capacitors because of its superior flame resistance, thin wall and continuous operating temperature of 175°C. Color: clear. Kynar is a registered trade name of Pennwalt Chemical Company. 4-foot lengths marked in accordance with U.L. requirements.

Size	Recom. Usable ID Range	Recov. Nom.-Wall Thick.	Type KYS	4-Foot Lengths Stock No.	No. of Lengths	Total Footage	Per Box	1-4	5-9	10-49	6-Inch Lengths Stock No.	No. of Lgths	Total Footage	Per Box
3/64"	.025 to .042	.016	003	**37N1555**	25	100 ft.	.....	74.86	63.63	56.15	**37N165**	32	16 ft.	11.73
1/16"	.034 to .056	.017	004	**37N1556**	25	100 ft.	.....	81.49	69.27	61.12	**37N166**	28	14 ft.	11.73
3/32"	.051 to .083	.020	006	**37N1557**	25	100 ft.	.....	95.61	81.27	71.71	**37N167**	24	12 ft.	11.73
1/8"	.068 to .112	.020	008	**37N1558**	25	100 ft.	.....	104.33	88.68	78.25	**37N168**	20	10 ft.	11.73
3/16"	.102 to .168	.020	012	**37N1559**	25	100 ft.	.....	162.34	137.99	121.76	**37N169**	16	8 ft.	11.73
1/4"	.138 to .225	.025	016	**37N1560**	25	100 ft.	.....	254.42	173.76	153.32	**37N170**	12	6 ft.	11.73
3/8"	.206 to .338	.025	024	**37N1561**	25	100 ft.	.....	268.73	228.42	201.55	**37N171**	8	4 ft.	11.73
								1-4	5-24	25-49	50-249			
1/2"	.275 to .450	.025	032	**37N1562**	5	20 ft.		89.51	79.92	67.93	59.94	**37N172**	4	2 ft.	11.73
3/4"	.413 to .675	.030	048	**37N1563**	5	20 ft.		164.61	146.98	124.92	110.23	**37N173**	2	1 ft.	11.73
1"	.550 to .900	.035	064	**37N1564**	5	20 ft.		302.64	270.21	229.68	202.66	**37N174**	1	0.5 ft.	11.73

TYPE NPS-VOLTREX NEOPRENE SHRINK TUBING

MIL-I-23053/1. AMS 3623. MIL-R-46846A, Type 1 Class 1. Heat shrinkable Neoprene tubing particularly useful for fabrication and repair of flexible rubber harnesses and wire bundles and for hydraulic couplings. Its superior cut-thru and abrasion resistance allow its use in heavy duty applications such as drop lines, drag lines, and industrial equipment cable. Excellent oil resistance makes it ideal for automotive, helicopter and construction equipment industries. Excellent for environments having constant vibration, need for easy application, good flexibility at low temperature, oil splashes or spills, drag or abrasion yet requiring good electrical properties and a watertight covering. Voltrex NPS is an ideal product selection. Color: black.

Size In.	Recom. Usable ID Range	Recov. Nom. Wall Thickness	Stand. Spool Size	Type	Stock No.	Price Per Standard Spool Each	2-4	5-9	25' Spool Stock No.	Price Per Spool
1/4	.157"- .225"	.035"	100'	NPS-016	**37N414WA**	258.16	232.20	211.71	**37N414WC**	65.78
3/8	.235"- .338"	.040"	100'	NPS-024	**37N425WA**	308.69	277.66	253.15	**37N425WC**	78.72
1/2	.315"- .450"	.048"	100'	NPS-032	**37N416WA**	343.27	308.76	281.53	**37N416WC**	87.52
5/8	.393"- .563"	.052"	100'	NPS-040	**37N417WA**	385.84	347.05	316.43	**37N417WC**	98.37
3/4	.471"- .675"	.057"	100'	NPS-048	**37N418WA**	429.22	386.08	352.00	**37N418WC**	109.41
1	.627"- 900"	.070"	100'	NPS-064	**37N420WA**	523.45	470.83	429.29	**37N420WC**	133.47
1 1/4	.785"-1.125"	.087"	50'	NPS-080	**37N421WB**	725.83	652.78	595.26	**37N421WC**	184.99
1 1/2	.943"-1.350"	.095"	50'	NPS-096	**37N426WB**	847.77	762.54	695.27	**37N426WC**	216.19



TYPE PVS-VOLTREX PVC-105 SHRINK TUBING

MIL-I-631D, MIL-I-23053-2. Low cost, low shrink temperature and flexibility make Type PVS ideally suited for production insulation and jacketing of cables, bus bars, terminals, etc. Voltrex non-irradiated PVC has several distinct advantages over irradiated PVC: 125°F lower shrink temperature for less heat and shock, 30% shorter shrink time for increased production, 10% higher tensile strength for greater tear strength, negligible water absorption for less current leakage. When heated to a temperature exceeding 200°F, tubing shrinks to half its supplied diameter while shrinking less than 20% in length. Tubing stocked in spools as listed. All sizes through ½" diameter are air spooled. All PVC tubing marked in accordance with UL requirements. Color: Black.

Size	Recom. Usable ID Range	Recov. Nom. Wall Thick.	Type	Stock No.	Spool Size	Per Spool 1-4	Per Spool 5-9
3/64"	.028 to .038	.020	PVS-003	**37N249WM**	1000'	237.36	209.44
1/16"	.038 to .053	.020	PVS-004	**37N250WM**	1000'	254.76	224.80
3/32"	.053 to .075	.020	PVS-006	**37N251WM**	1000'	293.50	259.00
1/8"	.075 to .106	.020	PVS-008	**37N252WM**	1000'	310.75	274.20
3/16"	.106 to .150	.020	PVS-012	**37N253WM**	1000'	378.00	333.55
1/4"	.150 to .215	.025	PVS-016	**37N254WM**	1000'	478.15	421.90
3/8"	.215 to .300	.025	PVS-024	**37N255WD**	200'	140.29	125.26
1/2"	.300 to .425	.025	PVS-032	**37N256WA**	100'	80.64	72.00
3/4"	.425 to .600	.030	PVS-048	**37N257WA**	100'	108.08	96.50
1"	.600 to .800	.035	PVS-064	**37N258WA**	100'	151.29	135.08

Stock No.	Spool Size	Per Spool	Stock No.	Per 100' Spool	Stock No.	Per 25' Spool
37N249WF	500'	136.62	**37N249WA**	32.50	**37N249WC**	8.83
37N250WF	500'	149.86	**37N250WA**	34.90	**37N250WC**	9.48
37N251WD	200'	77.35	**37N251WA**	39.47	**37N251WC**	10.73
37N252WD	200'	81.89	**37N252WA**	41.75	**37N252WC**	11.31
37N253WD	200'	99.61	**37N253WA**	50.85	**37N253WC**	13.84
37N254WD	200'	126.00	**37N254WA**	64.31	**37N254WC**	17.43
.....	.....	.....	**37N255WA**	71.55	**37N255WC**	19.42
.....	.....	.....	.....	.....	**37N256WC**	21.88
.....	.....	.....	.....	.....	**37N257WC**	29.37
.....	.....	.....	.....	.....	**37N258WC**	41.15

TYPE TTS VOLTREX TEFLON SHRINK TUBING

- **Extreme temperature Resistance**
- **Chemically Inert**
- **Non-flammable**
- **MIL-I-23053/12**
- **Type TFE Teflon**
- **Natural Color**
- **Excellent Strain Relief**

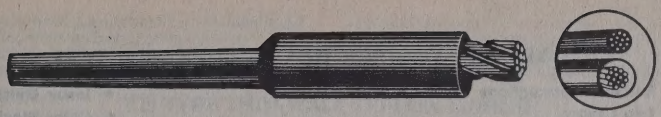
Voltrex TTS Teflon shrink tubing is made of type TFE Teflon which has an operating temperature rating of 500°F. TTS's stiffness, combined with its chemical inertness makes it an excellent strain relief for high temperature electrical connections within contaminated environments. Upon the application of heat in excess of 621°F the tubing will recover to about half of its original supplied diameter, shrinking firmly around the subject providing a permanent insulation covering. Color: Natural.

Size	Recom. Usable ID Range Inches	Recov'd Nom. Wall Thick (in.)	Type TTS	2-Foot Lengths Stock No.	No. of Lengths	Total Footage	Per Box	6-Inch Lengths Stock No.	No. of Lengths	Total Footage	Per Box
30	0.015 to 0.031	0.009	S30					**81N2694**	14	7	5.89
28	0.018 to 0.034	0.009	S28					**81N2695**	14	7	5.79
26	0.022 to 0.041	0.010	S26	**37N1627**	50	100	128.94	**81N2696**	14	7	5.70
24	0.027 to 0.045	0.010	S24					**81N2697**	18	9	5.84
22	0.032 to 0.049	0.010	S22	**37N1629**	50	100	104.82	**81N2698**	18	9	5.94
20	0.039 to 0.054	0.012	S20	**37N1630**	50	100	106.24	**81N2699**	16	8	5.54
18	0.049 to 0.069	0.012	S18	**37N1631**	50	100	112.81	**81N2700**	16	8	5.85
16	0.061 to 0.084	0.012	S16	**37N1632**	50	100	118.62	**81N2701**	16	8	6.14
14	0.072 to 0.018	0.012	S14	**37N1633**	50	100	122.49	**81N2702**	14	7	5.44
12	0.089 to 0.135	0.012	S12	**37N1634**	25	50	67.51	**81N2703**	14	7	6.01
10	0.112 to 0.172	0.012	S10	**37N1635**	25	50	77.98	**81N2704**	12	6	6.06
8	0.141 to 0.216	0.015	S08	**37N1636**	25	50	134.74	**81N2705**	10	5	8.19
6	0.178 to 0.272	0.015	S06	**37N1637**	10	20	62.37	**81N2706**	8	4	7.71
4	0.224 to 0.333	0.015	S04	**37N1638**	10	20	74.24	**81N2707**	6	3	7.57
2	0.278 to 0.367	0.015	S02	**37N1639**	10	20	89.00	**81N2708**	4	2	5.51
0	0.347 to 0.423	0.015	S00	**37N1640**	10	20	107.52	**81N2709**	3	1.5	5.13

TYPE TFM INNER MELT HEAT SHRINKABLE TEFLON TUBING

A combination tubing with an exterior of heat shrinkable Teflon TFE and an inner lining of Teflon FEP. This tubing can be slipped over connectors, wires, terminals, splices, etc. When the covered section is heated, the TFE shrinks tightly over the inserted objects. At the same time the FEP melts and is squeezed into a solid or near solid encapsulation. Tight enough so that it offers safe protection against most environmental hazards involving pull or vibration. It has a service temperature of 450°F and offers the outstanding electrical, chemical and mechanical properties of Teflon. Easy to apply. Shrinking can be accomplished with a heat gun. Comes in nine different inside diameters from .036" to .950", in lengths of two feet. Standard material is translucent.

Size (in.)	Recom. Usable ID Range (in.)	Recov'd Nom. Wall Thick. (in.)	Type TFM-	2-FT. LENGTHS Stock No.	No. of Lengths	Total Footage	Per Box
1/32	0.00-.032	.032	002	**37N315**	50	100	114.18
1/16	0.00-.054	.028	004	**37N316**	50	100	177.60
1/8	0.00-.117	.032	008	**37N317**	50	100	282.26
3/16	.068-.171	.035	012	**37N318**	25	50	210.90
1/4	.137-.225	.035	016	**37N319**	25	50	241.03
3/8	.209-.315	.035	024	**37N320**	10	20	135.11
1/2	.343-.405	.055	032	**37N321**	10	20	261.96
3/4	.484-.630	.055	048	**37N322**	5	10	165.55
1	.748-.855	.065	064	**37N323**	5	10	281.31



TYPE SST-VOLTREX SUPER SHRINK TEFLON TUBING

Super Shrink Teflon tubing provides the excellent chemical and thermal characteristics of Teflon but can be shrunk promptly over inserted objects upon exposure to moderate heat. Partial shrinkage will occur at 250°F with complete recovery at 450°F, allowing Voltrex Type SST to be shrunk on soldered joints, parts, components and fittings of plastic, metal or wood that could not be protected before because of the high temperature required for shrinkage. This makes the permanent protection of Teflon available for many heat-sensitive applications. Voltrex Type SST heat shrinkable tubing is made of FEP Teflon with a 400°F ceiling for permanent duty, and is available in ten sizes from 3/32" to 2" in diameter. Standard color is transparent light blue. MIL-I-23053/11

Size (In.)	Recom. Usable ID Range (In.)	Recov'd. Non. Wall Thick. (In.)	Type SST-	2-FT. LENGTHS Stock No.	No. Of Lengths	Total Footage	Per Box
3/32	.062-.064	.008	006	**37N295**	50	100	148.88
1/8	.062-.113	.010	008	**37N296**	50	100	126.88
3/16	.126-.169	.010	012	**37N297**	25	50	74.80
1/4	.165-.225	.010	016	**37N298**	25	50	88.93
3/8	.247-.338	.012	024	**37N299**	10	20	52.08
1/2	.330-.450	.015	032	**37N300**	10	20	75.54
3/4	.495-.675	.020	048	**37N301**	5	10	63.08
1	.660-.900	.025	064	**37N302**	5	10	104.50
1 1/2	.990-1.350	.030	096	**37N303**	1	2	26.84
2	1.320-1.800	.030	128	**37N304**	1	2	34.92

TYPE TZS HEAT SHRINKABLE TEFZEL TUBING

Made from DuPont "Tefzel" ETFE fluoropolymer. "Tefzel" is a high-temperature polymer designed to offer a combinaton of ruggedness, dielectric properties, chemical resistance and all over a very broad temperature range. It has the ability to be shrunk down at only 300°F, yet it can operate at intermittent service temperatures up to 392°F. Suited for many applications, including cable jacketing, wire markers, terminal covers, temperature probes, immersion tubing, heat exchanger coils, sight glasses, roll covers, and chafe guards. Has excellent electrical and mechanical properties, is heat-sealable, transparent, chemically inert, and self-extinguishing. Available in eight sizes from 3/16" to 1 1/2" I.D. Clear in color. Comes in two foot lengths. MIL-I-23053/14

Size (In.)	Recom. Usable ID Range (In.)	Recov'd. Nom. Wall Thick. (In.)	Type TZS-	2-FT. LENGTHS Stock No.	No. Of Lengths	Total Footage	Per Box	6-IN. LENGTHS Stock No.	No. Of Lengths	Total Footage	Per Box
3/16	.137-.169	.011	012	**37N324**	25	50	88.84	**81N2710**	14	7	13.80
1/4	.182-.225	.013	016	**37N325**	25	50	124.99	**81N2711**	10	5	13.56
3/8	.275-.338	.013	024	**37N326**	10	20	69.96	**81N2712**	8	4	15.23
1/2	.379-.450	.013	032	**37N327**	10	20	90.74	**81N2713**	6	3	16.36
3/4	.550-.675	.018	048	**37N328**	5	10	72.66	**81N2714**	4	2	15.76
1	.731-.900	.012	064	**37N329**	5	10	120.58	**81N2715**	2	1	13.06

TYPE SRC MODED POLYOLEFIN SHRINK CAPS

- **Semi-rigid Polyolefin**
- **Caps Shrink up to 50%**
- **Abrasion Resistant and Flame Resistant**
- **Extremely Tough and Tight Fitting**

Heat shrinkable semi-rigid polyolefin caps radiation cross-linked for excellent electrical/mechanical properties. Small/lightweight.

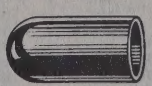
Chemical resistant. Shrinkable with standard heat guns. Color: black. Standard package, 100 pcs.

Size (In.)	Recom. Usable ID Range (In.)	Recov'd Nom. Length (In.)	Recov'd Nom. Well Thick. (In.)	Type SRC	Stock No.	Per Pkg. of 100 Pieces
1/8	.068 to .112	1	0.020	008	**37N1424**	20.19
1/4	.138 to .225	1 1/8	0.025	016	**37N1425**	27.65
3/8	.206 to .338	1 5/16	0.035	024	**37N1427**	35.16
1/2	.275 to .450	1 1/2	0.040	032	**37N1426**	89.34

TYPE MLC MOLDED POLYOLEFIN SHRINK CAPS

WITH MELTABLE LINER

- **Easily**
- **Resistant to Chemicals**



Crosslinked heat-shrinkable polyolefin caps. Easily installed with standard heat gun or torch with temperature in excess of 276° F. Excellent electrical and mechanical protection. Unaffected by most corrosive fuels, fluids and chemicals. On shrinking, an inner adhesive liner will melt and bond to the cable jacket to provide an environmental seal for telecommunication and power cables, pipes or other cylindrical objects. Color: black.

Size (In.)	Recom. Usable ID Range (In.)	Nominal Length (In.)	Recov'd Nom. Wall Thick. (In.)	Type No.	Stock Per Pkg.	Caps Per Pkg.	
3/16	.088-.144	1.000	.040	012	16N1067	**25**	35.00
1/4	.132-.225	1.100	.050	016	16N1068	**25**	40.00
3/8	.198-.324	1.300	.060	024	16N1069	**25**	45.00
1/2	.176-.351	1.300	.080	032	16N1070	**1**	2.60
1	.407-.900	3.500	.080	064	16N1071	**1**	5.00
2	.825-1.800	4.500	.100	128	16N1072	**1**	7.40
3	1.375-2.700	7.000	.110	192	16N1073	**1**	9.40

VOLTREX® brand

Tubing Kits

TYPE HST-VOLTREX HEAT SHRINKABLE TAPE

- **Reliable Connections**
- **Two Layers**
- **Inner Meltable Line**
- **Color Black**

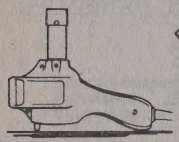
When taping is necessary as in the case of a working line, HST is the most reliable choice for long life and superior electrical properties. This two layered tape puts the correct amount of tension all around the joint automatically. No extra techniques or training needed. The inner meltable liner adheres to almost all clean surfaces for positive moisture protection. Color: black. 54 ft. rolls.

Stock No.	Type	Tape Width	Roll Length	Net per Roll 1-9	10-24	25-99	100-up
16N1127	HST-048-1010-BLK	3/4"	10'	4.32	3.24	2.70	2.16
16N1074	HST-048-1054-BLK	3/4"	54'	21.24	15.93	13.28	10.62
16N1076	HST-096-1054-BLK	1 1/2"	54'	42.12	31.59	26.33	21.06
16N1078	HST-192-1054-BLK	3"	54'	84.24	63.18	52.65	42.12

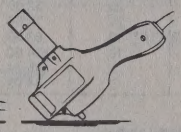
WHISPER "6" HIGH-TEMPERATURE HEAT GUN

6-POSITION SET-UP

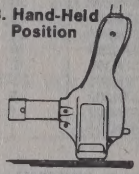
1. **Right Side Horizontal**



2. **Left Side Horizontal**



3. **Hand-Held Position**

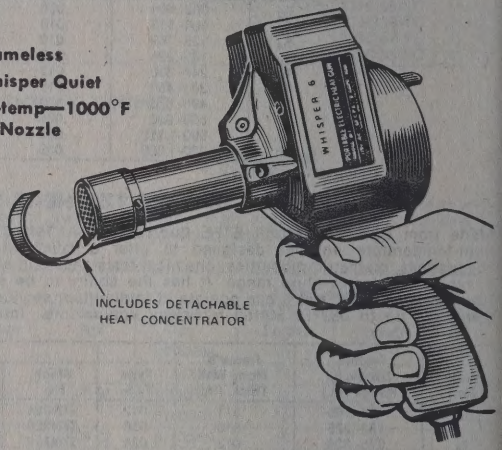


4. **Upside-down**

5. **Angled**

6. **Straight Ahead**

- **Flameless**
- **Whisper Quiet**
- **Hi-temp—1000°F at Nozzle**



Whisper—"6" Voltrex hi-temperature heat gun. Flameless. Specially designed for shrinking Voltrex tubing and for general heat shrink applications. Whisper quiet. Light weight. Noise level: R.F.—none; audible—none. Reduces operator fatigue; increases production. Preferred over noisy, air-blast types for day-in, day-out use. Reaches 1000°F at nozzle (measured with thermocouple). Shrinks full range of tubing types, including Teflon. Can be instantly set up in 6 positions without a stand. Safer and easier to use. Controlled heat path permits positioning hands close to side of nozzle end without burning fingers. Assures precision control of the shrinking process.

37N1447 #1 Heat Gun ..... Each **89.95**

13

REPLACEMENT PARTS FOR HEAT GUN

Stock No.	Type	Description	Each
37N1450	L-8833	Housing, Pair	21.95
37N1451	L-8834	Heat Deflector	7.95
37N1448	L-8835	Heating Element	18.95

Stock No.	Type	Description	Each
37N1452	L-8839	Switch	7.95
37N1453	L-8843	Intake Screen	3.95

ENGINEER'S TUBING KITS

These kits contain an assortment of sizes of the tubing types listed below. This material assortment enables the engineer to decide upon the best tubing in each application before putting his prototype into production. The deluxe kits are perfect starter kits since they include the Whisper 6 Heat Gun. The Basic 6" kit contains 78 6" lengths of tubing plus 20 caps; the Advanced 100mm kit contains 120 100mm lengths of tubing plus 32 caps. Both are packaged in a high-impact, polystyrene, Sectioned storage box with "Quick-Scan" chart.

BASIC 6" KIT INCLUDES:

18 Pcs. Type **PVS**
18 Pcs. Type **FPS**
14 Pcs. Type **SRS**
14 Pcs. Type **SRC**
11 Pcs. Type **KYS**
8 Pcs. Type **SRM**
9 Pcs. Type **TTS**
6 Pcs. Type **MLC**

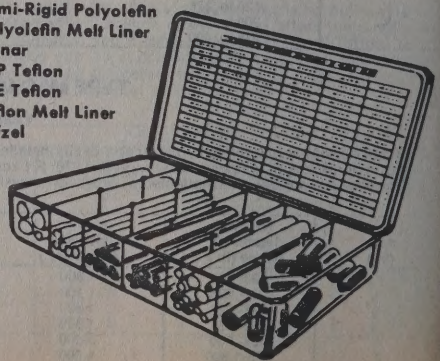
37N1436 ..... **50.95**

ADVANCED 100MM KIT INCLUDES:

18 Pcs. Type **PVS**
18 Pcs. Type **FPS**
12 Pcs. Type **KYS**
10 Pcs. Type **SRM**
14 Pcs. Type **MLT**
10 Pcs. Type **SST**
5 Pcs. Type **TFM**
10 Pcs. Type **TTS**
14 Pcs. Type **SRS**
9 Pcs. Type **TZS**
20 Pcs. Type **SRC**
12 Pcs. Type **MLC**

37N1443 ..... **84.95**

Including:
PVC
Flexible Polyolefin
Semi-Rigid Polyolefin
Polyolefin Melt Liner
Kynar
FEP Teflon
TFE Teflon
Teflon Melt Liner
Tefzel



DELUXE KIT

In addition to the kits described above, the deluxe kits include the Whisper "6" heat gun, designed for shrinking Voltrex brand tubing.

37N1449. Deluxe Basic 6" kit **130.95**
37N1444. Deluxe Advanced 100mm Kit **165.95**

Tubing

TEFLON INSULATING TUBING

VOLTREX® brand

MIL-I-22129C

Extremely high operating temperature range and chemical inertness make Voltrex Teflon insulating tubing unparalleled by any other material in electrical applications. Will not crack or become brittle. Remains flexible throughout entire operating temp. range. Available in thin wall, allowing miniaturization and compactness. Also available in standard wall where extra dielectric or mechanical strength are required. Stocked in 100' spools. Other spools sizes and tubing cut to length available on special order. Color: Natural. *DuPont Registered Trademark.

TTI TYPE THIN-WALL TEFLON TUBING

E52331 AMS-3655

Size	Stock No.	Type	Inside Diameter			Wall Thickness		Per 100 Ft. Spool				
			Nominal	Max.	Min.	Nominal	±	100'	200'-400'	500'-900'	1000'-4900'	5000'-10000'
30	37N488	TTI-S30	0.012"	0.015"	0.010"	0.009"	0.002"	14.91	13.41	12.23	11.20	10.10
28	37N489	TTI-S28	0.015"	0.019"	0.013"	0.009"	0.002"	13.10	11.78	10.74	9.84	8.87
26	37N490	TTI-S26	0.018"	0.022"	0.016"	0.009"	0.002"	11.76	10.57	9.64	8.83	7.96
24	37N491	TTI-S24	0.022"	0.027"	0.020"	0.010"	0.002"	12.87	11.58	10.56	9.67	8.72
22	37N492	TTI-S22	0.028"	0.032"	0.025"	0.010"	0.002"	15.12	13.60	12.40	11.36	10.24
20	37N493	TTI-S20	0.034"	0.040"	0.032"	0.012"	0.003"	18.30	16.46	15.00	13.75	12.39
18	37N494	TTI-S18	0.042"	0.049"	0.040"	0.012"	0.003"	21.36	19.21	17.52	16.05	14.46
16	37N495	TTI-S16	0.053"	0.061"	0.051"	0.012"	0.003"	25.55	22.98	20.96	19.20	17.31
14	37N496	TTI-S14	0.066"	0.074"	0.064"	0.012"	0.003"	28.09	25.26	23.03	21.10	19.02
12	37N481	TTI-S12	0.085"	0.091"	0.081"	0.012"	0.003"	34.19	30.75	28.04	25.69	23.16
10	37N482	TTI-S10	0.106"	0.112"	0.102"	0.012"	0.003"	40.90	36.79	33.54	30.73	27.70
8	37N483	TTI-S08	0.133"	0.141"	0.129"	0.015"	0.004"	64.13	57.68	52.59	48.18	43.43
6	37N484	TTI-S06	0.166"	0.178"	0.162"	0.015"	0.004"	78.02	70.18	63.98	58.62	52.84
4	37N485	TTI-S04	0.208"	0.224"	0.204"	0.015"	0.004"	96.05	86.39	78.77	72.16	65.05
2	37N486	TTI-S02	0.263"	0.278"	0.258"	0.015"	0.004"	118.88	106.93	97.50	89.32	80.51
0	37N487	TTI-S00	0.330"	0.347"	0.325"	0.015"	0.004"	146.89	132.12	120.47	110.36	99.48

TYPE TSI—STANDARD WALL TEFLON TUBING

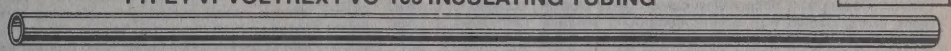
E52331 AMS-3653B

Size	Type TSI—	Stock No.	Inside Diameter			Wall Thickness		Per 100 Ft. Spool				
			Nominal	Max.	Min.	Nominal	±	100'	200'-400'	500'-900'	1000'-4900'	5000'-9000'
24	S24	37N1580	0.022"	0.027"	0.020"	0.012"	0.002"	18.70	16.70	14.20	12.53	10.69
22	S22	37N1581	0.028"	0.032"	0.025"	0.012"	0.002"	20.76	18.54	15.76	13.91	11.87
20	S20	37N1582	0.034"	0.040"	0.032"	0.016"	0.003"	28.54	25.48	21.66	19.11	16.31
18	S18	37N1584	0.042"	0.049"	0.040"	0.016"	0.003"	33.53	29.94	25.45	22.46	19.16
16	S16	37N1586	0.053"	0.061"	0.051"	0.016"	0.003"	38.80	34.64	29.44	25.98	22.17
14	S14	37N1588	0.066"	0.074"	0.064"	0.016"	0.003"	43.64	38.96	33.12	29.22	24.93
12	S12	37N1590	0.085"	0.091"	0.081"	0.016"	0.003"	52.44	46.82	39.80	35.12	29.96
10	S10	37N1592	0.106"	0.112"	0.102"	0.016"	0.003"	63.82	56.98	48.43	42.74	36.47
8	S08	37N1594	0.133"	0.141"	0.129"	0.020"	0.004"	100.28	89.54	76.11	67.16	57.31
6	S06	37N1596	0.166"	0.178"	0.162"	0.020"	0.004"	116.79	104.28	88.64	78.21	66.74
4	S04	37N1598	0.208"	0.224"	0.204"	0.020"	0.004"	139.87	124.88	106.15	93.66	79.92

TYPE PVI-VOLTREX PVC-105 INSULATING TUBING

E52331

CSA LR41513M5-6M



MIL-I-631D. Flexibility, abrasion resistance, and low cost make Voltrex PVC-105 an excellent general purpose insulating tubing. Non-flammable. FR-1 rated. No. 24 thru 5/8" tubing stocked in 100' spools. 3/4" thru 2" tubing stocked in 50' spools. All marked in accordance with UL requirements. Colors: Black and clear.

Size	Type PVI	Stock No.	Inside Diameter			Wall Thickness		Per 100 Foot Spool			
			Nominal	Max.	Min.	Nominal	±	100'-400'	500'-900'	1000'-4000'	5000'-9000'
24	S24	37N600	0.022"	0.027"	0.020"	0.012"	0.002"	4.37	3.90	3.32	2.93
22	S22	37N601	0.027"	0.032"	0.025"	0.012"	0.002"	4.37	3.90	3.32	2.93
20	S20	37N602	0.034"	0.039"	0.032"	0.016"	0.003"	4.75	4.24	3.60	3.18
19	S19	37N707	0.038"	0.044"	0.036"	0.016"	0.003"	4.75	4.24	3.60	3.18
18	S18	37N603	0.042"	0.049"	0.040"	0.016"	0.003"	5.13	4.58	3.89	3.44
17	S17	37N706	0.047"	0.055"	0.045"	0.016"	0.003"	5.13	4.58	3.89	3.44
16	S16	37N604	0.053"	0.061"	0.051"	0.016"	0.003"	5.49	4.90	4.17	3.68
15	S15	37N705	0.059"	0.066"	0.057"	0.016"	0.003"	5.49	4.90	4.17	3.68
14	S14	37N605	0.066"	0.072"	0.064"	0.016"	0.003"	4.79	4.28	3.64	3.21
13	S13	37N704	0.076"	0.080"	0.072"	0.016"	0.003"	4.79	4.28	3.64	3.21
12	S12	37N606	0.085"	0.089"	0.081"	0.016"	0.003"	5.11	4.56	3.88	3.42
11	S11	37N703	0.095"	0.101"	0.091"	0.016"	0.003"	5.11	4.56	3.88	3.42
10	S10	37N607	0.106"	0.112"	0.102"	0.016"	0.003"	5.94	5.30	4.51	3.98
9	S09	37N702	0.118"	0.124"	0.114"	0.020"	0.003"	7.17	6.40	5.44	4.80
8	S08	37N608	0.133"	0.141"	0.129"	0.020"	0.003"	7.77	6.94	5.90	5.21
7	S07	37N701	0.148"	0.158"	0.144"	0.020"	0.003"	8.36	7.46	6.34	5.60
6	S06	37N609	0.166"	0.178"	0.162"	0.020"	0.003"	8.94	7.98	6.78	5.99
5	S05	37N700	0.186"	0.198"	0.182"	0.020"	0.003"	9.56	8.54	7.26	6.41
4	S04	37N610	0.208"	0.224"	0.204"	0.020"	0.003"	10.17	9.08	7.72	6.81
3	S08	37N1438	0.234"	0.249"	0.229"	0.020"	0.003"	10.75	9.60	8.16	7.20
2	S02	37N611	0.263"	0.278"	0.258"	0.020"	0.003"	11.96	10.68	9.08	8.01
1	S01	37N1439	0.294"	0.311"	0.289"	0.020"	0.003"	13.44	12.00	10.20	9.00
5/16"	020	37N612	0.313"	0.334"	0.313"	0.025"	0.003"	17.65	15.76	13.40	11.82
0	S00	37N613	0.330"	0.347"	0.325"	0.025"	0.003"	14.99	13.38	11.37	10.04
3/8"	024	37N614	0.375"	0.399"	0.375"	0.025"	0.003"	20.94	18.70	15.90	14.03
7/16"	028	37N1440	0.438"	0.462"	0.438"	0.025"	0.003"	16.78	14.98	12.73	11.24
1/2"	032	37N615	0.500"	0.524"	0.500"	0.025"	0.003"	18.82	16.80	14.28	10.75
5/8"	040	37N616	0.625"	0.655"	0.625"	0.030"	0.003"	27.22	24.30	20.66	18.23
								Per 50 Ft. Spool			
3/4"	048	37N617	0.750"	0.786"	0.750"	0.035"	0.005"	24.33	21.72	18.46	16.29
1"	064	37N619	1.000"	1.036"	1.000"	0.035"	0.005"	38.10	34.02	28.92	25.52
1 1/2"	092	37N1575	1.500"	1.550"	1.500"	0.045"	0.006"	166.10	148.30	126.06	111.23
2"	128	37N1577	2.000"	2.070"	2.000"	0.060"	0.010"	127.19	113.56	96.53	85.17

VOLTREX® brand Electrical Sleeving

VOLTREX TYPE GSX—HEAT TREATED FIBERGLASS SLEEVING

Product Description and Features: Voltrex GSX consists of a tightly braided fiberglass sleeving designed as Class 240C insulation. CSX is heat annealed to remove organic impurities, improve handling and reduce endfray. The sleeving is compatible with varnishes, epoxies and bonding agents where maximum reinforcement between the glass and encapsulant is needed. Product Applications: Voltrex GSX is utilized as primary and secondary insulation for motor leads, small appliances, brush assemblies, electric resistance heating elements and similar low voltage applications. It is the ideal sleeving for abrasion and cut-through protection over insulated leads. Color: Natural.

Size	Type	Nominal I.D.	Nom. Wall Thick.	Stock No.	100′
24	GSXS24	.022	.012	**81N2298WA**	6.85
22	GSXS22	.027	.012	**81N2299WA**	6.85
20	GSXS20	.034	.012	**81N2300WA**	7.67
18	GSXS18	.042	.012	**81N2301WA**	8.06
16	GSXS16	.053	.013	**81N2302WA**	8.25
14	GSXS14	.066	.015	**81N2303WA**	8.69
12	GSXS12	.085	.015	**81N2304WA**	9.08
10	GSXS10	.106	.015	**81N2305WA**	9.93
8	GSXS08	.133	.015	**81N2306WA**	11.32
6	GSXS06	.166	.015	**81N2307WA**	13.21
4	GSXS04	.208	.015	**81N2308WA**	16.10
2	GSXS02	.263	.018	**81N2309WA**	20.64
0	GSXS00	.330	.018	**81N2310WA**	27.22
3/8	GSX024	.375	.022	**81N2311WA**	34.88
7/16	GSX028	.438	.022	**81N2312WA**	45.99
1/2	GSX032	.500	.022	**81N2313WA**	59.84
5/8	GSX040	.625	.022	**81N2314WA**	72.01
3/4	GSX048	.750	.022	**81N2315WA**	88.50
7/8	GSX056	.875	.022	**81N2316WA**	107.88
1″	GSX064	1.000	.022	**81N2317WA**	131.44

VOLTREX TYPE GSV—VINYL COATED FIBERGLASS SLEEVING

Product Description: Voltrex vinyl-coated glass sleeving consists of braided glass tubing coated with a vinyl compound specially formulated for high dielectric strength and good heat resistance. Product Advantages: Good physical strength, flexibility and toughness at an economical price make vinyl-coated sleeving the ideal selection for use in equipment designed for Class 105 and Class 130 service. It does not disintegrate nor swell after 48 hours in transformer oil at 105°C and it resists waxes, alcohol, petroleum solvents, esters, and many alkalies and acids. Because of the specially formulated vinyl coating, excellent resistance to cut-through, abrasion and cold flow is achieved. Vinyl-coated sleeving is flame retardant (self-extinguishing within 15 seconds), and resists cracking at temperatures as low as −40°C. It is especially resistant to solvents used in electrical varnishes. Product Applications: Vinyl-coated sleeving is suggested for use in potted coils, motor and transformer leads and connections, switchboard wiring, instruments and other applications designed for Class 130 operation. Color: Black.

Size	Type	Nom. I.D.	Nom. Wall Thick.	Stock No.	100′	Stock No.	1000′
24	GSVS24	.022	.019	**81N2355WA**	10.57	**81N2355WM**	84.66
22	GSVS22	.027	.019	**81N2356WA**	10.57	**81N2356WM**	84.78
20	GSVS20	.034	.019	**81N2357WA**	11.00	**81N2357WM**	88.11
18	GSVS18	.042	.019	**81N2358WA**	11.46	**81N2358WM**	91.44
16	GSVS16	.053	.024	**81N2359WA**	11.85	**81N2359WM**	94.76
					100′		500′
14	GSVS14	.066	.024	**81N2360WA**	13.41	**81N2360WF**	55.56
12	GSVS12	.085	.024	**81N2361WA**	13.41	**81N2361WF**	58.97
10	GSVS10	.106	.024	**81N2362WA**	14.79	**81N2362WF**	65.14
8	GSVS08	.133	.024	**81N2363WA**	16.41	**81N2363WF**	72.23
					100′		250′
6	GSVS06	.166	.024	**81N2364WA**	19.57	**81N2364WE**	43.08
4	GSVS04	.208	.031	**81N2365WA**	23.83	**81N2365WE**	52.46
2	GSVS02	.263	.031	**81N2366WA**	29.84	**81N2366WE**	65.60
0	GSVS00	.330	.036	**81N2367WA**	39.98		
3/8	GSV024	.375	.036	**81N2368WA**	50.81		
7/16	GSV028	.438	.036	**81N2369WA**	67.03		
1/2	GSV032	.500	.036	**81N2370WA**	84.64		
5/8	GSV040	.625	.036	**81N2371WA**	106.74		
3/4	GSV048	.750	.036	**81N2372WA**	131.10		
7/8	GSV056	.875	.036	**81N2373WA**	160.36		
1″	GSV064	1.000	.036	**81N2374WA**	193.56		

VOLTREX TYPE GSA—ACRYLIC COATED FIBERGLASS SLEEVING

Product Description: Voltrex GSA sleeving consists of a specially designed fiberglass sleeving coated with flexible, thermally stable, fullycured acrylic resin. Product Features: GSA sleeving specially formulated coating adheres strongly to braid and resists cracking or splitting even when creased at high temperatures. Its dry, glossy surface prevents sticking and improves resistance to surface tracking at high voltage. GSA sleeving stands up under abuses of installation—it remains round; its good dielectric properties are unaffected by severe bending; it resists abrasion and cut-through. GSA sleeving is compatible with most acrylic epoxy, phenolic , polyvinyl acetal, and other wire enamels; and resists many acids, alkalies, and most commonly used solvents. Product Applications: GSA sleeving is suggested for use in instruments, transformers, motor leads and connections. Its good chemical resistance, toughness and flexibility make it ideal for use in most electrical equipment of enclosed or open type construction, rated for Class 155 or lower. Product Specifications: NEMA, VS-1, ASTM D-372, and Military Specification MIL-I-3190.
Color: Natural.

Size	Type	Nom. I.D.	Nom. Wall Thick.	Stock No.	100′	Stock No.	1000′
24	GSAS24	.022	.012	**81N2318WA**	12.44	**81N2318WM**	107.08
22	GSAS22	.027	.012	**81N2319WA**	13.26	**81N2319WM**	114.26
20	GSAS20	.034	.012	**81N2320WA**	13.70	**81N2320WM**	117.90
18	GSAS18	.042	.012	**81N2321WA**	13.91	**81N2321WM**	119.85
16	GSAS16	.053	.013	**81N2322WA**	14.40	**81N2322WM**	123.81
					100′		500′
14	GSAS14	.066	.015	**81N2323WA**	15.06	**81N2323WF**	66.76
12	GSAS12	.085	.015	**81N2324WA**	16.34	**81N2324WF**	72.37
10	GSAS10	.106	.015	**81N2325WA**	18.21	**81N2325WF**	80.70
8	GSAS08	.133	.015	**81N2326WA**	20.66	**81N2326WF**	91.56
					25′		100′
6	GSAS06	.166	.015	**81N2327WC**	8.28	**81N2327WA**	23.00
4	GSAS04	.208	.015	**81N2328WC**	10.69	**81N2328WA**	29.73
2	GSAS02	.263	.018	**81N2329WC**	13.46	**81N2329WA**	37.35
0	GSAS00	.330	.018	**81N2330WC**	18.05	**81N2330WA**	50.15
3/8	GSA024	.375	.022	**81N2331WC**	23.95	**81N2331WA**	66.47
7/16	GSA028	.438	.022	**81N2332WC**	39.44	**81N2332WA**	87.55
1/2	GSA032	.500	.022	**81N2333WC**	41.38	**81N2333WA**	114.84
5/8	GSA040	.625	.022	**81N2334WC**	48.71	**81N2334WA**	138.87
3/4	GSA048	.750	.022	**81N2335WC**	60.81	**81N2335WA**	168.86
7/8	GSA056	.875	.022	**81N2336WC**	74.83	**81N2336WA**	207.71
1″	GSA064	1.000	.022	**81N2337WC**	88.62	**81N2337WA**	245.92

VOLTREX TYPE GSR—SILICONE RUBBER COATED FIBERGLASS SLEEVING

Voltrex silicone rubber-coated glass sleeving consists of a braided glass tubing coated with an improved, flexible silicone rubber formulation. Voltrex silicone rubber sleeving has outstanding thermal stability and is designed for long service life at temperatures up to 200°C, or for shorter exposure to temperatures as high as 250°C. Voltrex silicone rubber glass sleeving resists abuse from bending stresses at high temperatures, yet provides a flexible material which is functional through an extremely wide temperature range. Voltrex silicone rubber sleeving retains flexibility at temperatures as low as −70°C. Voltrex silicone rubber-coated glass sleeving is compatible with most high temperature insulation systems, exhibits excellent corona resistance, excellent ozone resistance and will self-extinguish within 45 seconds leaving a non-conductive ash. Silicone sleeving is unaffected by weathering. Silicone rubber-coated glass sleeving conforms to ASTM Specification D372. NEMA Standard VS-1, and Military Specifications MIL-I-18057 and MIL-I-3190. A wide range of uses has been found for Voltrex silicone rubber-coated glass sleeving including insulation of leads and connections in coils, solenoids, transformers, relays and other equipment operating at Class 200 and higher. It is also the ideal choice for equipment likely to encounter sub-zero operating conditions. Color: Natural.

Size	Type	Nom. I.D.	Nom. Wall Thick.	Stock No.	100′	Stock No.	1000′
24	GSRS24	.022	.024	**81N2338WA**	32.69	**81N2338WM**	315.86
22	GSRS22	.027	.024	**81N2339WA**	32.88	**81N2339WM**	317.83
20	GSRS20	.034	.024	**81N2340WA**	33.52	**81N2340WM**	324.56
18	GSRS18	.042	.024	**81N2341WA**	35.22	**81N2341WM**	340.41
16	GSRS16	.053	.024	**81N2342WA**	36.96	**81N2342WM**	357.14
					100′		500′
14	GSRS14	.066	.029	**81N2343WA**	39.05	**81N2343WF**	191.27
12	GSRS12	.085	.029	**81N2344WA**	42.26	**81N2344WF**	207.18
10	GSRS10	.106	.029	**81N2345WA**	46.53	**81N2345WF**	228.12
8	GSRS08	.133	.029	**81N2346WA**	52.07	**81N2346WF**	255.27
					25′		100′
6	GSRS06	.166	.029	**81N2347WC**	17.14	**81N2347WA**	59.57
4	GSRS04	.208	.029	**81N2348WC**	21.03	**81N2348WA**	73.05
2	GSRS02	.263	.042	**81N2349WC**	27.93	**81N2349WA**	96.93
0	GSRS00	.330	.042	**81N2350WC**	37.37	**81N2350WA**	129.83
3/8	GSR024	.375	.045	**81N2351WC**	49.05	**81N2351WA**	170.22
7/16	GSR028	.438	.045	**81N2352WC**	64.75	**81N2352WA**	224.60
1/2	GSR032	.500	.045	**81N2353WC**	75.57	**81N2353WA**	262.24
5/8	GSR040	.625	.045	**81N2354WC**	88.60	**81N2354WA**	308.11

Cable and Power Cord Index

BELDEN

Cable Index

Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page
8020	561	8402	548	8491	559	8734	550	9158	546	9429	546	9540	549	9738	551	9879	550	83264	558	83906	563
8021	561	8403	548	8497	559	8737	549	9160	546	9430	547	9541	549	9740	546	9880	553	83265	558	83910	563
8022	561	8404	548	8499	559	8740	547	9161	546	9431	547	9542	549	9741	546	9883	550	83266	558	83911	563
8023	561	8405	548	8501	557	8741	546	9182	551	9432	547	9543	549	9742	546	9886	550	83267	562	83915	563
8024	561	8407	548	8502	557	8742	546	9184	551	9433	547	9544	549	9743	546	9888	558	83269	562	83916	563
8025	561	8409	559	8503	557	8743	546	9203	558	9434	547	9545	549	9744	546	9890	558	83270	562	83930	563
8045	561	8410	548	8504	557	8744	546	9204	558	9438	550	9546	549	9745	546	9891	553	83282	562	83931	563
8046	561	8411	548	8505	557	8745	546	9207	558	9439	547	9550	551	9746	546	9892	553	83284	558	83932	563
8048	561	8412	548	8520	557	8746	546	9212	558	9444	547	9555	558	9747	546	9893	553	83315	560	83933	563
8049	561	8413	548	8521	557	8747	546	9221	558	9445	547	9562	559	9748	546	9894	558	83316	560	83934	563
8050	561	8415	559	8522	557	8748	546	9222	558	9447	559	9566	559	9749	546	9899	561	83317	560	83935	563
8051	561	8416	548	8524	557	8749	546	9223	558	9448	559	9570	559	9750	546	9908	557	83318	560	83950	563
8052	561	8417	548	8525	557	8750	546	9224	558	9449	559	9571	560	9751	546	9910	557	83319	560	83951	563
8053	561	8418	548	8527	557	8753	546	9232	558	9451	549	9572	560	9752	546	9912	557	83320	560	83952	563
8054	561	8420	548	8597	557	8754	546	9239	558	9452	549	9574	560	9755	546	9916	557	83321	560	83953	563
8055	561	8422	548	8601	559	8756	546	9244	558	9454	548	9575	560	9767	551	9918	557	83322	560	83954	563
8056	561	8423	548	8602	559	8757	546	9250	558	9455	547	9576	560	9768	551	9919	557	83330	560	83955	563
8057	561	8424	548	8603	559	8759	549	9252	558	9457	547	9577	560	9769	551	9921	557	83331	560	88240	562
8058	561	8425	548	8618	549	8764	551	9258	558	9458	547	9578	560	9770	549	9923	557	83332	560	88241	562
8073	561	8426	548	8619	547	8765	551	9259	559	9466	559	9579	560	9771	549	9924	557	83333	560	88281	562
8074	561	8427	548	8620	547	8766	551	9260	548	9467	559	9580	560	9772	550	9926	557	83393	560	88418	562
8075	561	8428	548	8621	547	8767	551	9261	548	9468	559	9581	560	9773	550	9928	557	83394	560	88442	562
8076	561	8429	548	8622	547	8768	551	9264	558	9469	559	9582	560	9774	550	9930	557	83395	560	88444	562
8077	561	8430	548	8623	547	8769	551	9265	559	9470	559	9583	560	9776	550	9951	548	83396	560	88489	562
8078	561	8434	550	8624	547	8770	549	9267	558	9476	559	9584	560	9777	550	9952	548	83502	562	88641	562
8079	561	8437	549	8627	547	8771	549	9268	558	9477	559	9585	559	9802	550	9953	548	83503	562	88723	562
8080	561	8441	549	8628	547	8772	549	9269	558	9478	559	9587	550	9804	553	9954	548	83504	562	88741	562
8081	561	8442	547	8629	547	8773	551	9271	558	9479	559	9596	550	9805	553	9961	548	83506	562	88760	562
8083	561	8443	547	8640	549	8774	551	9273	558	9480	559	9597	550	9806	553	9962	548	83509	562	88761	562
8085	561	8444	547	8641	549	8775	551	9274	558	9481	559	9598	550	9807	553	9963	548	83512	562	88777	562
8086	561	8445	547	8643	549	8776	551	9302	551	9482	559	9620	547	9808	553	9964	548	83515	562	89108	562
8205	546	8446	547	8649	549	8777	551	9305	551	9483	559	9621	547	9809	553	9965	548	83519	562	89120	562
8208	549	8447	547	8660	557	8778	551	9309	551	9484	559	9622	547	9810	553	9966	548	83602	562	89207	562
8212	558	8448	547	8662	557	8780	549	9315	551	9485	559	9623	547	9812	553	9967	548	83603	562	89269	562
8214	558	8449	547	8668	557	8782	547	9319	551	9499	559	9626	547	9819	553	9968	548	83604	562	89272	562
8216	558	8450	549	8669	557	8790	549	9327	551	9501	551	9641	547	9825	553	9975	557	83609	562	89503	562
8218	558	8451	549	8670	557	8791	549	9393	558	9502	551	9642	552	9829	553	9976	557	83612	562	89740	562
8219	558	8456	547	8674	557	8794	559	9394	548	9503	551	9643	552	9830	553	9977	557	83615	562	89880	562
8221	558	8457	547	8676	557	8795	559	9397	548	9504	551	9644	552	9831	553	9978	557	83619	562	220002	552
8232	558	8458	547	8690	546	8816	557	9398	548	9505	551	9700	553	9832	553	9980	557	83702	562		
8233	558	8459	547	8691	546	8824	557	9402	550	9506	551	9701	553	9833	553	9981	557	83703	562	221001	552
8237	558	8460	547	8692	546	8825	557	9405	547	9507	551	9702	553	9834	553	9982	557	83704	562		
8238	558	8461	547	8718	549	8890	561	9406	550	9508	551	9703	553	9835	553	9983	557	83706	562	222001	552
8240	558	8465	547	8719	549	8897	561	9406	551	9509	551	9704	553	9836	553	9984	557	83709	562		
8241	558	8466	547	8720	549	8898	561	9415	559	9510	551	9708	547	9837	553	9985	557	83712	562	222801	552
8254	558	8467	547	8722	550	8899	561	9416	559	9515	551	9721	547	9838	553	9986	557	83715	562		
8255	558	8468	547	8723	550	8916	557	9417	559	9525	551	9729	551	9842	553	9987	557	83719	562	222802	552
8259	558	8469	547	8724	550	8917	557	9418	559	9531	557	9730	551	9843	553	83061	562	83802	562		
8262	558	8470	547	8725	550	8918	557	9420	546	9533	549	9731	551	9844	553	83062	562	83803	562	222803	552
8263	558	8471	547	8726	550	8920	557	9421	547	9534	549	9732	551	9860	550	83064	562	83804	562		
8268	558	8473	547	8727	550	9100	558	9422	546	9535	549	9733	551	9873	550	83065	562	83806	562	226002	552
8279	559	8477	547	8728	550	9145	558	9423	547	9536	549	9734	551	9874	550	83066	562	83900	563		
8281	559	8488	547	8729	549	9146	558	9424	546	9537	549	9735	551	9875	550	83241	558	83901	563	227002	552
8299	559	8489	547	8732	550	9156	546	9425	546	9538	549	9736	551	9876	550	83242	558	83905	563		
8401	548	8490	559	8733	550	9157	546	9427	546	9539	549	9737	551	9877	550						

13

Power Cord and Portable Cordage Index

Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page
EAC302	566	17237	566	17401	567	17460	565	17509	564	17568	565	17619	564	17742	564	19107	567	19203	567	19348	567
8452	567	17238	566	17402	567	17461	565	17512	564	17569	565	17620	564	17743	564	19108	567	19204	567	19349	567
8453	567	17239	566	17403	566	17462	565	17513	564	17600	564	17621	564	17745	564	19109	567	19205	567	19350	567
8454	567	17250	566	17405	566	17463	565	17514	564	17601	564	17625	565	17746	564	19115	567	19206	567	19352	567
8462	567	17253	566	17406	566	17475	566	17515	564	17602	564	17629	566	17749	564	19120	567	19207	567	19353	567
8472	567	17254	564	17407	566	17476	566	17516	564	17603	564	17635	566	17750	564	19122	567	19208	567	19354	567
8478	567	17255	566	17408	566	17500	564	17517	564	17604	564	17660	564	17753	565	19123	567	19209	567	19362	567
8479	567	17265	566	17409	566	17501	564	17518	564	17605	564	17661	564	17902	565	19124	567	19216	567	19364	567
8888	567	17267	566	17412	566	17502	564	17519	564	17612	564	17666	565	17903	565	19125	567	19217	567		
9997	565	17276	566	17419	566	17503	564	17520	564	17613	564	17667	565	17904	565	19126	567	19227	567		
9998	565	17280	566	17422	566	17504	564	17521	564	17614	564	17668	565	17905	565	19129	567	19228	567		
17106	566	17308	566	17425	566	17505	564	17534	564	17615	564	17669	565	17906	565	19130	567	19229	567		
17109	566	17316	565	17447	566	17506	564	17535	564	17616	564	17675	565	17952	566	19140	567	19230	567		
17205	566	17318	565	17448	566	17507	564	17566	565	17617	564	17740	564	19105	567	19201	567	19326	567		
17236	566	17328	566	17449	566	17508	564	17567	565	17618	564	17741	564	19106	567	19202	567	19328	567		

Flat Cable and Connector Index

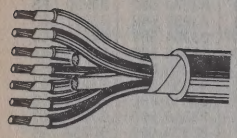
Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page	Mfr. No.	Page
8H3P	554	8S2J	555	9C1S	554	9C8J	554	9DSJ	555	9H00	556	9H6P	554	9P0P	555	9E0P	555	9V28	556	9L28	556
8H6P	554	8S0J	555	9C4J	554	9D00	556	9DSS	555	9H3P	554	9000	556	9S00	556	9H7P	554	9M1P	554	9GP10	556
8S0P	555	9C00	556	9C6J	554	9DSO	556	9D0P	554	9H4P	554	9P00	556	9S4J	555	9E00	556	9M2P	554		

BELDEN

Multi-Conductor Cables

Multi-conductor cables are manufactured in a wide range of sizes, dimensions, shielding constructions and insulations to meet the needs and technical requirements of many different types of equipment. User safety is always a primary design consideration. Cable used for communications, instrumentation, sound, control, audio and data transmission are all included in the multi-conductor category. Each of these cables is designed to protect a desired signal under critical conditions by reducing hum, noise and cross-talk. The key to maintaining signal integrity under a wide diversity of conditions and environmental hazards, can be found in highly effective shielding designs and insulating techniques.

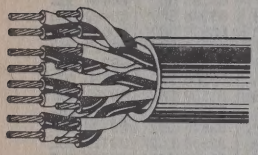
TYPE S NEOPRENE CONTROL CABLES (NON-PAIRED)



Industrial, utility, and motor control applications; remote control of automatic electric equipment. Neoprene jacket offers resistance to oils, acids, oxidation, abrasion, and impact.

Type	AWG & Cond.	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9420	16-5	.520″	37F3095WA	116.05	37F3095WF	437.25	37F3095WM	874.50
9422	16-7	.600″	37F3096WA	125.00	37F3096WF	593.25	37F3096WM	1186.50
9424	16-9	.630″	37F3097WA	186.40	37F3097WF	756.00	37F3097WM	1510.50
9425	16-12	.720″	37F3098WA	251.50	37F3098WF	1033.50	37F3098WM	2065.50
9427	16-16	.800″	37F3099WA	315.30	37F3099WF	1294.50	37F3099WM	2587.50
9429	16-20	.880″	37F3100WA	388.00	37F3100WF	1614.00	.....	.....

MULTIPLE CONDUCTOR CABLES-PAIRED



All types below have #22 AWG solid tinned copper conductors, vinyl insulated and cabled in pairs. Chrome vinyl jacket overall. 8746 spools are one piece −0 +20%. *Not UL Listed.

UL LISTED

SOLID

Type	No. of Pairs	Nom. O.D.	Work Volt	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
8741	2	.209″	300	36F061WA	16.50	36F061WF	58.55	36F061WM	117.05
8742	3	.244″	300	36F062WA	21.50	36F062WF	81.55	36F062WM	134.40
8757	4	.259″	300	.....	.....	36F069WF	107.95	36F069WM	177.90
9158	5	.307″	200	37F3106WA	31.40	37F3106WF	125.00	37F3106WM	213.90
8743	6	.305″	200	36F063WA	35.05	36F063WF	125.00	36F063WM	236.55
9160	8	.346″	200	.....	.....	37F3107WF	165.40	37F3107WM	330.75
8744	9	.354″	200	36F064WA	50.70	36F064WF	176.95	36F064WM	353.85
8753*	11	.369″	200	36F067WA	64.25	36F067WF	228.00	36F067WM	456.00
8754*	13	.394″	200	36F1465WA	72.00	36F1465WF	257.35	36F1465WM	514.65
8745	15	.405″	200	36F065WA	87.00	36F065WF	304.75	36F065WM	609.45
8755*	19	.430″	200	.....	.....	36F1466WF	381.00	36F1466WM	762.00
8756*	23	.495″	200	.....	.....	36F1467WF	462.75	36F1467WM	925.50
8746*	27	.535″	200	.....	.....	36F1468WF	528.00	36F1468WM	1056.00

STRANDED

As preceding types but Type 22 AWG stranded (7x30) conductors provide greater flexibility, can be run in intricate bands.

UL LISTED

Type	No. of Pairs	Nom. O.D.	Work Volt	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
9744	2	.230″	300	.....	.....	36F1475WF	69.00	36F1475WM	125.00
9745	3	.280″	300	.....	.....	36F1476WF	102.10	36F1476WM	168.30
9746	4	.295″	300	.....	.....	36F1477WF	125.00	36F1477WM	214.95
8747	6	.320″	200	36F075WA	42.15	36F075WF	144.40	36F075WM	288.75
8748	9	.389″	200	36F076WA	62.55	36F076WF	221.25	36F076WM	442.50
9747	12	.440″	200	36F1478WA	89.00	36F1478WF	304.35	36F1478WM	608.70
8749	15	.455″	200	36F077WA	104.40	36F077WF	371.80	36F077WM	743.55
9748	19	.520″	200	36F1479WA	125.00	36F1479WF	469.50	36F1479WM	939.00
9749	23	.570″	200	36F1480WA	168.65	36F1480WF	603.00	36F1480WM	1206.00
8750	27	.595″	200	.....	.....	36F078WF	705.75	36F078WM	1411.50

20 AWG (10 x 30)

8205	1	.190″	350	36F197WA	.....	36F197WF	.....	36F197WM	.....
9750	3	.309″	300	37F3108WA	31.25	37F3108WF	125.00	37F3108WM	210.30
9751	6	.376″	300	37F3109WA	58.00	37F3109WF	198.90	37F3109WM	397.80
9752	9	.439″	300	37F3110WA	85.65	37F3110WF	301.95	37F3110WM	603.90
9755	15	.531″	300	37F3111WA	125.00	37F3111WF	471.00	37F3111WM	942.00

18 AWG (16 x 30)

9740	1	.224″	400	.....	.....	37F3112WF	65.25	37F3112WM	125.00
9156	2	.287″	300	.....	.....	37F3113WF	125.00	37F3113WM	206.55
8690	3	.362″	400	37F3114WA	49.80	37F3114WF	166.95	37F3114WM	333.90
9157	4	.358″	300	37F3115WA	57.00	37F3115WF	194.40	37F3115WM	388.80
9159	5	.416″	300	.....	.....	37F3116WF	257.95	37F3116WM	515.85
8691	6	.475″	400	37F3117WA	104.40	37F3117WF	358.75	37F3117WM	717.45
9161	8	.478″	300	37F3118WA	121.50	37F3118WF	417.00	37F3118WM	834.00
8692	9	.575″	400	37F3119WA	125.00	37F3119WF	492.75	37F3119WM	985.50
9741	12	.675″	400	37F3120WA	183.25	37F3120WF	656.25	37F3120WM	1312.50
9742	15	.785″	400	37F3121WA	227.70	37F3121WF	816.00	37F3121WM	1630.50
9743	19	.865″	400	37F3122WA	288.00	37F3122WF	1030.50	37F3122WM	2059.50

MAKE NEWARK YOUR DEPENDABLE SOURCE
FOR ALL ELECTRONIC PARTS AND EQUIPMENT

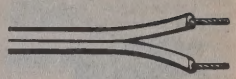
Multi-Conductor Cables

BELDEN

TWO CONDUCTOR SPEAKER CABLES

Parallel conductor cables for speaker lines. Also ideal for a variety of other audio and instrumentation applications. Chrome vinyl insulation, stranded. *solid.

Type No.	AWG and Cond.	Cable Width	Work Volt	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9708	18-2	.207″	300	36F052WA	9.75	36F052WF	38.35	36F052WM	76.65
8649	20-2	.146″	300	36F1816WA	7.45	36F1816WF	26.75	36F1816WM	53.55
8782	24-2	.115″	300	36F105WA	4.84	36F105WF	16.30	36F105WM	32.60

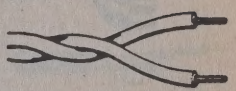


UNJACKETED. Twisted pair cable, vinyl insulated.

Type	AWG	Nom. O.D.	Work. Volt	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8460	18 (strd.)	.180″	450	36F1010WA	14.15	36F1010WF	53.90	36F1010WM	107.75
8470	16 (strd.)	.204″	600	.....	.....	36F1011WF	64.35	36F1011WM	125.00

JACKETED. As above, but with chrome vinyl overall jacket.

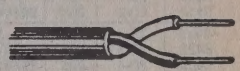
8740	22 (solid)	.160″	300	36F060WA	8.45	36F060WF	30.30	36F060WM	60.65
8442	22 (strd.)	.165″	350	.....	8.95	36F039WF	34.40	36F039WM	68.80
8205	20 (strd.)	.190″	350	36F197WA	11.20	36F197WF	40.50	36F197WM	81.00
8461	18 (strd.)	.226″	450	36F1014WA	17.85	36F1014WF	70.35	36F1014WM	125.00
8471	16 (strd.)	.256″	600	.....	.....	36F1015WF	100.75	36F1015WM	166.05
8473	14 (strd.)	.332″	600	.....	.....	36F1021WF	131.55	36F1021WM	263.10
8477	12 (strd.)	.384″	600	.....	.....	36F1354WF	185.10	36F1354WM	370.20

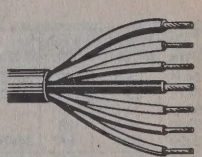


MULTIPLE CONDUCTOR CABLES—NOT PAIRED

Stranded tinned copper conductors, color-coded, vinyl plastic insulated, with jacket overall. Voltage ratings: 22 AWG types, 200V; 18 types, 400V; 16 types, 600V; 14 types, 600V. Available only in spool sizes listed. USES: Audio, control cables, communication.

Type	AWG & Con.	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8442	22-2	.165″	.....	.....	36F039WF	34.40	36F039WM	68.80
8443	22-3	.164″	36F040WA	10.50	36F040WF	42.25	36F040WM	84.45
8444	22-4	.182″	36F041WA	14.15	36F041WF	57.70	36F041WM	115.40
8445	22-5	.194″	36F042WA	16.60	36F042WF	68.80	36F042WM	125.00
8446	22-4, 18-2	.236″	36F043WA	29.50	36F043WF	125.00	36F043WM	210.15
8447	22-5, 18-2	.254″	36F044WA	35.05	36F044WF	125.00	36F044WM	245.25
8448	22-6, 18-2	.254″	36F045WA	37.15	36F045WF	133.20	36F045WM	266.40
8449	22-7, 18-2	.269″	36F046WA	39.25	36F046WF	144.15	36F046WM	288.30
9430	22-7	.214″	.....	.....	36F1819WF	107.85	36F1819WM	177.75
8488*	22-8	.205″	36F056WA	24.60	36F056WF	107.20	36F056WM	176.70
9421	22-8	.229″	37F3085WA	31.70	37F3085WF	125.00	37F3085WM	206.55
9423	22-9	.229″	37F3086WA	35.15	37F3086WF	125.05	37F3086WM	250.05
8456	22-10	.264″	36F200WA	39.50	36F200WF	145.50	36F200WM	291.00
8457	22-12	.264″	36F201WA	44.45	36F201WF	165.40	36F201WM	330.75
8458	22-15	.320″	36F198WA	70.00	36F198WF	254.50	36F198WM	508.95
9431	22-20	.345″	.....	.....	36F1084WF	328.80	36F1084WM	657.60
8459	22-25	.370″	36F199WA	109.30	36F199WF	411.75	36F199WM	823.50
9432	22-30	.400″	.....	.....	36F1085WF	472.50	36F1085WM	945.00
9433	22-40	.455″	37F3087WA	160.60	37F3087WF	625.50	37F3087WM	1251.00
9434	22-50	.500″	.....	.....	37F3088WF	783.00	37F3088WM	1566.00
9444	20-4	.217″	36F1086WA	17.40	36F1086WF	75.55	37F1086WM	125.00
9445	20-5	.239″	36F1087WA	21.30	36F1087WF	91.55	36F1087WM	150.90
9439	20-7	.260″	37F3089WA	35.05	37F3089WF	127.20	37F3089WM	254.40
9455	20-9	.317″	36F1088WA	46.35	36F1088WF	171.00	36F1088WM	342.00
9457	20-12	.338″	36F1089WA	57.10	36F1089WF	214.80	36F1089WM	429.60
9458	20-15	.389″	36F1090WA	74.75	36F1090WF	286.05	36F1090WM	572.10
8489	18-4	.254″	36F002WA	25.75	36F002WF	112.30	36F002WM	185.10
8465	18-5	.286″	36F1017WA	31.60	36F1017WF	125.00	36F1017WM	235.65
8467	18-7	.324″	36F1018WA	52.35	36F1018WF	193.20	36F1018WM	386.40
8469	18-9	.379″	36F1019WA	67.10	36F1019WF	256.45	36F1019WM	512.85
8466	18-12	.412″	36F144WA	92.40	36F144WF	367.15	36F144WM	734.25
8468	18-15	.505″	36F145WA	125.00	36F145WF	488.25	36F145WM	976.50
8619	18-19	.505″	36F1351WA	148.05	36F1351WF	578.25	36F1351WM	1156.50
9626	18-25	.600″	36F1099WA	191.10	36F1099WF	744.75	36F1099WM	1489.50
9405	18-6, 16-2	.377″	.....	.....	37F3090WF	222.10	37F3090WM	444.15
8620	16-4	.375″	36F146WA	49.50	36F146WF	190.00	36F146WM	379.95
9620	16-5	.405″	36F1095WA	65.00	36F1095WF	222.60	36F1095WM	445.20
8621	16-7	.455″	36F147WA	91.20	36F147WF	334.35	36F147WM	668.70
9721	16-8	.495″	37F3783WA	100.10	37F3783WF	374.25	37FX3783WM	748.50
9621	16-9	.510″	.....	.....	36F1096WF	413.25	36F1096WM	826.50
8622	16-12	.600″	36F148WA	125.00	36F148WF	564.75	36F148WM	1129.50
8623	16-15	.685″	37F3091WA	199.50	37F3091WF	814.50	37F3091WM	1627.50
8624	16-19	.719″	37F3092WA	244.95	37F3092WF	987.00	37F3092WM	1972.50
9622	16-25	.820″	.....	.....	36F1097WF	1134.00	36F1097WM	2266.50
8627	14-4	.495″	36F1094WA	88.65	36F1094WF	332.25	36F1094WM	664.50
9623	14-5	.545″	36F1098WA	107.20	36F1098WF	396.75	36F1098WM	793.50
8628	14-7	.615″	37F3093WA	125.00	37F3093WF	570.75	37F3093WM	1141.50
8629	14-12	.755″	37F3094WA	241.45	37F3094WF	1000.50	37F3094WM	1999.50





*Not UL Listed

UL LISTED

22 AWG
UL 2576

20 AWG
UL 2464

18 AWG
UL 2598

BELDEN Shielded Cable

SINGLE AND MULTI-CONDUCTOR SHIELDED CABLE

Suitable for general purpose use in communications and instrumentation applications. Cables have excellent resistance to moisture, weather, ozone, acids, alkali and flame.

Type	No. Cond.	AWG and (Stranding)	Nom. O.D.	Cap. pF/ft.	Ins. Thick.	Jacket Thick.	Stk. No.	100'	Stk. No.	500'	Stk. No.	1000'
9965	1	22 (19x34)	.100"	—	.010"	.010"	36F1117WA	22.05	36F1117WF	97.50	36F1117WM	160.65
9961	1	20 (19x32)	.109"	—	.010"	.010"	36F1118WA	22.95	36F1118WF	102.65	36F1118WM	169.20
9951	1	16 (19x29)	.139"	—	.010"	.016"	36F1119WA	30.40	36F1119WF	125.00	36F1119WM	227.25
9966	2	22 (19x34)	.176"	49	.010"	.020"	36F1120WA	36.60	36F1120WF	136.15	36F1120WM	272.25
9962	2	20 (19x32)	.192"	55	.010"	.020"	36F1121WA	42.25	36F1121WF	155.40	36F1121WM	310.80
9952	2	16 (19x29)	.238"	70	.010"	.025"	36F1122WA	50.80	36F1122WF	200.95	36F1122WM	401.85
9967	3	22 (19x34)	.184"	49	.010"	.020"	36F1123WA	50.00	36F1123WF	190.30	36F1123WM	380.55
9963	3	20 (19x32)	.202"	55	.010"	.020"	36F1131WA	51.45	36F1131WF	204.30	36F1131WM	408.60
9953	3	16 (19x29)	.250"	70	.010"	.025"	36F1125WA	70.00	36F1125WF	274.75	36F1125WM	549.45
9968	4	22 (19x34)	.200"	49	.010"	.020"	36F1126WA	55.90	36F1126WF	209.50	36F1126WM	418.95
9964	4	20 (19x32)	.212"	55	.010"	.020"	36F1127WA	62.35	36F1127WF	245.25	36F1127WM	490.50
9954	4	16 (19x29)	.270"	70	.010"	.023"	36F1128WA	88.40	36F1128WF	339.00	36F1128WM	678.00

SHIELDED CONTROL CABLE ℻-2464

Recommended for applications where remote switching of video camera function is required.

9260	6	6-20(7x28)	.305"	35	.016"	.032"	36F1129WA	63.80	36F1129WF	214.20	36FX1129WM	428.40
9261	12	12-20(7x28)	.410"	35	.016"	.040"	36F1130WA	105.60	36F1130WF	362.05	36FX1130WM	724.05

MICROPHONE CABLES

General purpose shielded cables, for all stage, studio and instrumentation applications. Rubber types have rubber insulated tinned copper conductors, tinned copper braid shield, black rubber jacket overall,(†) except black Neoprene jacket. (**) 8402 & 8408 have brown hypalon jacket. Vinyl types are similar, but have polyethylene insulated conductors, chrome vinyl jacket.(*) Miniature cables having tinned cadmium bronze conductors. USES: Mike, power supply, instrumentation, entertainment, etc.

RUBBER

Type	A.W.G. & Cond.	O.D.	Stock No.	50 Ft.	Stock No.	100 Ft.	Stock No.	250 Ft.	Stock No.	500 Ft.	Stock No.	1000 Ft.
8410	25-1	.245"					36F010WE	92.30	36F010WF	152.05		
8413*	24-2	.190"	36F026WB	23.50	36F026WA	43.70	36F026WE	100.95	36F026WF	166.30		
8406*	24-3	.223"			36F202WA	55.55			36F202WF	217.65		
9394	20-1	.190"							37F3145WF	108.40	37F3145WM	178.65
8412	20-2	.268"	36F011WB	24.50	36F011WA	46.25	36F011WE	104.95	36F011WF	172.95	36F011WM	345.90
8402**	20-2	.268"			36F1355WA	48.05	36F1355WE	113.95	36F1355WF	187.80		
8423	20-3	.277"	36F012WB	28.05	36F012WA	50.80	36F012WE	118.40	36F012WF	195.15	36F012WM	390.30
8424	20-4	.295"	36F013WB	30.60	36F013WA	57.15	36F013WE	125.00	36F013WF	220.20	36F013WM	440.40
8425	20-5	.323"			36F014WA	79.75	36F014WE	160.20				
8426	20-6	.349"			36F015WA	97.95	36F015WE	197.10				
8427	20-7	.360"			36F016WA	106.75	36F016WE	214.65				
8418	20-8	.386"			36F018WA	120.70	36F018WE	240.55				
9395	18-1	.235"										
8428†	18-2	.296"			36F017WA	60.55			37F3146WF	125.00	37F3146WM	214.95
8408**	16-2	.385"			36F1356WA	82.90			36F017WF	228.70	36F017WM	457.35
8407†	16-4	.422"			36F132WA	95.75	36F132WE	193.80	36F1356WF	328.20		

VINYL PLASTIC

Type	A.W.G. & Cond.	O.D.	Stock No.	50 Ft.	Stock No.	100 Ft.	Stock No.	250 Ft.	Stock No.	500 Ft.	Stock No.	1000 Ft.
8401	25-1	.200"	36F020WB	13.20	36F020WA	23.95	36F020WE	49.90	36F020WF	99.65	36F020WM	164.25
8411	25-1	.144"	36F021WB	10.20	36F021WA	19.40	36F021WE	39.05	36F021WF	78.00	36F021WM	128.55
9397	24-2	.176"			37F3147WA	35.80			37F3147WF	125.00	37F3147WM	217.20
9398	24-3	.186"			37F3148WA	41.80			37F3148WF	126.85	37F3148WM	253.65
8420*	24-2	.185"	36F027WB	18.05	36F027WA	33.60	36F027WE	76.90	36F027WF	126.70		
8422	22-2	.231"	36F022WB	20.20	36F022WA	34.80	36F022WE	74.00	36F022WF	125.00	36F022WM	243.90
8403	20-3	.244"	36F023WB	25.95	36F023WA	48.50	36F023WE	106.40	36F023WF	175.35	36F023WM	350.70
•8404	20-4	.248"			36F024WA	52.05	36F024WE	117.05	36F024WF	192.90	36F024WM	385.80
•8405	20-5	.275"					36F1358WE	125.00	36F1358WF	225.45	36F1358WM	450.90

• ℻-2084

HI-FI AND STEREO CABLES

Phono Pick-Up Cable, Type 8421, Hi-Fi connecting cable, spiral wrapped shield, chrome vinyl jacket with cellular polyethylene insulated conductor, 8431 is rubber insulated, shield and brown cotton braid, 8419, and 8429, are vinyl insulated.* No shield, no jacket, color-coded polyethylene insulation and individual spiral wrapped shields; chrome vinyl jacket.

Dual-Channel Audio Cable, Type 8416. Designed for stereo and language lab hookup applications. Tinned copper-copperweld conductors, with color-coded polyethylene and individual spiral wrapped shields; chrome vinyl jacket. †per channel, +50 ft. below.

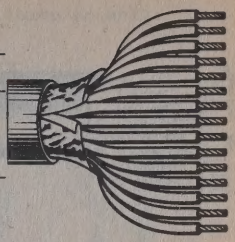
Miniature Audio Connecting Cable, Type 8417, Double BELFOIL aluminum-mylar shields provide total shielding for critical audio and instrumentation applications. Copper-copperweld conductor cellular polyethylene insulation, chrome vinyl jacket.

Type	No. of Cond.	AWG and (stranding)	Nom. O.D.	Nom. mmf/ft.	Stock No.	25 Ft.	Stock No.	100 Ft.	Stock No.	250 Ft.
8430*	2	32 (7 x 40)	.050"	21	36F158WC	4.02			36F158WE	23.25
8429	2	32 (7 x 40)	.057"	22	36F150WC	6.35			36F150WE	42.80
8421	1	25 (7 x 33)	.180"	18	36F226WC	7.10	36F226WA	21.20	36F226WE	46.90
8416	2	25 (7 x 33)	.213"	35†	36F126WC	7.70	36F126WA	25.60	36F126WE	57.10
9454**	2	30 (7 x 38)	.049"	12	36F051WC	17.95	36F051WA	48.50		
8417	1	25 (7 x 33)	.140"	25	36F127WC	5.90	36F127WA	17.20	36F127WE	37.35

**Low Capacitance—Quad Systems.

MULTI-CONDUCTOR OVERALL BELDFOIL SHIELD CABLE (NON-PAIRED)

Type	No. Cond.	AWG	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8641	2	24 Strd.	.168″	36F157WA	15.20	36F157WF	60.80	36F157WM	121.60
9533	3	24 Strd.	.168″	37F3123WA	21.30	37F3123WF	81.35	37F3123WM	134.10
9534	4	24 Strd.	.180″	37F3124WA	26.15	37F3124WF	99.20	37F3124WM	163.50
9535	5	24 Strd.	.190″	37F3125WA	30.70	37F3125WF	117.70	37F3125WM	193.95
9536	6	24 Strd.	.205″	37F3126WA	34.05	37F3126WF	125.00	37F3126WM	222.30
9537	7	24 Strd.	.205″	37F3127WA	36.40	37F3127WF	125.00	37F3127WM	238.50
9538	8	24 Strd.	.220″	37F3128WA	39.90	37F3128WF	136.20	37F3128WM	272.40
9539	9	24 Strd.	.240″	37F3129WA	44.15	37F3129WF	150.40	37F3129WM	300.75
9540	10	24 Strd.	.250″	37F3130WA	46.15	37F3130WF	164.20	37F3130WM	328.35
9541	15	24 Strd.	.280″	37F3131WA	80.75	37F3131WF	288.85	37F3131WM	577.65
9542	20	24 Strd.	.310″	37F3132WA	107.65	37F3132WF	385.50	37F3132WM	771.00
9543	25	24 Strd.	.370″	37F3133WA	125.00	37F3133WF	477.00	37F3133WM	954.00
9544	30	24 Strd.	.390″	37F3134WA	146.75	37F3134WF	572.25	37F3134WM	1144.50
9545	40	24 Strd.	.440″	37F3135WA	192.50	37F3135WF	751.50	37F3135WM	1503.00
9546	50	24 Strd.	.490″	37F3136WA	238.45	37F3136WF	930.00	37F3136WM	1858.50



LISTED

2464
300V 80° C
Type
S-R PVC

2 CONDUCTOR SHIELDED CABLES

OVERALL BELDFOIL SHIELD

Type No.	AWG	Nom. O.D.	Work Volt	Stock No.	100′	Stock No.	250′	Stock No.	500′	Stock No.	1000′
8640	28 Solid	.090″	100	.....	.....	36F087WE	25.60	36F087WF	51.05	.....	.....
9452	24 Strd.	.135″	200	37F3137WA	18.30	.....	.....	37F3137WF	73.65	37F3137WM	125.00
8450	22 Solid	.118″	200	36F028WA	13.95	36F028WE	24.75	36F028WF	49.45	36F028WM	98.85
8451	22 Strd.	.135″	200	36F029WA	15.05	36F029WE	28.80	36F029WF	57.55	36F029WM	115.05
9451*	22 Strd.	.135″	200	.....	.....	.....	.....	37F3138WF	74.10	37F3138WM	.....
•8761	22 Strd.	.175″	350	.....	.....	.....	61.15	36F165WF	.....	36F165WM	122.30
☆9462	22 Strd.	.178″	300	36F1112WA	19.15	.....	.....	36F1112WF	72.45	36F1112WM	125.00
•9461*	22 Strd.	.180″	350	.....	.....	.....	.....	37F3139WF	60.10	37F3139WM	120.15
•8762	20 Strd.	.204″	350	36F166WA	16.30	36F166WE	32.80	36F166WF	65.45	36F166WM	125.00
•9464*	20 Strd.	.204″	350	.....	.....	.....	.....	37F3140WF	75.35	37F3140WM	125.00
☆9154	20 Strd.	.198″	300	.....	.....	.....	.....	37F3141WF	62.80	37F3141WM	125.00
•8760	18 Strd.	.222″	450	.....	.....	36F164WE	39.15	36F164WF	78.30	36F164WM	129.00
•9460*	18 Strd.	.222″	450	.....	.....	.....	.....	37F3142WF	86.20	37F3142WM	142.05
□8719	16 Strd.	.304″	600	.....	.....	.....	.....	36F1092WF	125.00	36F1092WM	227.85
□8720	14 Strd.	.340″	750	.....	.....	.....	.....	36F1093WF	173.65	36F1093WM	347.25
□8718	12 Strd.	.400″	1000	.....	.....	.....	.....	36F1091WF	260.55	36F1091WM	521.10

•Foil bonded to jacket for automatic stripping •UL-2092 □UL-2106 ☆UL-2464

OVERALL SPIRAL SHIELD

•8737	22 Strd.	.170″	350	36F084WA	17.95	36F084WE	37.80	36F084WF	75.45	36F084WM	125.00
•8759	20 Strd.	.199″	350	36F085WA	22.40	.....	.....	36F085WF	88.40	36F085WM	145.65
8790	18 Strd.	.231″	450	36F107WA	27.80	36F107WE	58.25	36F107WF	116.40	36F107WM	191.85
8780	16 Strd.	.266″	450	36F106WA	34.70	.....	.....	36F106WF	125.00	36F106WM	247.95

UL-2095

8737

OVERALL BRAID SHIELD

•8437	22 Solid	.200″	300	.....	.....	.....	.....	36F093WF	99.05	36F093WM	163.20
•8441	22 Strd.	.210″	300	36F036WA	25.05	.....	.....	36F036WF	108.50	36F036WM	178.80
8208	18 Strd.	.225″	200	36F195WA	35.40	.....	.....	36F195WF	127.45	36F195WM	254.85

•UL-2095

8208

3 CONDUCTOR, SHIELDED CABLES—VINYL

Chrome vinyl jacket; polyethylene insulation with BELDFOIL shield, except (*) braided shield, vinyl insulated (**) spiral shield. USES: Shielded instrumentation, sound, strain gauge, communication, etc.

Type	AWG	Nom. O.D.	Work Volt	Stock No.	100 Ft.	Stock No.	250 Ft.	Stock No.	500 Ft.	Stock No.	1000 Ft.
•8618	16 Strd.	.300″	600	.....	.....	.....	.....	36F1360WF	152.25	36F1360WM	304.50
□8735*	22 Strd.	.199″	350	36F083WA	24.40	.....	.....	36F083WF	101.85	36F083WM	167.85
☆8771	22 Strd.	.175″	350	.....	.....	36F168WE	32.80	36F168WF	65.45	36F168WM	125.00
9770	22 Strd.	.145″	200	.....	.....	36F1083WE	43.90	36F1083WF	87.75	36F1083WM	144.60
☆8772	20 Strd.	.200″	350	.....	.....	.....	.....	36F169WF	75.90	36F169WM	125.10
☆8770	18 Strd.	.236″	450	.....	.....	.....	.....	36F167WF	104.85	36F167WM	172.80
8791**	18 Strd.	.236″	450	36F135WA	33.85	.....	.....	.....	125.00	36F135WM	243.30
8643*	30 Strd.	.086″	200	36F1361WA	15.20	36F1361WE	.....	.....	60.80	.....	161.60

•UL 2107 □UL-2096 ☆UL-2093

8770

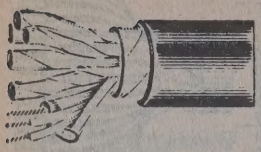
4 CONDUCTOR SHIELDED CABLES

Type No.	AWG	Nom. O.D.	Work Volt	Stock No.	100′	Stock No.	500′	Stock No.	1000′
•8729	22 Strd.	.265″	300	.....	.....	37F3143WF	143.65	37F3143WM	287.25
□9418	18 Strd.	.230″	300	37F3144WA	38.40	37F3144WF	125.85	37F3144WM	251.70
•8404*	20 Strd.	.295″	600	36F024WA	52.05	36F024WF	192.90	36F024WM	385.80
8424*†	20 Strd.	.295″	600	36F013WA	57.15	36F013WF	220.20	36F013WM	440.40
8407*#	16 Strd.	.416″	600	36F132WA	95.75	.....	.....	.....	.....

BELDFOIL

*braid shield; †rubber jacket; #neoprene jacket. •UL-2094 □UL-2464

MULTIPLE PAIR INDIVIDUALLY SHIELDED AUDIO CABLE

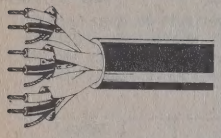


Type	No. Pairs	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
20 AWG (10 x 30 STRANDED) UL 2464								
9402	2	.300″	.....	.....	37F3160WF	125.95	37F3160WM	251.85
9873	3	.356″	36F1387WA	54.00	36F1387WF	189.10	36F1387WM	378.15
9874	6	.471″	36F1388WA	107.75	36F1388WF	383.25	36F1388WM	766.50
9875	9	.555″	36F1389WA	153.15	36F1389WF	560.25	36F1389WM	1120.50
9876	11	.580″	36F1390WA	179.65	36F1390WF	676.50	36F1390WM	1353.00
20AWG UL 2493								
9877	12	.600″	36F1391WA	193.15	36F1391WF	727.50	36F1391WM	1455.00
9879	15	.655″	36F1393WA	233.45	36F1393WF	879.00	36F1393WM	1758.00
18 AWG UL 2493								
9773	3	.392″	.....	69.00	36F1394WF	242.55	36F1394WM	485.10
9774	6	.570″	.....	125.00	36F1395WF	497.25	36F1395WM	994.50
9776	12	.750″	.....	270.50	36F1397WF	999.00	36F1397WM	1996.50
9777	15	.820″	.....	337.25	36F1398WF	1245.00	36F1398WM	2488.50

Standard put-ups are 100′ -500′ -1000′ One piece—0 +20% on spool

COMPUTER CABLES

Type	No. Pairs	AWG Stranding	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9406	2	22(7x30)	.175x	37F5001WA	34.60	37F5001WF	125.00	37F5001WM	208.20



DIRECT BURIAL AND ROADWAY LOOP* CABLE

Tinned copper, polypropylene insulated BELDFOIL aluminum-polyester shield over individually twisted pairs with 22 AWG stranded tinned copper drain wire. Black High Density Polyethylene jacket.

Type	No. Cond.	AWG and Stranding	Nom. O.D.	Cap. pF/ft.	Ins. Thick.	Jacket Thick.	Stock No.	500′	Stock No.	1000′
9883	6	20 (10 x 30)	.340″	30	.013″	.040″	36F647WF	205.90	36F647WM	411.75
9886	12	20 (10 x 30)	.480″	30	.013″	.045″	36F648WF	433.50	.....	867.00
9802	2	20 (Solid)	.190″	25	.013″	.035″	37F316WF	61.90	37F3161WM	123.80
9438*	1	14 (104 x 34)	.139″	.....	.032″	.....	.....	.....	81F6025WM	125.00

FLOODED BURIAL CABLE

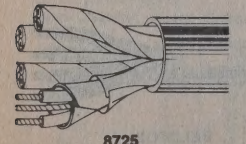
Type	AWG	Nom. O.D.	Nom. Imp.	Shielding	RG No.	Mes-senger	Insul.	Jkt. Type	Lb./ 500′	Stock No.	1000′
9587	18 (solid)	.275	75	Duobond and 61% Alum. Braid and Flooding	6/U	No	Foam	P.E.	15.3	37F3278WM	124.10

13

SPECIAL USE CABLES

8724

8786



8725

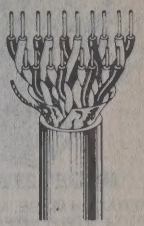
Type	AWG & Cond. Shield	AWG & Cond. Unshield	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
8434	25-4	.....	.165″	36F1032WA	22.75	36F1032WF	93.20	36F1032WM	153.60
8723	22-2	.....	.165″	36F1033WA	23.30	36F1033WF	93.95	36F1033WM	154.80
8728	22-2	.....	.198″	.....	.....	36F1353WF	137.10	36F1353WM	274.20
8724	22-2	22-2	.165″	.....	.....	36F1346WF	90.85	36F1346WM	149.70
8722	20-2	20-2	.230″	.....	.....	36F185WF	125.00	36F185WM	223.95
8734*	22-1	22-2	.194″	36F156WA	24.85	36F186WF	96.30	36F186WM	158.70
8732*	22-2	22-2	.190″ x .300″	36F173WA	30.80	36F173WF	122.15	37F173WM	201.30
8787	24-4	22-2	.290″	.....	.....	37F3163WF	220.20	.....	.....
8786	24-4	22-2	.236″	36F138WA	34.50	36F138WF	125.00	.....	.....
9685	22-2	22-1	.199″	.....	.....	37F3164WF	71.20	37F3164WM	125.00
8733	22-1								
	22-1								
	22-1	.....	.205″	36F188WA	29.15	36F188WF	107.85	.....	.....
8730	22-2	22-2	.205″	.....	.....	37F3165WF	125.00	37F3165WM	213.45
8788	22-3	22-2	.236″	.....	.....	37F3166WF	147.10	.....	.....
9686	20-3	16-3	.295″	.....	.....	37F3167WF	169.20	37F3167WM	338.40
9155	20-2	18-2	.256″	.....	.....	37F3168WF	125.00	37F3168WM	233.25
9784	24-6	Pair	.454″	.....	.....	36F645WF	331.45	36F645WM	662.85
8725	20-4	Pair	.345″	.....	.....	36F646WF	324.30	36F646WM	648.60
9772	22-12	Triplets	.725″	.....	.....	37F3170WF	1077.00	.....	.....
8726	22-3	Quads	.330″	37F3171WA	83.75	37F3171WF	296.55	37F3171WM	593.10
8727	22-7	Quads	.435″	37F3172WA	164.70	37F3172WF	681.00	37F3172WM	1362.00

*Braid

MULTI-PAIRED OVERALL SHIELDED INSTRUMENTATION CABLES

Tinned copper, vinyl insulated, twisted-pairs, overall BELDFOIL aluminum-polyester shield. Stranded copper drain wire, chrome vinyl jacket.

Type	No. Pairs	AWG and Stranding	Nom. O.D.	Cap. pF/ft.	Stk. No:	100′	Stk. No.	500′	Stk. No.	1000′
					28 AWG					
8640	1	28 (solid)	.090″	55	.....	.....	36F087WF	51.05	.....	.....
					22 AWG UL 2464					
9302	2	22 (solid)	.224″	35	36F1469WA	17.50	36F1469WF	72.75	36F1469WM	125.00
9305	4	22 (solid)	.265″	35	36F622WA	29.80	36F622WF	122.70	36F622WM	202.20
9306	6	22 (solid)	.321″	35	36F1470WA	35.15	36F1470WF	131.10	36F1470WM	262.20
9309	9	22 (solid)	.373″	35	36F1471WA	50.90	36F1471WF	189.00	36F1471WM	378.00
9315	15	22 (solid)	.437″	35	36F1472WA	88.65	36F1472WF	335.85	36F1472WM	671.70
9319	19	22 (solid)	.475″	35	36F1473WA	109.30	36F1473WF	413.25	36F1473WM	826.50
9327	27	22 (solid)	.571″	35	36F1474WA	125.00	36F1474WF	562.50	36F1474WM	1125.00



					24 AWG UL 2464 CSA TYPE S-R-PVC					
9501	1	24 (7 x 32)	.156″	41	36F623WA	13.85	36F623WF	56.80	36F623WM	113.60
9502	2	24 (7 x 32)	.222″	30	36F624WA	24.40	36F624WF	100.20	36F624WM	165.15
9503	3	24 (7 x 32)	.232″	30	36F625WA	32.80	36F625WF	125.00	36F625WM	223.95
9504	4	24 (7 x 32)	.252″	30	36F626WA	42.25	36F626WF	143.65	36F626WM	287.25
9505	5	24 (7 x 32)	.295″	30	36F627WA	52.70	36F627WF	179.55	36F627WM	359.10
9506	6	24 (7 x 32)	.295″	30	36F628WA	60.80	36F628WF	206.85	36F628WM	413.70
9507	7	24 (7 x 32)	.300″	30	36F629WA	69.45	36F629WF	237.10	36F629WM	474.15
9508	8	24 (7 x 32)	.330″	30	36F630WA	78.65	36F630WF	268.90	36F630WM	537.75
9509	9	24 (7 x 32)	.340″	30	36F631WA	87.75	36F631WF	300.15	36F631WM	600.30
9510	10	24 (7 x 32)	.380″	30	36F636WA	96.85	36F636WF	330.85	36F636WM	661.65
9515	15	24 (7 x 32)	.425″	30	36F637WA	125.00	36F637WF	486.00	36F637WM	972.00
9525	25	24 (7 x 32)	.530″	30	36F638WA	221.65	36F638WF	793.50	36F638WM	1585.50
9550	50	24 (7 x 32)	.715″	30	36F639WA	437.70	36F639WF	1564.50	36F639WM	3129.00
9729		24 (7 x 32)	.335″		37F5000WA	00.00	37F5000WF	140.05	37F5000WM	280.05
9406		22 (7 x 30)	.175″		375001WA	00.00	37F5001WF	125.00	37F5001WM	208.20

DATALENE INDIVIDUALLY SHIELDED CABLES

Type	No. Pairs	AWG and Stranding	Nom. O.D.	Cap. pF/ft.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9182	1	22 (19 x 34)	.350″	8.8	.....	.....	37F3149WF	157.80	37F3149WM	315.60
9184	2	22 (solid)	.420″	8.7	.....	.....	37F3150WF	226.65	37F3150WM	453.30
9730	3	24 (7 x 32)	.350″	12.5	37F3151WA	45.45	37F3151WF	169.45	37F3151WM	338.85
9731	6	24 (7 x 32)	.460″	12.5	37F3152WA	94.55	37F3152WF	353.50	37F3152WM	706.95
9732	9	24 (7 x 32)	.570″	12.5	37F3153WA	125.00	37F3153WF	520.50	37F3153WM	1041.00
9733	11	24 (7 x 32)	.610″	12.5	37F3154WA	158.75	37F3154WF	620.25	37F3154WM	1240.50
9734	12	24 (7 x 32)	.630″	12.5	37F3155WA	170.90	37F3155WF	666.00	37F3155WM	1332.00
9735	15	24 (7 x 32)	.700″	12.5	37F3156WA	211.15	37F3156WF	823.50	37F3156WM	1647.00
9736	17	24 (7 x 32)	.730″	12.5	37F3157WA	245.10	37F3157WF	957.00	37F3157WM	1912.50
9737	19	24 (7 x 32)	.740″	12.5	37F3158WA	279.75	37F3158WF	1092.00	37F3158WM	2182.50
9738	27	24 (7 x 32)	.920″	12.5	37F3159WA	397.45	37F3159WF	1551.00	37F3159WM	3100.50

13

MULTIPLE PAIR INDIVIDUALLY SHIELDED COMPUTER & AUDIO CABLE

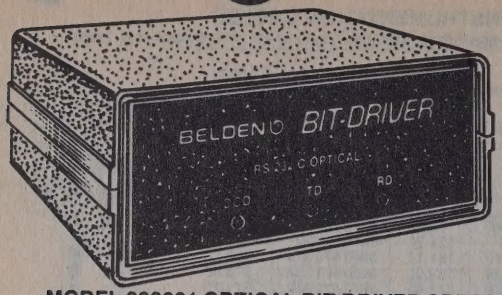
Tinned copper; .013″ vinyl insulation; each pair and drain wire under BEDFOLD aluminum-polyester shield. Chrome vinyl jacket.

Type	No. Pairs	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
			22 AWG SOLID 2424					
8767	3	.279″	36F190WA	35.35	36F190WF	131.25	36F190WM	262.50
8768	6	.379″	36F191WA	71.90	36F191WF	273.70	36F191WM	547.35
8764	9	.425″	36F192WA	97.50	36F192WF	389.25	36F192WM	778.50
8765	11	.470″	36F193WA	117.30	36F193WF	462.75	36F193WM	925.50
8766	15	.525″	36F194WA	155.05	36F194WF	635.25	36F194WM	1270.50

8764

		.010 POLYPRO	**22 AWG (7 x 30 STRANDED)**		**UL 2493**		**PVCJCX**	
8777	3	.301″	36F1332WA	40.05	36F1332WF	152.50	36F1332WM	304.95
8778	6	.416″	36F1333WA	80.35	36F1333WF	319.80	36F1333WM	639.60
8774	9	.443″	36F1334WA	125.00	36F1334WF	470.25	36F1334WM	940.50
8775	11	.486″	36F1335WA	125.00	36F1335WF	558.75	36F1335WM	1117.50
9768	12	.486″	36F1385WA	148.50	36F1385WF	599.25	36F1385WM	1198.50
8776	15	.565″	36F1336WA	178.80	36F1336WF	738.75	36F1336WM	1477.50
8769	17	.615″	36F1386WA	217.00	36F1386WF	862.50	36F1386WM	1725.00
8769	19	.625″	36F1337WA	242.30	36F1337WF	985.50	37F1337WM	1969.50
8773	27	.745″	36F1338WA	333.15	36F1338WF	1399.50	36F1338WM	2799.00
9767	37	.85″	37F3784WA	464.05	36F3784WF	1808.25	37F3784WM	3616.50

BELDEN Molded Cable Assembly



BIT DRIVERS, FIBER OPTIC CABLES AND KITS

Totally compatible UL Listed optical and metallic system units for RS-232-C equipment. Simplex and duplex full data transmission at up to 56K bps. Ideal for in house interconnection of wide range of EDP equipment. Either optical or metallic bit-drivers, plus cables to meet specific environmental needs and RS-232 interface cables from one supplier. Integrated system approach gives "matched performance" reliability for the entire data link. Unique LED indicator array shows system status and speeds diagnostic procedures. The Bit-driver saves telephone company rates and equipment rental charges. This system consists of two small Bit-Driver™ units located at the terminal unit sites and connected to them via a short RS-232 electronic cable. The Optical Bit-Driver's™ contain an optical transmitter and receiver pair which transmit signals over a duplex fiber optic cable at lengths up to 1,800m (5,900 ft). Thus terminal units can be separated by distances over one mile.

MODEL 222001 OPTICAL BIT-DRIVER SPECS

OPERATION MODE: Asynchronous, simplex or full duplex.
INPUT/OUTPUT INTERFACE: RS-232-C, Type D asynchronous, at 0 to 56K dps.
TRANSMISSION LINE INTERFACE: Two AMP fiber optic receptacles for interfacing with fiber optic duplex cable.
TRANSMISSION WAVELENGTH: 880 nanometers.
RECEIVER SENSITIVITY: 15 nanowatt at less than 10-9 bit error rate.
TEMPERATURE RANGE: 32 to 160°F (0 to 70°C).
INPUT POWER: 105 to 130VAC 60Hz 10 watts. Power transformer secondary fused.

10F8244. Model 222001. NET 280.00

MODEL 9338 METALLIC BIT-DRIVER SPECS

OPERATION MODE: Asynchronous, simplex or full duplex.
INPUT/OUTPUT INTERFACE: RS-232-C, Type D asynchronous, at 0 to 56K bp.s.
TRANSMISSION LINE INTERFACE: Balanced two pair metallic circuit.
TRANSMISSION LINE RESISTANCE: 150 ohms max. one way.
TRANSMISSION LINE PROTECTION: at 8 volts, up to 50A pulses.
TEMPERATURE RANGE: 32 to 160°F (0 to 70°C)
INPUT POWER: 105 to 130VAC 60 Hz. 10 watts. Transformer secondary fused.

37F3941 Model 9338. NET 195.00

CABLE-FIBER OPTIC BIT-DRIVER

Stock No.	Type	Max. Operating Range Feet	Meters	Net Per Meter .05km or Less	0.5 to 1.0km	1.0 to 5.0km	5.0 to 10.0km
37F5026	220002	3,280	1000	3.63	3.39	3.14	3.03
37F5027	221001	3,940	1200	4.91	4.59	4.25	4.10
37F5028	226002	5,900	1800	3.65	3.40	3.15	3.04
37F5029	227002	2,790	850	2.47	2.31	2.14	2.06

Consult Newark for custom pricing.

CABLE METALLIC BIT DRIVER

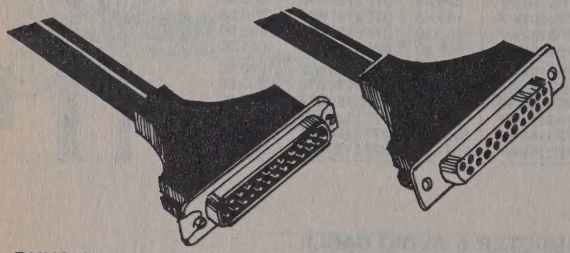
Stock No.	Type No.	Max. Oper. Range (ft.)	Wire Size	100′	500′	1000′
36F624	9502	5,000 (1520m)	24 shielded*	26.70	100.20	165.15
36F608	9855	7,000 (2130m)	22 shielded*	40.05	125.80	251.55
36F013	8424	9,000 (2740m)	20 shielded*	62.35	240.00	480.15
36F503	9552	15,000 (4570m)	18 shielded*	53.15	179.10	358.20
36F1133	9562	5,000 (1520m)	24 unshielded	14.95	51.35	102.65
36F1105	9794	7,000 (2130m)	22 unshielded	.....	53.00	105.95
37F3713	9156	15,000 (4570m)	18 unshielded	.....	125.00	206.55

*Ground terminal provided on bit-driver for connecting shield.

FIBER OPTIC SYSTEM KITS

Stock No.	Type	Product
10F8244	222001	Optical Bit-Driver™ unit. NET 280.00
81F6144	222801	System with a 50 meter fiber optic cable assembly, 2 each 222001, and 2 each 9651 RS232 male-to-male molded electronic cable assemblies of 5 ft. (1.5 m) length. NET 850.00
81F6145	222802	System with a 100 meter fiber optic cable assembly. NET 975.00
81F6146	222803	System with a 200 meter fiber optic cable assembly. NET 1195.00

Bulk cable available from factory.



EIA RS-232-C INTERFACE CABLE ASSEMBLIES

Fast, simple, reliable, accurate interface for data terminal and communications equipment employing serial binary data exchange. 25 conductor molded cables are designed and built to meet EIA standard RS-232-C and types A through M standard interfaces. The 8459 cable (UL style number 2576) passes the FR-1 verticle frame test and is preferred for critical interfaces. Positive pin-to-pin mating using subminiature "D" type plug connectors means no mix-up. Cable assemblies in stock in five standard lengths of up to 70′. Bulk cable available in put-up of up to 1000′. **Custom designed assemblies available on special request.**

ELECTRICAL/ELECTRONIC SPECIFICATIONS

- Capacitance: 35pf/ft.
- Cable voltage rating per UL2576: 150VDC
- Suggested working voltage: 200VDC
- Connector voltage rating: 500VAC @ sea level; 125VAC @ 70,000 ft.

PHYSICAL SPECIFICATIONS

- 25 conductor cable
- 22 AWG (7 × 30) stranded tinned copper
- PVC insulation
- PVS jacket
- O.D. .370″
- 25 Pin male subminiature "D" plug connectors at ends
- Contact Pins: gold over nickel-plated beryllium copper
- Dielectric: glass filled nylon
- Shells: Cadmium cold rolled steel with gold iridite finish

Length Ft.	Termination	Stock No.	Shielded	Each	Stock No.	Unshielded	Each
5′	MALE-TO-MALE	**37F5008**	9668	36.40	**81F6721**	9651	29.75
10′		**37F5009**	9669	41.60	**37F3912**	9647	33.50
25′		**37F5010**	9670	55.90	**37F3913**	9648	44.65
50′		**37F5011**	9671	79.95	**37F3914**	9649	60.75
70′		**37F5012**	9672	99.45	**37F3915**	9650	74.40
5′	MALE-TO-FEMALE	**37F5013**	9673	37.70	**37F3932**	9652	31.00
10′		**37F5014**	9674	42.90	**37F3937**	9653	34.70
25′		**37F5015**	9675	57.20	**37F3938**	9654	45.90
50′		**37F5016**	9676	81.25	**37F3939**	9655	62.00
70′		**37F5017**	9677	100.75	**37F3940**	9656	75.65

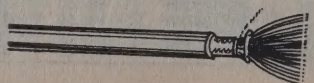
GPIB/IEEE GENERAL PURPOSE INTERFACE CABLES

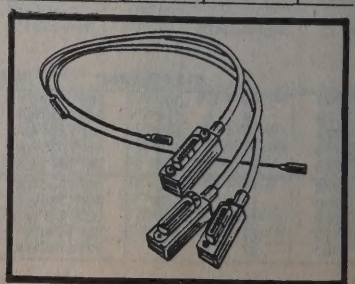
Interface computer power with test and measurement hardware — without resorting to time-consuming patchwork wiring. UL recognized. GPIB cables can interconnect up to 15 programmable instruments at a time in star or daisy chain networks. Recommended for applications involving counters, signal generators, calculators, digital multimeters — any instrument equipped with standard IEEE 488 interfaces.

PHYSICAL SPECIFICATIONS

24 conductor cable
6 pair, 1 single conductor, braid shield with drain (91¾ cover)
Semi-rigid jacket, 8.9mm
24-pin AMP connectors-male and female-at ends
Gold over nickel-plated beryllium copper, contacts self-extinguishing plastic
Metric cadmium-plated finish screws.

Type	Ft.	Stk. No.	NET
9642	3.3	**37F3283**	65.65
9643	6.6	**37F3284**	69.00
9644	13.1	**37F3285**	78.40



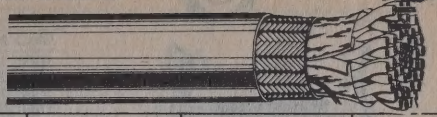


COMPUTER CABLES

BELDEN

MULTI-PAIR, OVERALL SHIELDED

Suitable for RS-422 Type Applications. Tinned copper, polypropylene insulated twisted pairs, over BEDFOIL/braid shield with chrome PVC jacket. Meets UL-2960.



28 AWG—2 to 25 pairs

Type	Pairs	Nom. O.D.	Cap. pF/ft.	Stock No.	500′	Stock No.	1000′
9804	2	.220	15.5	81F6055WF	161.95	81F6055WM	323.83
9805	3	.230	15.5	81F6056WF	200.25	81F6056WM	400.50
9806	4	.240	15.5	81F6057WF	234.45	81F6057WM	468.90
9807	5	.250	15.5	81F6058WF	272.50	81F6058WM	544.95
9808	7	.265	15.5	81F6059WF	361.30	81F6059WM	722.55
9809	9	.300	15.5	81F6072WF	444.00	81F6072WM	888.00
9810	10	.320	15.5	81F6073WF	489.00	81F6073WM	978.00
9812	12	.330	15.5	81F6074WF	616.50	81F6074WM	1233.00
9819	18	.375	15.5	81F6075WF	870.00	81F6075WM	1740.00
9825	25	.430	15.5	81F6076WF	1299.00	81F6075WM	2598.00

24 AWG—2 to 25 pairs

Type	Pairs	Nom. O.D.	Cap. pF/ft.	Stock No.	500′	Stock No.	1000′
9829	2	.295	15.5	81F6077WF	182.95	81F6077WM	365.85
9830	3	.310	15.5	81F6078WF	209.05	81F6078WM	418.05
9831	4	.330	15.5	81F6079WF	242.85	81F6079WM	485.70
9832	5	.350	15.5	81F6080WF	274.05	81F6080WM	548.10
9833	7	.370	15.5	81F6081WF	360.70	81F6081WM	721.35
9834	9	.420	15.5	81F6082WF	479.25	81F6082WM	958.50
9835	10	.450	15.5	81F6083WF	518.25	81F6083WM	1036.50
9836	12	.470	15.5	81F6084WF	651.75	81F6084WM	1303.50
9837	18	.570	15.5	81F6085WF	843.00	81F6085WM	1686.00
9838	25	.660	15.5	81F6086WF	1108.50	81F6086WM	2215.50

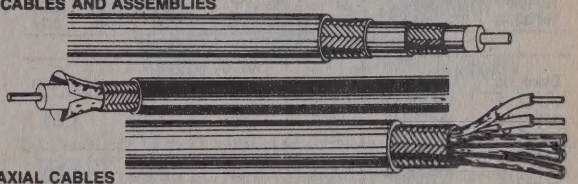
24 AWG—For RS-422 Type Multi-Drop Applications

Type	Pairs	Nom. O.D.	Cap. pF/ft.	Stock No.	500′	Stock No.	1000′
9842	2	.355	12.8	81F6087WF	235.65	81F6087WM	471.30
9843	3	.365	12.8	81F6088WF	263.05	81F6088WM	526.05
9844	4	.395	12.8	81F6089WF	318.30	81F6089WM	636.60

LOCAL AREA NETWORK CABLES AND ASSEMBLIES

- **Ethernet**

Local area networks (or LANS) have emerged as a key development as our society progresses in the "information age." LANS are providing for the intergration of computer and communication technology to meet the "information age" demand for efficient information (or data) processing, handling, collection and distribution. LANS fulfill their function throughout a local region without using telephone, microwave, or satellite links.



TRUNK/COAXIAL CABLES

Type	AWG Stranding	Shields	Nom. O.D.	Nom. (ohms)	Cap. pF/ft.	Stock No.	500′	Stock No.	1500′
9880	.0855 (Solid) tinned copper	Aluminum/ Polyester	.247	50	26	81F6017WF	183.75	81F6017WM	367.50
*89880	.0855 (Solid) bare copper	Aluminum/ Polyester	.247	50	26	81F6018WF	2175.00	81F6018WM	4350.00
9248**	18 (Solid) bare copper	Duofoil + tinned copper braid	.180	75	17.3	81F6019WF	81.45	81F6019WM	134.25

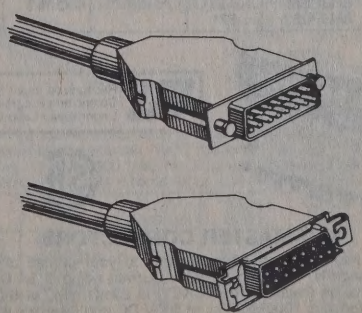
*UL-1478 **UL-1354

TRANSCEIVER/DROP CABLES UL-2919

Type	Nom. D.CR. Center Cond.	Nom. D.CR. Shield	No. of pairs	Nom. imp. (ohms)	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9891	3 pair 22(7x30)	2 BEDFOIL shielded pairs	4	78	81F6151WA	125.00	81F6151WF	400.50	81F6151WM	801.00
9892	20(7x28)	2 BEDFOIL shielded pairs	4	78	81F6152WA	125.00	81F6152WF	420.00	81F6152WM	840.00
9893	20(7x28)	2 BEDFOIL shielded pairs	5	78	81F6153WA	170.30	81F6153WF	562.50	81F6153WM	1125.00

ETHERNET MOLDED CABLE ASSEMBLIES

Type	Length M	Length F	Connectors	Stock No.	Each
9700	3	9.8	15-position, subminiature D	81F6091	35.75
9701	5	16.4	Retentions:	81F6092	41.60
9702	7	23.0	Male End-Locking Posts	81F6093	47.75
9703	15	49.2	Female End-Slide Locking	81F6094	70.85
9704	20	65.6	Device.	81F6095	87.10



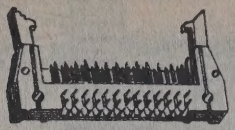
High quality molded cable assemblies meet all requirements of paragraph 7.2.3. of "The ETHERNET" specification for extension cords.
CONNECTORS—Male and female 15-position subminiature D connectors include easy-to-operate slide locking mechanism.
CABLE AND CONNECTOR SHIELDING—Fully shielded 9892 cable is terminated on both ends with standard subminiature D connectors. Terminations are surrounded by "OMNI-SHIELD"™ advanced susceptability protection shielding. Connectors are encased in rugged molded blue thermoplastic handles to provide strain and flex relief . . . plus protection from abusive use.
Molded cable assemblies can be interconnected (concatenated) for extended transceiver hookups.

13

BELDEN

Flat Cable Connectors

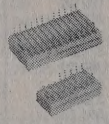
HEADER CONNECTORS



UL recognized. Solvent-resistant (PBT) housing. Temp. rating: −55°C to +105°C. Current rating: 3 ADC. Voltage rating: 30 VDC. PC board thickness: .062" Phospher bronze (gold over nickel plating) contacts. PBT (UL 94V-O) housing. Grid contact/terminal spacing: .100". Contacts: .025". Terminals: .020". Solder plated terminal. Insulation resistance: 1000 megohms min. at 500 VDC. Dielectric withstanding voltage: 500 VAC for 1 minute. Contact resistance: 200 miliohms at 6 VDC, 0.3 amps.

Straight		Right Angle		Hook	No. of		
Stock No.	Type	Stock No.	Type	Type	Positions	1-99	100-499
10F8319	9H3P010	10F8337	9H4P010	.371	10	1.80	1.38
10F8320	9H3P014	10F8338	9H4P014	.371	14	1.96	1.50
10F8321	9H3P016	10F8339	9H4P016	.371	16	2.00	1.53
10F8322	9H3P020	10F8340	9H4P020	.371	20	2.14	1.64
10F8323	9H3P026	10F8341	9H4P026	.371	26	2.56	1.96
10F8324	9H3P034	10F8342	9H4P034	.371	34	3.18	2.43
10F8325	9H3P040	10F8343	9H4P040	.371	40	3.58	2.74
10F8326	9H3P050	10F8344	9H4P050	.371	50	4.24	3.24
10F8327	9H3P060	10F8345	9H4P060	.371	60	5.14	3.93
10F8328	9H6P010	10F8346	9H7P010	.571	10	1.80	1.38
10F8329	9H6P014	10F8347	9H7P014	.571	14	1.96	1.50
10F8330	9H6P016	10F8348	9H7P016	.571	16	2.00	1.53
10F8331	9H6P020	10F8349	9H7P020	.571	20	2.14	1.64
10F8332	9H6P026	10F8350	9H7P026	.571	26	2.56	1.96
10F8333	9H6P034	10F8351	9H7P034	.571	34	3.18	2.43
10F8334	9H6P040	10F8352	9H7P040	.571	40	3.58	2.74
10F8335	9H6P050	10F8353	9H7P050	.571	50	4.24	3.24
10F8336	9H6P060	10F8354	9H7P060	.571	60	5.14	3.93
81F5506	9H3PS10	81F5563	9H4PS10	.415	10	1.80	1.38
81F5507	9H3PS14	81F5564	9H4PS14	.415	14	1.96	1.50
81F5508	9H3PS16	81F5565	9H4PS16	.415	16	2.00	1.53
81F5509	9H3PS20	81F5566	9H4PS20	.415	20	2.14	1.64
81F5510	9H3PS26	81F5567	9H4PS26	.415	26	2.56	1.96
81F5511	9H3PS34	81F5568	9H4PS34	.415	34	3.18	2.43
81F5512	9H3PS40	81F5569	9H4PS40	.415	40	3.58	2.74
81F5513	9H3PS50	81F5570	9H4PS50	.415	50	4.24	3.24
81F5514	9H3PS60	81F5571	9H4PS60	.415	60	5.14	3.93

DIP CONNECTORS

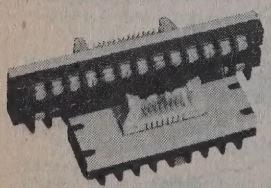


High reliability original U-contact. Solvent resistant resin (PBT) housing. UL recognized. Plug into IC sockets or solder. Temp. range: −55°C to +105°C. Current rating: 1 ADC. Contact resistance: 10 milliohm max. @ 6 VDC, 0.3 amp. UL voltage rating: 30 VDC. Phospher bronze (gold over nickel plating) contacts. PBT (UL 94V-0) housing. PC board thickness: .062". Insulation resistance: 1000 megohm min. @ 500 VDC. Dielectric withstanding voltage: 500 VAC for 1 minute. Wire size (flat cable for IDC): .050" spacing, AWG #28 (stranded) or #30 (solid). Low profile PC board installation. Includes body and cover. Available in 14, 16, 24 and 40 pin positions.

Stock No.	Type	No. of Positions	Voltage Rating	Current Rating	1-99	100-499
10F8355	9D0P014	14	30 VDC	1 ADC	1.60	1.22
10F8356	9D0P016	16	30 VDC	1 ADC	1.70	1.30
10F8357	9D0P024	24	30 VDC	1 ADC	2.70	2.07
10F8358	9D0P040	40	30 VDC	1 ADC	4.40	3.37

FULLY SHROUDED HEADER—STRAIGHT

Stock No.	Type	Hook	No. of Positions	1-99	100-499
81F5515	8H3P010	.371	10	2.10	1.61
81F5516	8H3PS10	.415			
81F5517	8H6P010	.571			
81F5518	8H3P014	.371	14	2.26	1.73
81F5519	8H3PS14	.415			
81F5520	8H6P014	.571			
81F5521	8H3P016	.371	16	2.30	1.76
81F5522	8H3PS16	.415			
81F5523	8H6P016	.571			
81F5524	8H3P020	.371	20	2.44	1.87
81F5525	8H3PS20	.415			
81F5526	8H6P020	.571			
81F5527	8H3P026	.371	26	2.86	2.19
81F5528	8H3PS26	.415			
81F5529	8H6P026	.571			
81F5530	8H3P034	.371	34	3.48	2.67
81F5531	8H3PS34	.415			
81F5532	8H6P034	.571			
81F5533	8H3P040	.371	40	3.88	2.97
81F5534	8H3PS40	.415			
81F5535	8H6P040	.571			
81F5536	8H3P050	.371	50	4.54	3.48
81F5537	8H3PS50	.415			
81F5538	8H6P050	.571			
81F5539	8H3P060	.371	60	5.44	4.17
81F5540	8H3PS60	.415			
81F5541	8H6P060	.571			

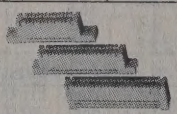


Recognized under the Component Program of Underwriters Laboratories Inc

MAG-MASTER CONNECTORS

Now you can interface your discrete wires to your printed circuit board. Temperature range is −55°C to +105°C. Current rating is 3A DC. Contact resistance (at status mated with SOCKET) is 20mΩ max. at 6V DC, 0.3A. Insulation resistance is 1000MΩ min. at 500V DC and dielectric withstanding voltage is 500V AC for 1 minute. UL voltage rating is 30V DC. Contacts are selectively gold-plated. Has flex lock/eject hooks (optional) and 10 to 60 pins. Solvent-resistant and UL recognized.

CARD-EDGE CONNECTORS



Bifurcated contacts spaced .100". UL recognized. Temp. range: −55°C to +105°C. Current rating: 1 ADC. Voltage rating: 30 VDC. PC board thickness: .062". Phospher bronze (gold over nickel plating) contacts.

Stock No.	Type	No. of Positions	Description	1-99	100-499
10F8367	9C4J010	10	No ears	2.60	1.99
10F8369	9C6J010	10	½ ears		
10F8371	9C8J010	10	Full ears		
10F8373	9C4J016	16	No ears	3.80	2.91
10F8375	9C6J016	16	½ ears		
10F8377	9C8J016	16	Full ears		
10F8379	9C4J020	20	No ears	4.20	3.21
10F8381	9C6J020	20	½ ears		
10F8383	9C8J020	20	Full ears		
10F8385	9C4J026	26	No ears	4.80	3.67
10F8387	9C6J026	26	½ ears		
10F8389	9C8J026	26	Full ears		
10F8391	9C4J034	34	No ears	5.80	4.44
10F8393	9C6J034	34	½ ears		
10F8395	9C8J034	34	Full ears		
10F8397	9C4J040	40	No ears	6.80	5.70
10F8399	9C6J040	40	½ ears		
10F8401	9C8J040	40	Full ears		
10F8403	9C4J050	50	No ears	7.40	5.66
10F8405	9C6J050	50	½ ears		
10F8407	9C8J050	50	Full ears		
10F8409	9C4J060	60	No ears	8.80	6.73
10F8411	9C6J060	60	½ ears		
10F8413	9C8J060	60	Full ears		
10F8415	9C1S010	10	Strain relief	.72	.55
10F8416	9C1S016	16	Strain relief		
10F8417	9C1S020	20	Strain relief		
10F8418	9C1S026	26	Strain relief		
10F8419	9C1S034	34	Strain relief		
10F8420	9C1S040	40	Strain relief		
10F8421	9C1S050	50	Strain relief		
10F8422	9C1S060	60	Strain relief		

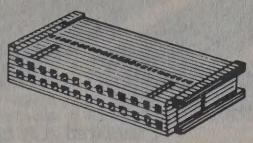
Stock No.	Type	Hook	No. of Positions	1-99	100-499
81F5470	9M1PS10	.415	10	14.30	11.70
81F5471	9M2P010	.571			
81F5472	9M1PS14	.415	14	15.95	13.05
81F5473	9M2P014	.571			
81F5474	9M1PS16	.415	16	18.70	15.30
81F5475	9M2P016	.571			
81F5476	9M1PS20	.415	20	21.16	17.33
81F5477	9M2P020	.571			
81F5478	9M1PS26	.415	26	27.50	22.50
81F5479	9M2P026	.571			
81F5480	9M1PS34	.415	34	33.83	27.68
81F5481	9M2P034	.571			
81F5482	9M1PS40	.415	40	38.50	31.50
81F5483	9M2P040	.571			
81F5484	9M1PS50	.415	50	46.80	38.30
81F5485	9M2P050	.571			
81F5486	9M1PS60	.415	60	52.45	42.93
81F5478	9M2P060	.571			

Flat Cable and Connectors

BELDEN

SOCKET CONNECTORS

Recognized under the Component Program of Underwriters Laboratories Inc.

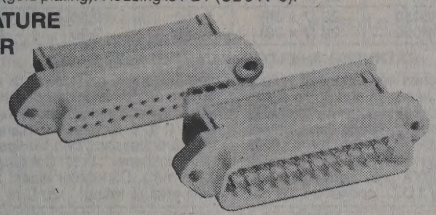


High reliability original U-contact. Double-cantilever, bottom-entry contact. Closed ends. Strain reliefs. Dual beamed contacts. Contact spacing: .110". UL approved. Temp. range: −55°C to +105°C. Current rating: 1 ADC. Voltage rating: 30 VDC. Wire size: .050" spacing AWG #28 (stranded) or #30 (solid). PBT housing.

Stock No.	Type	No. of Positions	Nom. Width	Nom. Thick	1-99	100-499
10F8432	9S4J010	10	.681"	.571"	2.00	1.53
10F8433	9S4J014	14	.882"	.571"	2.40	1.84
10F8434	9S4J016	16	.980"	.571"	2.60	1.99
10F8435	9S4J020	20	1.181"	.571"	2.84	2.17
10F8436	9S4J026	26	1.480"	.571"	3.58	2.74
10F8437	9S4J034	34	1.182"	.571"	4.64	3.55
10F8438	9S4J040	40	2.181"	.571"	5.44	4.16
10F8439	9S4J050	50	2.681"	.571"	6.72	5.14
10F8440	9S4J060	60	3.181"	.571"	8.24	6.30

Mass terminable to .050" pitch cable without any cable preparation. Temperature range is −55°C to +105°C with current rating of 1A DC. Voltage rating is 250V AC and contact resistance is 10mΩ max. Insulation resistance is 1000MΩ min. at 500V DC. Dielectric withstanding voltage is 500V AC for 1 minute. Insertion force of 10kg max. and withdrawal force of 0.75 kg min. Flat cable is 1.27 mm (.050 inch) spacing and AWG #28 (stranded) or #30 (solid). Contacts are Phosphor-bronze (gold plating). Housing is PBT (UL 94V-0).

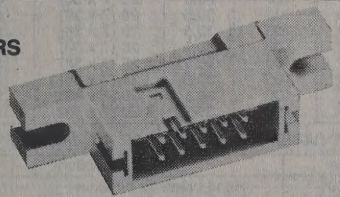
D-SUBMINIATURE CONNECTOR



Stock No.	Type	No. of Positions	1-99	100-450
81F5542	● 9DSP025	25	5.34	4.09
81F5543	△ 9DSJ025	25	5.04	3.86
81F5544	9DSS025	Strain Relief	.34	.26

● plug △ socket

MALE CONNECTORS



Mass-termination with flat cable. Has 2.54 mm grid contact spacing, 0.64 mm contact. Extensive applications (T-tap, splice connector, I/O Interface). With many diversifications (10-60 pins, with and without mounting ears). UL recognized materials (94V-0). Temperature range is −55 to +105°C. Current rating is 1A dc. Contact resistance (with SOCKET) is 20 mΩ max. at 6 VDC, 0.3 A. Insulation resistance is 1000 MΩ min. at 500 VDC, Insertion force (with SOCKET) is 3.5 kg max. (10 pins) to 21 kg max. (60 pins). Withdrawal force (with SOCKET) is 0.25 kg min. (10 pins) to 2.5 kg min. (60 pins). Wire size (Flat cable for I.D.C.) is 1.27 mm (.050 inch) spacing, AWG #28 (stranded) or #30 (solid).

No Ears

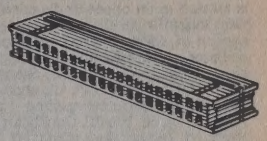
Stock No.	Type	No. of Positions	1-99	100-450
81F5545	8SOP010	10	4.36	3.34
81F5546	8SOP014	14	5.06	3.88
81F5547	8SOP016	16	5.40	4.14
81F5548	8SOP020	20	6.00	4.60
81F5549	8SOP026	26	6.72	5.15
81F5550	8SOP034	34	7.68	5.89
81F5551	8SOP040	40	8.40	6.44
81F5552	8SOP050	50	9.64	7.39
81F5553	8SOP060	60	10.90	8.35

Half Ears

81F5554	8SOP110	10	4.36	3.34
81F5555	8SOP114	14	5.06	3.88
81F5556	8SOP116	16	5.40	4.14
81F5557	8SOP120	20	6.00	4.60
81F5558	8SOP126	26	6.72	5.15
81F5559	8SOP134	34	7.68	5.89
81F5560	8SOP140	40	8.40	6.44
81F5561	8SOP150	50	9.64	7.39
81F5562	8SOP160	60	10.90	8.35

LOW PROFILE SOCKET CONNECTORS

Recognized under the Component Program of Underwriters Laboratories Inc.

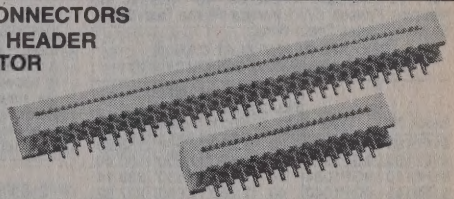


High reliability original U-contact. Double-cantilever, bottom-entry, dual-beamed contacts. UL recognized. Contact spacing: .100". Temp. Range: −55°C to +105°C. Current rating: 1 A DC. Voltage rating: 30 VDC. Contact resistance: 20 milliohms @ 6 VDC, 0.3 A. Phosphor-bronze (gold over nickel plating) contacts. PBT (UL 94V-0) housing.

With Polarity Bump—Open Cover

Stock No.	Type	No. of Positions	Nom. Width	Nom. Thick	1-99	100-499
10F8423	8S0J010	10	.680"	.413"	1.80	1.38
10F8424	8S0J014	14	.880"	.413"	2.20	1.69
10F8425	8S0J016	16	.980"	.413"	2.40	1.84
10F8426	8S0J020	20	1.180"	.413"	2.64	2.02
10F8427	8S0J026	26	1.480"	.413"	3.38	2.59
10F8428	8S0J034	34	1.880"	.413"	4.40	3.37
10F8429	8S0J040	40	2.180"	.413"	5.20	3.99
10F8430	8S0J050	50	2.680"	.413"	6.48	4.97
10F8431	8S0J060	60	3.180"	.413"	8.00	6.13
81F5497	8S2J010	10	.680"	.413"	1.88	1.44
81F5498	8S2J014	14	.880"	.413"	2.28	1.75
81F5499	8S2J016	16	.980"	.413"	2.48	1.90
81F5500	8S2J020	20	1.180"	.413"	2.72	2.08
81F5501	8S2J026	26	1.480"	.413"	3.46	2.65
81F5502	8S2J034	34	1.880"	.413"	4.48	3.43
81F5503	8S2J040	40	2.180"	.413"	5.28	4.05
81F5504	8S2J050	50	2.680"	.413"	6.56	5.03
81F5505	8S2J060	60	3.180"	.413"	8.08	6.19

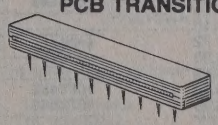
S.H.E. CONNECTORS SOCKET HEADER ELIMINATOR



Economically replaces socket-header combinations when disconnection is no longer necessary. Has 2.54 mm (.100") grid terminal spacing with high-density installation on PC board. Permanently replaces sockets and headers. High-reliability original U-contact (double-action of IDC). Pin location matches header mounting hole layout. Contacts available: 10-60 positions. Solvent-resistant resin (PBT) housing. UL recognized. Temperature range is −55°C to +105°C with current rating of 1A DC. Contact resistance is 10m Ω max. at 6V DC, 0.3A with an insulation resistance of 1000M Ω min. at 500 V DC. Dielectric withstanding voltage is 500V AC for 1 minute. Wire size: Flat Cable for IDC is 1.27 mm (.050") spacing. AWG #28 (stranded) or #30 (solid). Thickness of PC board (standard) is 1.6 mm (.062"). Contacts are Phosphor-bronze (gold-over-nickel plating). Housing is PBT (UL 94V-0).

Stock No.	Type	No. of Positions	1-99	100-450
81F5488	9E0P010	10	1.46	1.12
81F5489	9E0P014	14	1.94	1.49
81F5490	9E0P016	16	2.20	1.69
81F5491	9E0P020	20	2.68	2.06
81F5492	9E0P026	26	3.34	2.57
81F5493	9E0P034	34	4.12	3.17
81F5494	9E0P040	40	4.66	3.58
81F5495	9E0P050	50	5.40	4.15
81F5496	9E0P060	60	5.86	4.51

PCB TRANSITION CONNECTORS



Tinned pins. High reliability original U-contact. Solvent resistant resin (PBT) housing. UL recognized. Temp. range: −55°C to +105°C. Current rating: 1 ADC. Voltage rating: 30 VDC. PC board thickness: .062". Phosphor bronze (gold over nickel plating) contacts. Contact resistance: 10 milliohm max. @ VDC, 0.3 amps. Insulation resistance: 1000 megohm min. @ 500 VDC. Dielectric withstanding voltage: 500 VAC for 1 minute. Wire size (flat cable for IDC): .050" spacing. AWG #28 (stranded) or #30 (solid). Includes body and cover.

Stock No.	Type	No. of Positions	Voltage Rating	Current Rating	1-99	100-499
10F8359	9P0P010	10	30 VDC	1 ADC	1.42	1.09
10F8360	9P0P016	16	30 VDC	1 ADC	1.58	1.21
10F8361	9P0P020	20	30 VDC	1 ADC	1.68	1.29
10F8362	9P0P026	26	30 VDC	1 ADC	2.10	1.61
10F8363	9P0P034	34	30 VDC	1 ADC	2.80	2,14
10F8364	9P0P040	40	30 VDC	1 ADC	3.20	2.45
10F8365	9P0P050	50	30 VDC	1 ADC	4.20	3.21
10F8366	9P0P060	60	30 VDC	1 ADC	4.78	3.66

BELDEN Belden Flat Cable and Assembly Tools

VARI-TWIST FLAT CABLE

Belden's Vari-Twist™ 9V280XX series was designed to reduce crosstalk by twisting the pairs but can be mass terminated in programmed flat sections with any currently available IDC connector. To further reduce crosstalk, each adjacent pair is twisted in an opposite direction. The standard twist length is 18 inches followed by 2 inch flat section of .050" spaced conductors. Vari-Twist™ consists of preinsulated singles laminated to a single clear PVC substrate. Standard put-ups is 100 ft. for easy pay out. UL style number: 2697. Flat interval conductor spacing; 1.27 mm (.050"). Pairs per cable: 5 to 32. Conductor sizes: 28 AWG stranded. Temperature rating: 80° C.

Stock No.	Type	No. of Pairs	Nom. Width	100'
10F8458	9V28010	5	.50"	54.91
10F8459	9V28014	7	.70"	76.86
10F8460	9V28016	8	.80"	87.87
10F8461	9V28020	10	1.00"	109.82
10F8462	9V28026	13	1.30"	142.78
10F8463	9V28034	17	1.70"	186.71
10F8464	9V28040	20	2.00"	224.68
10F8465	9V28050	25	2.50"	274.55
10F8466	9V28060	30	3.00"	329.46
10F8467	9V28064	32	3.22"	357.44

In order to stabilize electrical characteristics Belden offers the 9GP10XX series. 28 AWG stranded conductors are laminated on .050" centers with an expanded mesh laminated to the bottom. One 28 AWG drain wire is in contact with the mesh for grounding purposes. The 9GP10XX series will terminate with any IDC connector. The 9GP10XX series standard package is 100 ft. for easy pay out. UL Style 2682. Temperature Rating: 105° C. Insulation resistance: 10^3 MΩ (10 ft. sample). Passes VW-1 Vertical Flame Test. Black Stripe indicates Drain Wire.

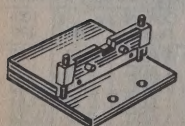
GROUND PLANE FLAT CABLE 28 GAGE STRANDED CONDUCTORS

Stock No.	Type	No. of Cond.	Nom. Width	Center to Center	100'
81F6138	9GP1020	20	1.250"	0.950"	138.90
81F6139	9GP1026	26	1.550"	1.250"	180.40
81F6140	9GP1034	34	1.950"	1.650"	236.14
81F6141	9GP1040	40	2.250"	1.950"	227.82
81F6142	9GP1050	50	2.750"	2.450"	347.26
81F6143	9GP1060	60	3.250"	2.950"	416.70

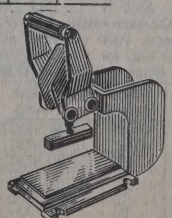
EXTRUDED SHIELDED JACKETED VARI-TWIST™ FLAT CABLE

To address FCC requirements and to reduce EMI/RFI Belden is introducing the 9V283XX series cables. The cable is Belden's standard 9V280XX series 100% covered with an aluminum/mylar foil, extruded black .032 PVC jacket. Two 28AWG drain wires for ease of shielded termination. These cables also meet the new UL style 20081 allowing the thin wall, 300 volts, and 80° C. The thin jacket allows for a high degree of flexibility, ease of termination, reduced space requirements and identification of the flat sections. Flat Interval conductor spacing: 1.27 mm (.050"). Pairs per cable: 5 to 32. Conductor sizes: 28 AWG stranded. Adjacent pairs have opposite lays, 18" twisted interval with a 2" flat interval is standard.

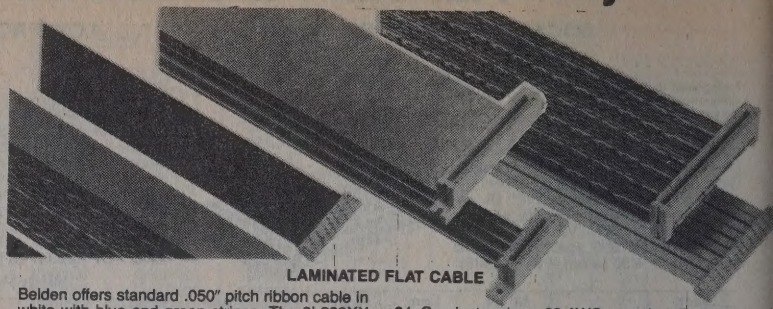
Stock No.	Type	No. of Pairs	Nom. Width	100'
81F6117	9V28310	5	.62"	97.58
81F6118	9V28314	7	.82"	127.00
81F6119	9V28316	8	.92"	137.74
81F6120	9V28320	10	1.12"	181.16
81F6121	9V28326	13	1.42"	221.72
81F6122	9V28334	17	1.82"	286.90
81F6123	9V28340	20	2.12"	341.52
81F6124	9V28350	25	2.62"	425.90
81F6125	9V28360	30	3.12"	506.28



Cable Cutter



Hand Press



LAMINATED FLAT CABLE

Belden offers standard .050" pitch ribbon cable in white with blue and green stripes. The 9L280XX series is packaged 100 ft. to a box for easy payout. UL style number: 2651. Conductor spacing: .050" (1.27 mm). Conductors per cable: 10 to 64. Conductor sizes: 28 AWG stranded. Temperature rating: 105°C. Voltage rating: 300V. Insulation resistance: 10^3M Ω (10 ft. sample). Passes VW-1 Vertical Flame Test.

Stock No.	Type	AWG and Stranding	No. of Cond.	Nom. Width (In.)	Nom. Thick (in.)	100'
36F652WA	9L28010	28 (7 x 36)	10	.50	.034	19.98
36F653WA	9L28014	28 (7 x 36)	14	.70	.034	27.90
36F654WA	9L28016	28 (7 x 36)	16	.80	.034	31.50
36F655WA	9L28020	28 (7 x 36)	20	1.00	.034	39.52
36F656WA	9L28024	28 (7 x 36)	24	1.20	.034	47.08
36F657WA	9L28025	28 (7 x 36)	25	1.25	.034	49.06
36F658WA	9L28026	28 (7 x 36)	26	1.30	.034	51.04
36F659WA	9L28034	28 (7 x 36)	34	1.70	.034	66.06
36F661WA	9L28037	28 (7 x 36)	37	1.85	.034	71.92
36F662WA	9L28040	28 (7 x 36)	40	2.00	.034	77.50
36F663WA	9L28050	28 (7 x 36)	50	2.50	.034	96.90
36F664WA	9L28050	28 (7 x 36)	60	3.00	.034	116.28

EXTRUDED SHIELDED JACKETED FLAT CABLE

The Belden 9L283XX series was designed to help meet F.C.C. E.M.I. requirements and doing it with a much thinner extruded jacket currently available to allow for greater flexibility. These cables meet the new U.L. style 20081 allowing for a .032" jacket wall, 300 volts, and at 105° C. The core cable is Belden's 9L280XX gray series to allow easy termination to any I.D.C. connector. All cables are 100% shielded with an aluminum/mylar foil and can be terminated with two 28 AWG drain wires. Voltage rating: 300V. Insulation resistance: 10^3M Ω (10 ft. sample). Lengths: 100' put-ups standard. Passes VW-1 Vertical Flame Test. Nominal thickness: .118" Conductor spacing: .050" (1.27 mm). Conductor sizes: 28 AWG stranded. Temperature rating: −20°C to +105°C.

Stock No.	Type	Length ft.	Length in.	AWG (Stranding)	No. of Cond.	Nom. Width	100'
81F6126	9L28310	100'	30.5	28 (7 x 36)	10	.600	90.30
91F6128	9L28315	100'	30.5	28 (7 x 36)	15	.850	124.20
81F6129	9L28320	100'	30.5	28 (7 x 36)	20	1.100	159.60
81F6131	9L28325	100'	30.5	28 (7 x 36)	25	1.350	190.30
81F6132	9L28326	100'	30.5	28 (7 x 36)	26	1.400	198.30
81F6133	9L28334	100'	30.5	28 (7 x 36)	34	1.800	248.50
81F6134	9l 28337	100'	30.5	28 (7 x 36)	37	1.950	275.90
81F6135	9L28340	100'	30.5	28 (7 x 36)	40	2.100	295.60
81F6136	9L28350	100'	30.5	28 (7 x 36)	50	2.600	353.60
81F6137	9L28360	100'	30.5	28 (7 x 36)	60	3.100	434.60

FLAT CABLE AND CONNECTOR ASSEMBLING TOOLS

Stock No.	Type	Description	Each
10F8441	9000001	Hand press for all tools	145.00
10F8442	9000002	Cable cutter for all tools	70.00
		HEADER CONNECTOR ACCESSORIES	
10F8444	9H00002	Short hook locator plate	90.00
10F8445	9H00003	Short hooks and pins (20 per bag)	3.00/Bag
10F8446	9H00004	Long hooks and pins (20 per bag)	3.00/Bag
10F8447	9H00005	Polarization key (clip) (20 per bag)	1.00/Bag
	9H00006	415 hooks and pins	0.00/Bag
		CARD-EDGE CONNECTOR ACCESSORIES	
10F8448	9C00001	Locator plate	90.00
10F8448	9C00002	Polarization key (10 per bag)	.30/Pkg.
		SOCKET CONNECTOR ACCESSORIES	
10F8451	9S00002	Polarization key (10 per bag)	.40/Pkg.
		LOW-PROFILE SOCKET CONNECTOR ACCESSORIES	
10F8452	8S00001	Locator plate	90.00
10F8451	9S00002	Polarization key (10 per bag)	.40
		DIP CONNECTOR ACCESSORIES	
10F8453	9D00001	Locator plate (14, 16, 24 & 40 position)	90.00
10F8454	9D00002	14 position locator plate	60.00
10F8455	9D00003	16 position locator plate	60.00
10F8456	9D00004	24 and 40 position locator plate	75.00
10F8457	9P00001	Locator plate	55.00
81F5574	8SP0001	Male socket, Locator plate	90.00
10F8447	9H00005	Polarization key (clip)	1.00/Pkg.
81F5572	9DS0001	Sub-D miniature connectors locator plate	
		Mag-master connector, no tools required	100.00
81F5573	9E00001	S.H.E. connector locator plate	100.00

13

Hook-Up Wire

BELDEN

MIL-W-16878D TYPE B VINYL 600V-105C

Tinned copper wire stranded for greater flexibility. Wall thickness .010 Vinyl insulation for high resistance to moisture, flame, ozone, solvents and most chemicals. SPECIFY COLOR AND COLOR NO. WHEN ORDERING. Colors available only in sizes listed. See stock color columns. *For tracer colors add 18¢ per 100 ft. Shipping weight 100′ 1 lb.; 1000′ 6 lbs.

Type	AWG and Stranding	Nom. O.D.	Stock Colors	Stock No.	100 Ft.‡	Stock No.	1000 Ft.
8597	28 (7 x 36)	.035″	1-10	**37F3234WA**	5.75	**37F3234WM**	37.70
8505	26 (7 x 34)	.039″	1-10. 14-22*	**36F595WA**	5.70	**36F595WM**	41.15
8504	24 (7 x 32)	.044″	1-10. 14-22*	**36F594WA**	5.90	**36F594WM**	38.25
8503	22 (7 x 30)	.050″	1-10. 14-22*	**36F593WA**	6.40	**36F593WM**	41.50
8502	20 (7 x 28)	.058″	1-10. 14-22*	**36F592WA**	7.85	**36F592WM**	50.05
8501	18 (7 x 26)	.068″	1-10. 14-22*	**36F591WA**	8.40	**36F591WM**	63.70

MIL-W-76B TYPE MW—VINYL—1000V—80°C

Tinned copper conductor with vinyl insulation rated at 80°C. Flame and ozone resistant; inert to most chemicals, oil and solvents. Specify color and color No. when ordering—SEE CHART BELOW. ‡For tracer colors add 18¢ per 100 ft.

Type	AWG and Stranding	Nom. O.D.	Stk. Colors	Stock No.	100 Ft.	Stock No.	1000 Ft.
8525	24 (7 x 32)	.058″	1-22	**36F641WA**	5.6	**36F641WM**	37.15
8530	22 (solid)	.059″	1-22	**36F640WA**	5.35	**36F640WM**	33.85
8524	22 (7 x 30)	.064″	1-22	**36F660WA**	6.30	**36F660WM**	43.50
8529	20 (solid)	.066″	1-22	**36F650WA**	6.35	**36F650WM**	42.45
8523	20 (10 x 30)	.070″	1-22	**36F670WA**	7.35	**36F670WM**	49.50
8522	18 (16 x 30)	.080″	1-22	**36F690WA**	8.70	**36F690WM**	65.20
8521	16 (26 x 30)	.098″	1-22	**36F632WA**	12.30	**36F632WM**	93.55
8520	14 (41 x 30)	.111″	1-22	**36F643WA**	17.30	**36F643WM**	125.00
8527	12 (65 x 30)	.130″	1-10	**36F644WA**	26.15	**36F644WM**	173.25

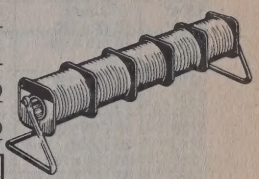
BELDEN WORKBENCH HOOKUP WIRE KITS

Designed for R&D labs, engineers, servicemen, and hobbyists. Belden hookup wire comes in an assortment of colors. Each kit contains a portable rack for work bench or wall mounting. The dispenser rack provides a complete, compact, and convenient wire department for every working area.

Type	Stk. No.	No. of Spools	Spool Lgth.	Type of Wire	Colors in kit	NET
8824	**36F181**	8	25′	20 strd. Type MW vinyl (8523-25)	1-6, 9, 10	27.30
8825	**36F182**	5	100′	20 strd. Mil-W-16878D vinyl (8502-100)	2, 4, 5, 9, 10	39.15
8816	**36F1350**	8	25′	18 stranded vinyl (8522-25)	1-6, 9, 10	29.80
9531	**36F2159**	5	100′	22 stranded vinyl (8524-100)	2, 5, 6, 9, 10	31.30

COLORS

1. Brown 2. Red 3. Orange 4. Yellow 5. Green 6. Lt. Blue 7. Violet 8. Gray 9. White 10. Black



HOOK-UP WIRE

UL STYLE 1007 (CSA TYPE TR-64)

Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Lb./ 100′	Stock No.	100′	Stock No.	1000′	Stock No.	5000′
9930	30 (7 x 38)	.016″	.044″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.16	**37F3198WA**	4.95	**37F3198WM**	33.85	.....	.....
9928	28 (7 x 36)	.016″	.047″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.20	**37F3199WA**	4.68	**37F3199WM**	31.50	.....	.....
9926	26 (7 x 34)	.016″	.051″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.24	**37F3200WA**	4.95	**37F3200WM**	32.95	.....	.....
9923	24 (7 x 32)	.016″	.056″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	3.0	**37F3201WA**	5.15	**37F3201WM**	34.25	.....	.....
9921	22 (7 x 30)	.016″	.062″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.42	**37F3202WA**	5.85	**37F3202WM**	40.80	.....	.....
9919	20 (7 x 28)	.016″	.069″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.58	**37F3204WA**	7.05	**37F3204WM**	48.80	.....	.....
9918	18 (16 x 30)	.016″	.079″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.08	**37F3206WA**	7.65	**37F3206WM**	55.55	**37F3206WX**	257.75
9916	16 (26 x 30)	.016″	.092″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	1.14	**37F3207WA**	10.75	**37F3207WM**	83.55	.....	.....

UL STYLE 1015 600 V-105°C (CSA TYPE TEW)

9924	24 (7 x 32)	.031″	.088″	1, 2, 3, 4, 5, 9, 10, 13	.56	**36F1178WA**	5.95	**36F1178WM**	42.95	.....	.....
8920	22 (7 x 30)	.031″	.093″	1, 2, 3, 4, 5, 9, 10, 13	.66	**36F580WA**	6.40	**36F580WM**	46.25	**36F580WX**	184.00
											4000′
8918	18 (16 x 30)	.031″	.110″	1, 2, 3, 4, 5, 9, 10, 13	1.04	**36F582WA**	9.75	**36F582WM**	69.75	**36F582WT**	253.40
8917	16 (26 x 30)	.031″	.123″	1, 2, 3, 4, 5, 9, 10, 13	1.75	**36F583WA**	12.05	**36F583WM**	101.75	**36F583WT**	337.20
8916	14 (41 x 30)	.031″	.138″	1, 2, 3, 4, 5, 9, 10, 13	2.3	**36F584WA**	17.20	.....	.....	.....	.....
9912	12 (65 x 30)	.031″	.158″	1, 2, 3, 4, 5, 9, 10, 13	3.2	**37F3213WA**	28.40	.....	.....	.....	.....
9910	10 (65 x 28)	.031″	.183″	2, 4, 9, 10	4.5	**37F3214WA**	39.95	.....	.....	.....	.....
9908	8 (84 x 28)	.045″	.250″	2, 4, 9, 10	8.0	**37F3215WA**	69.25	.....	.....	.....	.....

UL STYLE 1061 (CSA-SR PVC)

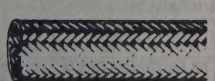
Type	AWG and Stranding	Insul. Thick.	Nom. O.D.	Stock Colors	Lb. 100′	Stock No.	100′	Stock No.	1000′
9978	30 (Solid)	.010″	.030″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.12	**36F1179WA**	9.60	**36F1179WM**	74.45
9987	30 (7 x 38)	.010″	.032″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.82	**37F3216WA**	4.95	**37F3216WM**	33.85
9977	28 (Solid)	.010″	.033″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.14	**36F1180WA**	3.71	**36F1180WM**	25.15
9986	28 (7 x 36)	.010″	.035″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.56	**37F3217WA**	4.68	**37F3217WM**	31.50
9976	26 (Solid)	.010″	.036″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.18	**36F1181WA**	3.22	**36F1181WM**	21.50
9985	26 (7 x 34)	.010″	.039″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.50	**37F3218WA**	4.95	**37F3218WM**	32.95
9975	24 (Solid)	.010″	.040″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.22	**36F1184WA**	3.42	**36F1184WM**	22.75
9984	24 (7 x 32)	.010″	.044″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.26	**37F3219WA**	5.15	**37F3219WM**	34.05
9983	22 (7 x 30)	.010″	.050″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.36	**37F3220WA**	5.70	**37F3220WM**	36.80
9982	20 (7 x 28)	.010″	.057″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.48	**37F3221WA**	7.05	**37F3221WM**	44.60
9981	18 (19 x 30)	.010″	.066″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	.74	**37F3222WA**	7.45	**37F3222WM**	56.25
9980	16 (19 x 28)	.010″	.078″	1, 2, 3, 4, 5, 7, 8, 9, 10, 13	1.14	**37F3223WA**	9.60	**37F3223WM**	74.45

COLOR CODING

Specify color when ordering. The first color in stripe combination denotes body color, second number denotes tracer color. All colors are not available in all types. See stock color columns. Tracer colors. Add 18¢/100 ft.

1. Brown
2. Red
3. Orange
4. Yellow
5. Green
6. Light Blue
7. Violet
8. Gray
9. White
10. Black
11. Tan
12. Pink
13. Dark Blue
14. White/Black
15. White/Red
16. White/Green
17. White/Yellow
18. White/Blue
19. White/Brown
20. White/Orange
21. White/Gray
22. White/Violet

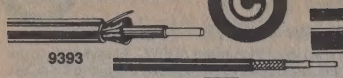
BONDING CABLE

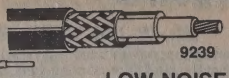


Tinned copper braid provides approx. 90% shield coverage when applied over recommended diameter.

Type	Oval I.D.	Flat Width	Cir. Mil area	Stk. No.	10′	Stk. No.	50′	Stk. No.	250′
8676	1/32″	3/64″	400	**36F215WG**	3.35	**36F215WB**	6.10	**36F215WE**	27.30
8674	3/64″	1/16″	600	**36F216WG**	3.66	**36F216WB**	8.55	**36F216WE**	38.15
8660	9/64″	3/16″	3800	**36F220WG**	4.42	**36F220WB**	13.05	**36F220WE**	62.45
8668	5/32″	7/32″	4700	**36F223WG**	6.05	**36F223WB**	16.65	**36F223WE**	73.35
8669	13/32″	7/16″	13,300	**36F224WG**	9.50	**36F224WB**	40.15	**36F224WE**	154.05
8662	....	19/32″	22,900	**36F222WG**	13.50	**36F222WB**	56.35	**36F222WE**	222.70
8670	....	3/4″	48,000	**36F218WG**	20.60	**36F218WB**	100.20	**36F218WE**	359.40

BELDEN Coaxial Cables





LOW NOISE COAXIAL CABLES

Type	AWG Stranding	Nom. O.D.	Nom. Imp.	Shield Coverage	Lb./ 100′	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9239	26 (7 x 34)	.101	.....	88%	4.0	**37F3262WA**	20.85	**37F3262WF**	77.20	**37F3262WM**	127.20
9223	22 (7 x 30)	.195	43	95%	5.7	**37F3263WA**	31.85	**37F3263WF**	125.00	**37F3263WM**	211.50
9224	22 (Solid)	.242	75	93%	4.2	**37F3264WA**	34.50	**37F3264WF**	125.00	**37F3264WM**	224.85

MINIATURE COAXIAL CABLES

9393*	2-30 (Solid)	.110 x .115	93	100%	2.7	**37F3265WA**	22.05	**37F3265WF**	70.65	**37F3265WM**	125.00
8218	27 (7 x 35)	.150	75	93%	3.6	**36F1803WA**	23.85	**36F1803WF**	85.20	**36F1803WM**	140.40
9264**	24 (7 x 32)	.122 x .146	50	100%	7.3	**36F1177WA**	17.30	**36F1177WF**	72.20	**36F1177WM**	125.00
9221***	30 (7 x 38)	.097	75	90%	5.0	**37F3710WA**	19.70	**37F3710WF**	71.10	.....	.....

*UL-1354 **UL-1511 ***UL-1375

COAXIAL CABLES

Type	AWG Stranding	Nom. O.D.	Nom. Imp.	Shield Coverage	RG No.	JAN Spec.	Lb./ 100′	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9204*	.023 Solid	.241	75	95%	59U	C-17 E	....	.....	.....	**37F3928WF**	118.85	**37F3928WM**	195.90
9212*	18 (7 x 26)	.405	75	97%	11U	C-17 E	9.5	**37F3930WA**	49.80	**37F3930WF**	180.85	**37F3930WM**	361.65
9258*	16 (19 x 29)	.242	78	95%	8/x	.....	4.1	**37F3946WA**	31.05	**37F3946WF**	96.05	**37F3946WM**	158.25
9555***	.023	.242	75	95%	.....	.....	8.4	**37F3944WA**	53.60	**37F3944WF**	168.75	**37F3944WM**	337.50
8214*	11 (7 x 19)	.405	50	97%	RG-8/U	.....	11.0	**37F2450WA**	51.55	**37F2450WF**	192.55	**37F2450WM**	385.05
8237	13 (7 x 21)	.405	52	97%	RG-8/U	C-17 A	11.5	**36F113WA**	52.25	**36F113WF**	166.05	**36F113WM**	332.10
9251*	13 (7 x 19)	.405	50	97%	RG-8A/U	C-17 D	10.8	**37F2455WA**	73.20	**37F2455WF**	227.80	**37F2455WM**	455.55
8238	18 (7 x 26)	.405	75	97%	RG-11/U	C-17 A	10.2	**36F114WA**	55.80	**36F114WF**	175.90	**36F114WM**	351.75
8240*	20 (solid)	.195	53.5	95%	RG-58/U	C-17 A	3.2	**36F111WA**	19.60	**36F111WF**	67.55	**36F111WM**	125.00
8219	20 (19 x 32)	.195	.50	96%	RG-58A/U	.....	2.6	.....	.....	**37F2451WF**	85.90	**37F2451WM**	141.60
8259	20 (19 x .007)	.195	50	96%	RG-58A/U	C-17 A	2.9	**36F118WA**	22.50	**36F118WF**	75.10	**36F118WM**	125.00
8212	20 Copperweld	.242	75	95%	RG-59/U	.....	3.5	.....	.....	**36F1800WF**	82.45	**36F1800WM**	135.90
8221	22 Copperweld	.242	75	86%	RG-59/U	.....	4.0	**36F1357WA**	24.70	**36F1357WF**	79.00	**36F1357WM**	130.20
8241*	22 Copperweld	.242	75	95%	RG-59/U	C-17 A	4.3	**36F110WA**	23.50	**36F110WF**	72.55	**36F110WM**	125.00
9259*	22 Stranded	.242	75	95%	RG-59/U	UL 1354	4.0	**37F2457WA**	30.80	**37F2457WF**	103.30	**37F2457WM**	170.25
8263	.023 Solid	.242	75	95%	RG-598/U	C-17 D	4.0	.....	.....	**36F1809WF**	112.30	**36F1809WM**	185.10
8262	20 (19 x .007)	.195	50	95%	RG-58C/U	C-17 D	3.0	.....	.....	**36F057WF**	89.00	**36F057WM**	146.70
8254	22 Solid	.242	93	95%	RG-62/U	C-17 A	4.1	**36F1347WA**	24.70	**36F1347WF**	92.00	**36F1347WM**	151.65
9268**	22 Solid	.260	93	95%	RG-62A/U	.....	4.5	.....	.....	**36F599WF**	125.00	**36F599WM**	223.95
9269**	22 Solid	.242	93	95%	RG-62A/U	.....	4.0	.....	.....	**36F598WF**	90.30	**36F598WM**	148.80
8255*	24 (7 x 32)	.242	93	95%	RG-62B/U	C-17 D	4.0	.....	.....	**36F1808WF**	125.00	**36F1808WM**	222.60
9252*	22 (27 x 36)	.160	50	97%	RG-122/U	C-17 D	2.2	**37F2456WA**	27.05	**37F2456WF**	99.85	**36F2456WM**	164.55
8216*	26 (7 x 34)	.100	50	88%	RG-174/U	.....	1.1	**36F058WF**	17.95	**36F058WF**	62.55	**36F058WM**	125.05
9203	20 (19 x .007)	.193	50	95%	RG58U	C-17 E	2.0	.....	.....	**81F6002WF**	97.95	**81F6002WM**	161.40
8268*	13 (7 x .0296)	.425	50	98%	RG-214/U	C-17 D	15.0	.....	.....	**37F2454WF**	1152.00	**37F2454WM**	2302.50
9273*	19 Solid	.206	50	97%	RG-223/U	C-17 D	4.0	**37F2458WA**	125.00	**37F2458WF**	449.25	**37F2458WM**	898.50

Cables meet MIL. Spec. MIL-C-17D; silver coated copper covered steel; TFE Teflon insulation; silver coated copper shields.
*UL-1354 **UL-1478 ***UL-20020

Type No.	RG No.	AWG and Stranding	Jacket	Nom. O.D. (Inches)	Nom. Imp. (Ohms)	Max. Atten. Per 100	Lb./ 100′	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
83241	141A/U	18 (solid)	Fiberglass	.190	50	9.0 db	4.0	**36F1687WA**	141.00	**36F1687WF**	641.50	**36F1687WM**	1283.00
83242	142B/U	18 (solid)	Brown FEP	.195	50	9.0 db	5.0	**36F1688WA**	164.25	**36F1688WF**	746.50	**36F1688WM**	1493.00
83265	178B/U	30 (7x38)	Brown FEP	.070	50	29.0 db	1.0	**36F1689WA**	48.95	**36F1689WF**	183.38	.....	.....
83264	179B/U	30 (7x38)	Brown FEP	.100	75	21.0 db	1.4	**36F1690WA**	61.00	**36F1690WF**	228.75	**36F1690WM**	457.50
83266	180B/U	30 (7x38)	Brown FEP	.140	95	17.0 db	3.4	**36F1691WA**	113.95	**36F1691WF**	427.00	.....	.....
83284	316/U	26 (7x.0067)	Brown FEP	.098	50	20.0 db	1.2	**36F1684WA**	65.15	.....	.....	.....	.....

13

TWINAXIAL CABLES

Type	AWG Stranding	Shield Coverage	Nom. Imp. Ohms	Nom. O.D.	Lb./ 100′	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9860*	16 Solid	2-100%	124	.440	11.0	.....	.....	**36F607WF**	303.25	**36F607WM**	606.45
9250	18 (17 x .0152)	2-96%	95	.420	15.0	**36F601WA**	122.85	**36F601WF**	409.50	**36F601WM**	819.00
8227**	20 (7 x 28)	84%	100	.325	6.5	.....	.....	**36F1804WF**	204.85	**36F1804WM**	409.65
9207**	20 (7 x 28)	96%	100	.325	7.1	**36F3266WA**	70.20	**37F3266WF**	211.35	**37F3266WM**	422.70
9272***	20 (7 x 28)	93%	78	.242	8.6	**36F600WA**	35.60	**36F600WF**	125.00	**36F600WM**	227.85
9182†	22 (19 x 34)	100%	150	.350	5.0	.....	.....	**37F3267WF**	167.35	**37F3267WM**	334.65
9271***	25 (7 x 33)	100%	124 .280	.242	6.0	**36F605WA**	19.50	**36F605WF**	73.80	**36F605WM**	125.00
9696	22 Solid	100%	.296	.296	4.6	**37F5002WA**	42.70	**37F5002WF**	144.00	**37F5002WM**	288.00

*UL-2448 **UL-2498 ***UL-2092 †UL-2668

TRIAXIAL CABLES

Type	AWG Stranding	Shield Coverage	Nom. Imp. Ohms	Nom. O.D.	Lb./ 500′	Stock No.	100′	Stock No.	500′	Stock No.	1000′
9222	20 (7 x 28)	2.96%	50	.242	20.0	**37F3268WA**	43.95	**37F3268WF**	149.40	.....	.....
9267	20 (Solid)	2.96%	75	.360	39.0	**37F3269WA**	85.90	**32F3269WF**	319.45	**37F3269WM**	638.85
9232	14 (19 x 26½)	2.90%	75	.520	75.0	.....	.....	**37F3270WF**	596.25	**37F3270WM**	1192.50
8232	20 (Solid)	2.96%	75	.315	28.7	.....	.....	**37F3271WF**	174.40	**32F3271WM**	348.75
8233	14 (Solid)	2.93%	75	.475	64.2	.....	.....	**37F3272WF**	306.00	**37F3272WM**	612.00
9888	11 (7 x 19)	2.98%	50	.480	72.8	.....	.....	**36F596WF**	345.15	**36F596WM**	690.30

CATV - MATV COAXIAL CABLES

Satisfy the requirements of CATV-MATV applications. One or more of the cables in this group will fulfill the physical and electrical requirements of a system. A range of cable sizes including a variety of materials to meet exact needs—copper and copper covered steel center conductors. Duofoil® and braid shields, polyvinylchloride and polyethylene jackets and galvanized steel messengers for overhead runs. All cables in this group, except Type 8241, are sweep tested using the Structural Return Loss Method to insure consistent cable performance and uniform electrical characteristics.

Type	AWG	Nom. O.D.	Nom. Imp.	Shielding	RG No.	Mes-senger	Insul.	Jkt. Type	Lb./ 500′	Stock No.	500′	Stock No.	1000′
9100	20 (solid)	.242	75	Duobond II and 40% Alum. Braid	59	No	Foam	Vinyl	11.8	**37F3273WF**	53.88	**37F3273WM**	107.75
8212	20 (solid)	.242	75	95% B.C.	59	No	Foam	P.E.	15.5	**36F1800WF**	82.45	**36F1800WM**	135.90
9274	20 (solid)	.242	75	95% B.C.	59	No	Foam	Vinyl	17.4	**37F3274WF**	62.50	**37F3274WM**	125.00
8241	22 (solid)	.242	75	95% B.C.	59	No	P.E.	Vinyl	19.4	**36F110WF**	72.55	**36F110WM**	125.00
9244	22 (solid)	.240	75	86% B.C.	59	No	P.E.	Vinyl	16.0	**37F3275WF**	62.50	**37F3275WM**	125.00
8221	22 (solid)	.242	75	95% B.C.	59	No	Foam	Vinyl	18.7	**36F1357WF**	79.00	**36F1357WM**	130.20
9145	20 (solid)	.236	75	1 Duofoil and 1 aluminum braid 100%	59	.....	P.E.	Blk PVC	....	**81F6000WF**	38.50	**81F6000WM**	77.00
9146	18 (solid)	.275	75	1 Duofoil and 1 aluminum braid 100%	6	.....	P.E.	Blk PVC	....	**81F6001WF**	49.60	**81F6001WM**	99.20

TV CAMERA CABLES, CCTV AND TELEPHONE CABLES

BELDEN

TV CAMERA CABLES AND CCTV CABLES

Belden TV Broadcast and Closed Circuit TV Camera Cables assure reliable circuit isolation thereby reducing AC hum and minimizing cross-talk between circuits. Made to take rugged service and to maintain high conductor insulation resistance regardless of ambient temperature changes. Major uses are controlling, powering and transmitting sound and picture information for monochrome and color TV cameras as well as for remote control, monitor and cue line systems. Engineered to be lightweight, flexible, and easy to terminate. UL listed.

59/U Type

59/U Type

Type	AWG and Stranding	Nom. Imp.	Nom. O.D.	Insul.	Shielding	Lb./ 500'	Stock No.	100'	Stock No.	500'	Stock No.	1000'
9259	22 (6 x 30)	.242	75	Foam	95% bare copper	17.0	**37F2457WA**	30.80	**37F2457WF**	103.30	**37F2457WM**	170.25
9265	2.22 (7 x 30)	.242 x	.....	Vinyl	1 pr. Beld-foil shielded	32.1	.....	.....	**37F3279WF**	174.60	**37F3279WM**	349.20
	1-22 (6 x30) coax.	.445	75	Foam	95% bare copper							

COAXIAL CABLE JACKETS

Jacket Type	Description	Temp. Range
I	Black Vinyl	—40°C to 80°C
II	Gray Vinyl (noncontaminating)	—55°C to 80°C
IIa	Black Vinyl (noncontaminating)	—55°C to 80°C
III	Clear Polyethylene	—55°C to 80°C
IIIa	Black Polyethylene	—55°C to 80°C
V	Fiberglass, silicone impregnated varnish	—55°C to 250°C
VII	White TFE Teflon*	—70°C to 200°C
IX	Brown FEP Teflon*	—70°C to 200°C

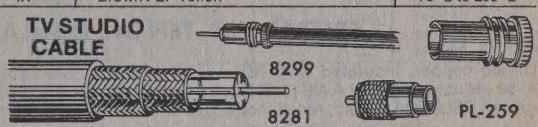
Type 8279. Similar to 8281 except with #23 AWG stranded conductor. Single tinned copper braid shield. O.D. .220".

ADAPTER

Type 8299. Adapter for use with 8281 cable only. Increases O.D. to fit PL-259 connector.

36F143. Box of 25. **NET** 13.05

Type	Stk. No.	Feet	Each	Type	Stk. No.	Feet	Each
	.....	100					
	.....	250	.....		**36F1340WE**	250	91.75
8281	**36F141WF**	500	269.25	8279	**36F1340WF**	500	151.20
	36F141WM	1000	538.50		.....	1000	



Type 8281. 75 ohm precision video cable. Single #20 AWG solid copper conductor; polyethylene insulated, double copper braid shield; black polyethylene jacket. Nom. O.D. .304". Nom. capacitance, 21 pF/ft. 100% sweep tested. Wt. 37 lbs. per 500'.

75 OHM VIDEO RETRACTILE CABLE

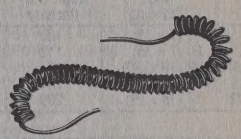
Stranded tinned copper conductor, polyethylene insulation. 100% Beldfoil and serve shield. Nom. Cap. 21 pF/ft. (68.9 pF/m). Nickel gray PVC shield.

Type	AWG (stranding)	Nom. O.D.	Retracted length (in.)	Extended length (ft.)	Jacket Material	No. of Conductors	Stock No.	NET
9447	25 (7 x 33)	.242	6	2	Vinyl	1	37F3280	3.84
9448	25 (7 x 33)	.242	12	4	Vinyl	1	37F3281	5.05
9449	25 (7 x 33)	.242	24	8	Vinyl	1	37F3282	7.85

RETRACTILE (COILED) MICROPHONE CABLES—SHIELDED AND UNSHIELDED

USES: CB, HAM, MICROPHONES, LANGUAGE LABS, MUSIC EQUIPMENT, ETC.

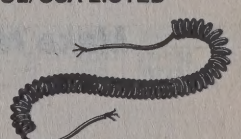
Type	Stock No.	AWG (stranding)	Retracted Length (In.)	Extended Length (ft.)	Nom. O.D. (in.)	Jacket Material	Conductors	NET
8409	**36F1329**	28 (7x36)	12	6	.165	Neoprene	4 unshielded	5.05
8415	**36F038**	23 (21x36)	11½	6	.250	Neoprene	4 unshielded	5.90
9415	**36F1238**	23 (21x36)	30	15	.250	Neoprene	4 unshielded	12.65
8497	**36F207**	23 (21x36)	11½	6	.250	Neoprene	3 con-1 shield	6.50
9417	**36F1239**	23 (21x36)	30	15	.250	Neoprene	3 con-1 shield	13.40
8499	**36F208**	24 (45x40)	7½	4	.170	Neoprene	1 shielded	4.26
8491	**36F1330**	23 (21x36)	12	6	.275	Neoprene	4 cond-2 shield	7.50
9416	**36F1240**	23 (21x36)	30	15	.275	Neoprene	4 cond-2 shield	17.85
8490	**36F1331**	23 (21x36)	11½	6	.265	Neoprene	5 unshielded	6.50
9470	**36F1106**	33 (tinsel)	10½	5	.105	Vinyl	2 unshielded	4.00
9468	**36F1107**	31 (tinsel)	20	10	.150	Vinyl	3 cond-1 shield	11.95
9469	**36F1108**	31 (tinsel)	20	10	.150	Vinyl	4 unshielded	10.50
9466	**36F1109**	28 (7x36)	12	6	.160	Neophrene	3 cond-1 shield	5.80
9467	**36F1110**	28 (7x36)	12	6	.175	Neophrene	5 cond-1 shield	6.85
9499	**36F1111**	24 (45x40)	24	12	.170	Neophrene	1 shielded	9.30



Cadium bronze wire microphone cables with neoprene or vinyl jacket. Retracts when not in use. Neoprene cables are resistant to effects of sun, oil and ozone and are recommended for outside use.

RETRACTILE NEOPRENE POWER CONTROL CABLES—UNSHIELDED—UL/CSA LISTED

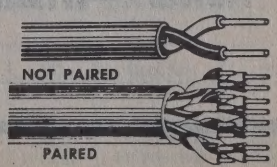
8601	**36F1342**	18 (41x34)	12	6	.270	Neoprene	2 "SVO"	4.93
9476	**36F1241**	18 (41x34)	24	12	.270	Neoprene	2 "SVO"	9.00
9477	**36F1242**	18 (41x34)	48	25	.270	Neoprene	2 "SVO"	14.30
9478	**36F1243**	18 (41x34)	24	12	.275	Neoprene	3 "SVO"	11.50
9479	**36F1244**	18 (41x34)	48	25	.275	Neoprene	3 "SVO"	19.85
8602	**36F1343**	18 (41x34)	12	6	.360	Neoprene	3 "SJO"	7.50
9480	**36F1245**	18 (41x34)	24	12	.360	Neoprene	3 "SJO"	13.20
9481	**36F1246**	18 (41x34)	48	25	.360	Neoprene	3 "SJO"	21.75
8603	**36F1344**	16 (65x34)	12	6	.370	Neoprene	3 "SJO"	7.55
9484	**36F1345**	16 (65x34)	24	12	.370	Neoprene	3 "SJO"	14.95
9485	**36F1247**	16 (65x34)	48	25	.370	Neoprene	3 "SJO"	25.40
9482	**36F1248**	18 (41x34)	24	12	.385	Neoprene	4 "SJO"	15.20
9483	**36F1249**	18 (41x34)	48	25	.385	Neoprene	4 "SJO"	25.40



12" straight portion on each end (8601, 8602, and 8603 have 6" straight portion). Jacket removed 1½" each end.

TELEPHONE CABLES UL LISTED WIRES

Type	AWG Solid	No. of Cond.	Nom. O.D.	Wt./ 100"	Stk. No.	500'	Stk. No.	1000'
8795	22	2	.160"	8.0	**36F1103WF**	40.50	**36F1080WM**	**81.00**
8794	22	3	.168"	9.0	**36F1104WF**	42.90	**36F1081WM**	**85.75**
9562	24	2	.195"	1.34	**36F1133WF**	51.35	**36F1133WM**	**102.65**
9566	24	6	.285"	4.08	**36F1134WF**	124.85	**36F1134WM**	**305.80**
9570	24	10	.350"	6.7	**36F1101WF**	159.30	**36F1101WM**	**318.60**
9585	24	25	.495"	15.2	**36F1102WF**	463.30	**36F1102WM**	**927.00**



13

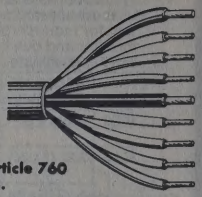
BELDEN Fire Alarm & Teflon Cable

FIRE ALARM AND TRAY CABLES

Power limited fire protective signaling cable for use in accordance with NEC Article 760 power limited circuits. 9596, 9597, and 9598 also comply with NEC Article 725, Class 2 or 3 circuits. Suitable for appropriate tray cable installations. Red vinyl jacket.

Type	AWG	No. of Cond.	Shield	Lb./ 500′	Stock No.	500′	Stock No.	1000′
9576	22 Solid	6	No	17.3	**37F3182WF**	91.30	**37F3182WM**	150.45
9577	22 Solid	9	No	23.6	**37F3183WF**	125.00	**37F3183WM**	208.05
9584	22 Solid	12	No	30.7	**37F3184WF**	134.25	**37F3184WM**	268.50
9596	19 Solid	2	No	8.8	**37F3185WF**	49.50	**37F3185WM**	99.05
9597	19 Solid	4	No	20.0	**37F3186WF**	100.40	**37F3186WM**	165.45
9598	19 Solid	6	No	29.0	**37F3187WF**	125.00	**37F3187WM**	244.80
9571	18 Solid	2	No	14.4	**37F3188WF**	66.70	**37F3188WM**	125.00
9574	18 Solid	2	Yes	15.9	**37F3189WF**	86.55	**37F3189WM**	142.65
9578	18 Solid	4	Yes	24.3	**37F3190WF**	125.00	**37F3190WM**	220.05
9572	16 Solid	2	No	18.3	**37F3191WF**	83.00	**37F3191WM**	136.80
9575	16 Solid	2	Yes	19.8	**37F3192WF**	106.75	**37F3192WM**	175.95
9579	16 Solid	4	Yes	32.8	**37F3193WF**	139.75	**37F3193WM**	279.45
9580	14 Solid	2	No	27.8	**37F3194WF**	125.00	**37F3194WM**	213.45
9581	14 Solid	2	Yes	32.1	**37F3195WF**	140.85	**37F3195WM**	281.70
9582	12 Solid	2	No	40.1	**37F3196WF**	145.35	**37F3196WM**	290.70
9583	12 Solid	2	Yes	44.9	**37F3197WF**	183.75	**37F3197WM**	367.50

Additional Cables Which Meet UL Subject 13 Power Limited Circuit Listed in Belden Catalog 878



- **UL Subject 1424**
- **Complies with NEC Article 760 Power Limited Circuits.**
- **Suitable for Use in Tray Cable Installations.**
- **105° C—300V**
- **Passes the UL 70,000 BTU Flame Test**

SPECIAL FEP TEFLON INSULATED INSTRUMENTATION CABLES

Tinned copper, insulated with FEP TEFLON, conductors cabled, jacket. +150°C maximum operating temperature. Jacket working noise reducing tape, 22 AWG (7x30) nickel coated copper drain wire, voltage: 1000V DC, shield to ground. Conductor colors: 9, 10, 2, 5. special BELDFOIL shield, red silicone rubber jacket except *yellow

Type No.	No. of Cond.	AWG Stranding	Nom. O.D.	Insul. Thickness	Jacket Thickness	Stock No.	100′	Stock No.	1000′
83393*	2	20 (7×28)	.245″	.020	.030	**36F1359WA**	118.95	**36F1359WF**	473.50
83394	2	22 (7×30)	.204″	.015	.030	**36F1481WA**	82.85	**36F1481WF**	340.00
83395	3	22 (7×30)	.213″	.015	.030	**36F1482WA**	102.75	**36F1482WF**	412.50
83396	4	22 (7×30)	.222″	.015	.030	**36F1483WA**	119.60	**36F1483WF**	477.00

TEFLON E SHIELDED TEFLON CABLES

Stranded silver coated copper conductors, type E extruded TFE teflon insulation, color coded, cabled, braided silver plated copper shield, white TFE Teflon tape wrapped jacket. Mil. Spec: MIL-W-16878 Type E. Temperature rating: −65C to 200C. 90% shield coverage. Suggested working voltage: 600 volts (RMS). Passes the FR-1 vertical flame test.

TWO CONDUCTOR

Type No.	AWG Stranding	Nom. O.D. (Inches)	Insul. Thickness	Jacket Thickness	Conductor Color Coding	Lb./ 100′	Stock No.	100′	Stock No.	500′	Stock No.	1000′
83315	30 (7×38)	.106	.010	.010	9, 10	1.3	**36F1685WA**	95.55	**36F1685WF**	358.50	**36F1685WM**	717.00
83316	28 (7×36)	.112	.010	.010	9, 10	2.0	**36F1686WA**	103.20	**36F1686WF**	386.50	**36F1686WM**	773.00
83319	22 (19×34)	.144	.010	.010	9, 10	2.3	**36F1733WA**	121.15	**36F1733WF**	454.00	**36F1733WM**	908.00
83321	18 (19×30)	.188	.010	.012	9, 10	3.3	**36F1735WA**	137.50	**36F1735WF**	625.00	**36F1735WM**	1250.00
83322	16 (19×29)	.200	.011	.012	9, 10		**36F1736WA**	166.35	**36F1736WF**	756.00	**36F1736WM**	1512.00

THREE CONDUCTOR

83330	30 (7×38)	.111	.010	.010	2, 9, 10	1.2	**36F1737WA**	115.70	**36F1737WF**	433.50	**36F1737WM**	867.00
83331	28 (7×36)	.117	.010	.010	2, 9, 10	2.0	**36F1738WA**	122.15	**36F1738WF**	457.50	**36F1738WM**	915.00
83332	26 (7×34)	.126	.010	.010	2, 9, 10	2.0	**36F1739WA**	108.10	**36F1739WF**	405.00	**36F1739WM**	810.00
83333	24 (19×36)	.136	.010	.010	2, 9, 10	2.0	**36F1740WA**	125.00	**36F1740WF**	479.50	**36F1740WM**	959.00

Make Newark Your Dependable Source for All of Your Wire and Cable Needs.

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MAGNET WIRE AND HIGH TEMPERATURE PLENUM CABLE

BELDEN

SINGLE BELDSOL-130° MAGNET WIRE

Dual trim insulated magnet wire that combines excellent dielectric characteristics of polyurethane and the known toughness and solvent resistance of nylon. May be soldered without insulation removal at 750°F. ½ lb. spool sizes 14 thru 36. ¼ lb. spool sizes 38 and 40.

Type No.	AWG	Approx. Feet	Stk. No.	NET
8048	16	63	**36F1311**	7.25
8049	18	100	**36F1312**	7.69
8050	20	160	**36F1313**	7.65
8051	22	254	**36F1314**	7.65
8052	24	404	**36F1315**	7.80
8053	26	645	**36F1316**	8.10
8054	28	1020	**36F1317**	8.30

Type No.	AWG	Approx. Feet	Stk. No.	NET
8055	30	1615	**36F1318**	9.05
8056	32	2515	**36F1319**	9.85
8057	34	4060	**36F1320**	10.60
8058	36	6400	**36F1321**	12.05
8045	38	5070	**36F1322**	8.55
8046	40	8050	**36F1323**	11.75

HEAVY ARMORED POLYTHERMALEZE HIGH TEMPERATURE MAGNET WIRE

Dual polyester film insulated magnet wire, rated for use to 180°C. Has exceptional ability to resist chemical solvents and abuse in intricate windings. One pound spools.

Type No.	AWG	Approx. Feet	Stk. No.	NET
8073	14	80	**36F767**	11.95
8074	16	126	**36F768**	12.60
8075	18	199	**36F769**	12.95
8076	20	315	**36F770**	13.05
8077	22	501	**36F771**	13.05
8078	24	793	**36F772**	13.65
8079	26	1260	**36F773**	14.20

Type No.	AWG	Approx. Feet	Stk. No.	NET
8080	28	1990	**36F774**	15.40
8081	30	3140	**36F775**	17.75
8083	34	7860	**36F777**	22.60
8085	38	19400	**36F779**	31.40
8086	40	32100	**36F780**	37.35

BUS BAR WIRE

Made in accordance with Federal spec. QQ-W-343. Solid tinned copper; available in standard spools of 100′ and 1000′ only.

Type	AWG	Stk. No.	100′	Stk. No.	1000′	Type	AWG	Stk. No.	100′	Stk. No.	1000′
8025	30	**36F1022WA**	3.86	**36F1022WM**	16.75	8020	20	**36F1027WA**	5.15	**36F1027WM**	36.25
8024	28	**36F1023WA**	3.86	**36F1023WM**	17.50	8019	18	**36F1028WA**	6.80	**36F1028WM**	51.90
8023	26	**36F1024WA**	3.99	**36F1024WM**	20.40	8013	16	**36F1029WA**	9.50	**36F1029WM**	81.35
8022	24	**36F1025WA**	4.11	**36F1025WM**	21.85	8012	14	**36F1030WA**	14.60	**36F1030WM**	119.60
8021	22	**36F1026WA**	4.28	**36F1026WM**	26.95	8011	12	**36F1031WA**	21.70		

TEST. PROD' WIRE—STRAIGHT AND COILED

Stranded tinned copper conductors, separator wrapping, red or black rubber insulated. Working voltages listedare AC. RMS values: Straight types. 8897 is manufactured per MIL-W-13169 specs; 8890 is miniature type. See following page for retractible types.

Type	Color	AWG	Nom. O.D.	WV	Lb./ 100′	10′	NET	25′	NET	100′	NET	500′	NET	1000′	NET
8898	Black	18.65×36	.230″	10000	3.3	**36F001WG**	4.97	**36F001WC**	8.80	**36F001WA**	23.15	**36F001WF**	95.85	.....	.....
8898	Red	18.65×36	.230″	10000	3.3	**36F000WG**	4.97	**36F000WC**	8.80	**36F000WA**	23.15	**36F000WF**	95.85	.....	.....
8899	Red	18.65×36	.144″	5000	1.8	**36F005WG**	3.40	**36F005WC**	5.40	**36F005WA**	17.40	**36F005WF**	63.25	**36F005WM**	125.00
8899	Black	18.65×36	.144″	5000	1.8	**36F006WG**	3.40	**36F006WC**	5.40	**36F006WA**	17.40	**36F006WF**	63.25	**36F006WM**	125.00
8897	Red	18.65×36	.144″	5000	1.4	.....	....	.....	....	.....	....	**36F129WF**	72.00	.....	.....
8897	Black	18.65×36	.144″	5000	1.4	.....	....	.....	....	.....	....	**36F129WF**	72.00	.....	.....
8890	Black	24.45×40	.066″	1000	.5	.....	....	**36F007WC**	4.48	**36F007WA**	11.05	**36F007WF**	46.80	.....	.....
8890	Red	24.45×40	.066″	1000	.5	.....	....	**36F008WC**	4.48	**36F008WA**	11.05	**36F008WF**	46.80	.....	.....
9899*	Red	18.65×36	.144″	5000	1.7	.....	....	.....	....	**81F6148WA**	14.05	**81F6148WF**	57.35	.....	.....
9899*	Black	18.65×36	.144″	5000	1.7	.....	....	.....	....	**81F6149WA**	14.05	**81F6149WF**	57.35	.....	.....

36F004 Type 8899. 14 Ft. Spool, consists of 7 ft. Red and 7 Ft. Black. Ready for use. **NET** 3.82

COILED (RETRACTILE) TEST PROD WIRE

Retracted length 8″. Stretches to 5′. 8878 with prods. 8879 without prods. One black, one red lead.

Type	AWG (Stranding)	O.D.	WV	Stk. No.	NET
8878	20 (42×36)	.173″	5000	**36F130**	14.60
8879	20 (42×36)	.173″	5000	**36F131**	5.65

HIGH TEMPERATURE—PLENUM CABLE

BELDEN by Milibride Plenum Coaxial Cables

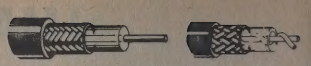
Eliminates the need for using conduit when installing cables in air plenums.

Because of its flame resistance and low smoke emission properties, the special compound used in Belden plenum cable jackets and insulations has been accepted under the provisions of the National Electrical Code and classified by Underwriters Laboratories, Inc. for use without conduit in air plenums.

Type	RG Type	AWG	Nom. O.D.	Nom. (Ohms)	pF/ft.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
89880	...	.0855 (solid) COAX	.375	50	26	**81F6018WA**	480.00	.....	.....	.....	.....
89108	59/U	20 (solid)	.218	75	16.5	**81F6052WA**	152.00	**81F6052WF**	507.50	**81F6052WM**	1015.00
89120	RG-6	18 (solid)	.253	75	17	.....	.....	**81F6053WF**	742.00	**81F6053WM**	1484.00
88281	...	20 (solid)	.304	75	19	.....	.....	**81F6054WF**	1009.00	**81F6054WM**	2018.00

13

BELDEN High Temp. Products



COAXIAL CABLE

Type	AWG Stranding	RG Type	Nom. O.D.	Mil Type	Stock No.	100′	Stock No.	500′	Stock No.	1000′
83267	30 (7x38)	187 A/M	.105	C-17D	**81F6003WA**	81.35	**81F6003WF**	304.50	**81F6003WM**	609.00
83269	26 (7x.0067)	188 A/M	.102	C-17D	**81F6004WA**	80.45	**81F6004WF**	301.50	**81F6004WM**	603.00
83270	30 (7x38)	196 A/M	.076	C-17D	**81F6005WA**	59.05	**81F6005WF**	221.25	**81F6005WM**	442.50
83282	18 Solid	303 A/M	.170	C-17D	**81F6006WA**	125.00	**81F6006WF**	557.50	**81F6006WM**	1,115.00

CONTROL AND INSTRUMENTATION CABLE FOR NON-CONDUIT PLENUM APPLICATIONS

Teflon Insulation and Jacket—Beldfoil plus 85% Braid Shield

Type	No. Cond.	AWG Stranding	Nom. O.D.	Stock No.	100′	Stock No.	500′	Stock No.	1000′
83502	2	24(19x36)	.162″	**81F6007WA**	78.90	**81F6007WF**	295.50	**81F6007WM**	591.00
83503	3	24(19x36)	.168″	**81F6008WA**	83.65	**81F6008WF**	313.50	**81F6008WM**	627.00
83504	4	24(19x36)	.179″	**81F6009WA**	98.30	**81F6009WF**	369.00	**81F6009WM**	738.00
83506	6	24(19x36)	.206″	**81F6010WA**	125.00	**81F6010WF**	499.00	**81F6010WM**	998.00
83509	9	24(19x36)	.233″	**81F6011WA**	148.50	**81F6011WF**	674.50	**81F6011WM**	1349.00
83512	12	24(19x36)	.256″	**81F6012WA**	183.00	**81F6012WF**	831.50	**81F6012WM**	1663.00
83515	15	24(19x36)	.280″	**81F6013WA**	209.65	**81F6013WF**	953.50	**81F6013WM**	1907.00
83519	19	24(19x36)	.294″	**81F6014WA**	226.40	**81F6014WF**	1211.00	**81F6014WM**	2422.00
83602	2	20(19x32)	.190″	**81F6046WA**	95.55	**81F6046WF**	358.00	**81F6046WM**	716.00
83603	3	20(19x32)	.198″	**81F6047WA**	103.75	**81F6047WF**	389.00	**81F6047WM**	778.00
83604	4	20(19x32)	.213″	**81F6048WA**	125.00	**81F6048WF**	476.50	**81F6048WM**	953.00
83609	9	20(19x32)	.248″	**81F6050WA**	196.50	**81F6050WF**	892.50	**81F6050WM**	1785.00
83612	12	20(19x32)	.283″	**81F6051WA**	241.95	**81F6051WF**	1102.50	**81F6051WM**	2205.00
83615	15	20(19x32)	.314″	**81F6147WA**	330.00	**81F6147WF**	1495.00	**81F6147WM**	2990.00
83619	19	20(19x32)	.368″	**81F6148WA**	393.00	**81F6148WF**	1785.00	**81F6148WM**	3570.00
83702	2	16(19x29)	.220″	**81F6060WA**	109.75	**81F6060WF**	412.00	**81F6060WM**	824.00
83703	3	16(19x29)	.230″	**81F6061WA**	125.00	**81F6061WF**	499.50	**81F6061WM**	999.00
83704	4	16(19x29)	.249″	**81F6062WA**	129.00	**81F6062WF**	586.50	**81F6062WM**	1173.00
83706	6	16(19x29)	.293″	**81F6063WA**	175.60	**81F6063WF**	797.50	**81F6063WM**	1595.50
83709	9	16(19x29)	.338″	**81F6064WA**	233.95	**81F6064WF**	1063.50	**81F6064WM**	2127.00
83712	12	16(19x29)	.396″	**81F6065WA**	328.25	**81F6065WF**	1492.50	**81F6065WM**	2985.00
83715	15	16(19x29)	.437″	**81F6066WA**	398.85	**81F6066WF**	1812.50	**81F6066WM**	3625.00
83719	19	16(19x29)	.459″	**81F6067WA**	467.55	**81F6067WF**	2122.50	**81F6067WM**	4245.00
83802	2	12(7x30)	.343″	**81F6068WA**	166.35	**81F6068WF**	756.00	.....	.....
83803	3	12(7x30)	.361″	**81F6069WA**	236.25	**81F6069WF**	1074.00	.....	.....
83804	4	12(7x30)	.412″	**81F6070WA**	314.25	**81F6070WF**	1427.50	.....	.....
83806	6	12(7x30)	.486″	**81F6071WA**	405.00	**81F6071WF**	1842.00	.....	.....

TAGT

High Temperature Appliance Lead Wire

Application: Internal wiring of domestic, commercial and industrial heating and cooking equipment and appliance for both damp and dry application. The insulation provides an excellent, high dielectric, high temperature lead wire having flexibility and strippability coupled with abrasion, chemical and moisture resistance not generally found in appliance wire.

Listing: Underwriters' Laboratories Inc. and by Canadian Standard Association as Type TAGT for 250°C continuous operation at 600 volts.

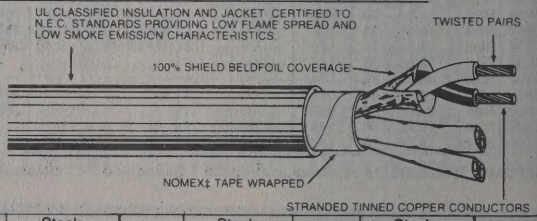
Type	AWG Stranding	Insul. Thick.	Nom. O.D.	Stock No.	100′	Stock No.	500′
83061	18(16x.010)	.030	.110	**81F6019WA**	73.45	**81F6019WF**	275.00
83062	16(26x.010)	.030	.120	**81F6020WA**	75.55	**81F6020WF**	283.50
83063	14(41x.010)	.030	.140	**81F6021WA**	88.75	**81F6021WF**	332.50
83064	12(65x.010)	.030	.160	**81F6022WA**	107.85	**81F6022WF**	404.50
83065	10(105x.010)	.030	.185	**81F6023WA**	125.00	**81F6023WF**	538.50
83066	8(133x.0111)	.030	.230	**81F6024WA**	178.05	**81F6024WF**	806.50

13

PLENUM CABLE

Computer and Instrumentations

Because of its flame resistance and low smoke emission properties, the special compound used in Belden Plenum cable jackets and insulations has been accepted under the provisions of the National Electrical Code and is classified by Underwriters Laboratories Inc. eliminating the need for using conduit when installing cables in air plenums. Cuts installation costs by 30% to 50% or more. Resists aging, cracking and chemicals and retains excellent mechanical and dielectric properties. Recommended applications for NEC Article 725-2(b) signalling cable.


UL CLASSIFIED INSULATION AND JACKET CERTIFIED TO N.E.C. STANDARDS PROVIDING LOW FLAME SPREAD AND LOW SMOKE EMISSION CHARACTERISTICS
TWISTED PAIRS
100% SHIELD BELDFOIL COVERAGE
NOMEX‡ TAPE WRAPPED
STRANDED TINNED COPPER CONDUCTORS

Type	AWG Stranding	Nom. O.D.	Nom. Imp.	Shield Cove.	RG No.	Jan Spec.	Lb. 1000	Stock No.	100′	Stock No.	500′	Stock No.	1000′
88240	20 Solid	.182	53.5	95%	RG-58 U	C-17A	31.7	**36F2160WA**	125.00	**36F2160WF**	519.50	**36F2160WM**	1039.00
88241	22 copperweld	.208	75	95%	RG-59 U	C17A	48.8	**36F2162WA**	150.90	**36F2162WF**	686.00	**36F2162WM**	1372.00
89269	22 Solid	.222	93	95%	RG-62A U	—	46.9	**36F2163WA**	120.15	**36F2163WF**	450.00	**36F2163WM**	900.00

Type	AWG Stranding	Shield Coverage	Nom. Imp. Ohms	Nom. O.D.	Lb./ 1000	Stock No.	100′	Stock No.	500′	Stock No.	1000′
89272	20(7x28)	93%	78	.220	49.8	**36F2164WA**	125.00	**36F2164WF**	547.50	**36F2164WM**	1095.00
89207	20(7x28)	96%	100	.294	85.1	**37F5018WA**	280.50	**37F5018WF**	1275.00	**37F5018WM**	2550.00

Type	No. Cond.	AWG	Shield	Nom. O.D.	Work Volt	Stock No.	100′	Stock No.	500′	Stock No.	1000′
88442	2	22-2	No	.157	—	**36F2165WA**	59.15	**36F2165WF**	220.50	**36F2165WM**	441.00
89740	2	18-2	No	.194	—	**37F5019WA**	79.55	**37F5019WF**	298.00	**37F5019WM**	596.00
88641	2	—	Yes	.135	—	**37F5020WA**	54.05	**37F5020WF**	202.50	**37F5020WM**	405.00
88761	2	22STRD	Yes	.150	—	**3755021WA**	61.25	**3755021WF**	229.28	**37F5021WM**	458.55
88760	2	18STRD	Yes	.196	—	**3672166WA**	82.10	**3672166WF**	307.50	**3672166WM**	615.00
88444	4	22(7x30)	No	.175	—	**36F2167WA**	83.30	**36F2167WF**	312.00	**36F2167WM**	624.00
88489	4	18(19x30)	No	.201	—	**37F5022WA**	113.20	**37F5022WF**	424.50	**37F5022WM**	849.00
89418	4	18(19x30)	Yes	.201	—	**37F5023WA**	119.75	**37F2023WF**	448.50	**37F5023WM**	897.00
88723	4(2 Pair)	22(7x30)	Yes	.80	—	**36F2168WA**	91.85	**36F2168WF**	344.50	**36F2168WM**	689.00
88777	4(2 Pair)	22(7x30)	Yes	.260	—	**36F2169WA**	125.00	**36F2169WF**	522.00	**36F2169WM**	1044.00
89503	3	24(7x32)	Yes	.244	—	**37F5024WA**	115.15	**37F5024WF**	431.50	**37F5024WM**	863.00
88741	2	22(7x30)	No	.248	—	**37F5025WA**	1102.10	**37F5025WF**	382.50	**37F5025WM**	765.00

Thermocouple WIRE & EXTENSION WIRE

BELDEN

BY MILI BRIDE

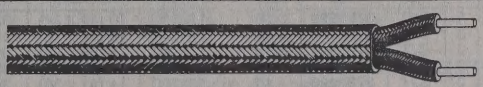
A thermocouple is the joining of two disimilar metal conductors. Voltage is generated when there is a temperature change at the junction of the two conductors. The voltage is transmitted to a calibrated meter which moniters the temperature changes. The most common use for thermocouple is process instrumentation where temperature monitoring is critical.

FEP TEFLON-DUPLEX UNSHIELDED WIRE

Trade Number	Type	No. of Cond.	AWG	Stock No.	100'	Stock No.	500'	Stock No.	1000'
83900	J	2	20 Solid	81F6026WA	79.20	81F6026WF	296.50	81F6026WM	593.00
83905	K	2	20 Solid	81F6027WA	98.30	81F6027WF	367.50	81F6027WM	735.00
83910	T	2	20 Solid	81F6028WA	76.45	81F6028WF	287.50	81F6028WM	575.00
83915	E	2	20 Solid	81F6029WA	95.20	81F6029WF	357.00	81F6029WM	714.00

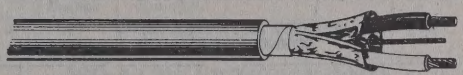
GLASS BRAID-DUPLEX UNSHIELDED WIRE

Trade Number	Type	No. of Cond.	AWG	Stock No.	100'	Stock No.	500'	Stock No.	1000'
83901	J	2	20 Solid	81F6030WA	104.10	81F6030WF	394.00	81F6030WM	788.00
83906	K	2	20 Solid	81F6031WA	125.00	81F6031WF	472.50	81F6031WM	945.00
83911	T	2	20 Solid	81F6032WA	103.75	81F6032WF	389.00	81F6032WM	778.00
83916	E	2	20 Solid	81F6033WA	125.00	81F6033WF	499.50	81F6033WM	999.00



FEP TEFLON—DUPLEX UNSHIELDED EXTENSION WIRE

Trade Number	Type	No. of Cond.	AWG	Stock No.	100'	Stock No.	500'	Stock No.	1000'
83930	JX	2	20, (7x28)	.....		81F6034WF	351.00	81F6034WM	702.00
83931	JX	2	16 Solid	.....		81F6035WF	392.50	81F6035WM	785.00
83932	KX	2	20 Solid	.....		81F6036WF	328.50	81F6036WM	657.00
83933	KX	2	16 Solid	.....		81F6037WF	526.50	81F6037WM	1053.00
83934	TX	2	20 Solid	.....		81F6038WF	278.00	81F6038WM	556.00
83935	TX	2	16 Solid	.....		81F6039WF	423.00	81F6039WM	846.00



FEP TEFLON—TWISTED & SHIELDED EXTENSION WIRE

Trade Number	Type	No. of Cond.	AWG	Stock No.	100'	Stock No.	500'	Stock No.	1000'
83950	JX	2	20 (7x28)	.....		81F6040WF	375.00	81F6040WM	750.00
83951	JX	2	16 (7x24)	.....		81F6041WF	537.00	81F6041WM	1074.00
83952	KX	2	20 (7x28)	.....		81F6042WF	470.50	81F6042WM	941.00
83953	KX	2	16 (7x24)	.....		81F6043WF	671.00	81F6043WM	1342.00
83954	TX	2	20 (7x28)	.....		81F6044WF	346.50	81F6044WM	693.00
83955	EX	2	20 (7x28)	.....		81F6045WF	451.50	81F6045WM	903.00

	Grade	Extension	Positive Wire	Negative Wires	Grade	Extension	Positive Wires	Negative Wires
	J	JX	Iron	Constantan	T	TX	Copper	Constantan
	K	KX	Chromel	Alumel	E	EX	Chromel	Constantan

	Insulation	Jacket	Temp. °C (°F) Cont.	Inter.	Flame	Mechanical Properties Abrasion Res.	Flexibility	Chemical Properties Solvents	Acids	Bases	Moisture
General Characteristics of Thermocouple Wire Insulations	Teflon (FEP)†	Teflon (FEP)†	205 (400)	—	E	E	G	E	E	E	E
	Glass Braid with Silicone	Glass Braid with Silicone	482 (900)	538 (1000—	E	F/G	G	E	E	E	F/G (to 204° C)
	Tefzel†	Tefzel†	150 (302)	—	E	E	F	E	E	E	E

Trademark, du Pont Co. E = Excellent G = Good F = Fair P = Poor.

	ISA Symbol	Temperature Range °F	Limits of Error Standard	Jacket Color Overall	Insulation Color Code Pos. (+)	Neg. (−)	Conductor Identification Positive (+)	Negative (−)
Identifying Thermocouple Wire & Limits of Error	J	32 to 530 ±.400	±4° F ±¾%	brown††	white	red	magnetic	nonmagnetic
	T	−300 to −75 −150 to −75 −75 to +200 200 to 700	 ±2% ±1½F ±¾%	brown††	blue	red	copper color	nonmagnetic
	K	32 to 530 530 to 2300	±4° F ±¾%	brown††	yellow	red	nonmagnetic	magnetic
	E	32 to 600 600 to 1600	±3° F ±½%	brown††	purple	red	nonmagnetic	silver color, nonmagnetic
	JX TX Kx EX	0 to 400 −75 to 200 0 to 400 0 to 400	±4° F ±1½° F ±4° F ±3° F	black blue yellow purple	white blue yellow purple	red red red red		

Limits of error per ASA C96.1. Limits shown do not include system or installation error.
Percentages refer to the temperature being measured.
††A tracer of the positive wire color on fiberglass jacketed wires indicates the calibration, except J calbration which has a black tracer.

BELDEN CORDS

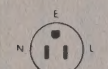
ELECTRONIC CORDS, PORTABLE CORDAGE

UL ELECTRICAL RATINGS

18 AWG Cond.	1250 Watts 10A-125V	16 AWG Cond.	1625 Watts 13A-125V	14 AWG Cond.	1875 Watts 15A-125V

The concept of shielding the power cord has proven highly effective as a means of minimizing the error-generating effects of ambient electrical interference. This is an important benefit where interference-sensitive electronic devices such as computers and laboratory test equipment are concerned. It's been demonstrated that shielded cords can improve performance in applications like these and cut costs at the same time. For example, when substituted for conventional power cords such as those used in microprocessing equipment and computer systems, shielded cords have proven that they can reduce spurious electrical signals and cut manufacturing costs by eliminating the need for some or all noise filters. In one test a 60 db noise reduction was obtained simply by replacing an ordinary cord with a Belden shielded cord.

3 CONDUCTOR ELECTRONIC LINE CORDS



NEMA 5-15P

MOLDED VINYL GROUNDING PLUG PH-2908

OUTER JACKET STRIPPED 2" CONDUCTORS STRIPPED AND TWISTED ⅝"

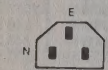
SHIELDED

Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17740C	18 (41 x 34)	.270"	6' 6"	2	SVT	37F3289	3.16
17741C	18 (41 x 34)	.270"	9' 8"	3	SVT	37F3290	4.01
17612C	18 (41 x 34)	.337"	6' 6"	2	SJT	37F3291	3.59
17613C	18 (41 x 34)	.337"	9' 8"	3	SJT	37F3292	4.65
17614C	16 (65 x 34)	.367"	6' 6"	2	SJT	37F3293	4.10
17615C	16 (65 x 34)	.367"	9' 8"	3	SJT	37F3294	5.35
17616C	14 (41 x 30)	.406"	6' 6"	2	SJT	37F3295	4.66
17617C	14 (41 x 30)	.406"	9' 8"	3	SJT	37F3296	6.37
17650C	18 (41 x 34)	.302"	6' 7"	2	SVT	81F6104	5.68
17651C	18 (41 x 34)	.302"	9' 10"	3	SVT	81F6105	7.03

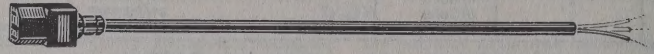
UNSHIELDED

Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17512C	18 (41 x 34)	.328"	6' 6"	2	SJT	37F3297	1.94
17513C	18 (41 x 34)	.328"	9' 8"	3	SJT	37F3298	2.39
17514C	16 (65 x 34)	.353"	6' 6"	2	SJT	37F3299	2.33
17515C	16 (65 x 34)	.353"	9' 8"	3	SJT	37F3300	3.03
17516C	14 (41 x 30)	.385"	6' 6"	2	SJT	37F3301	2.95
17517C	14 (41 x 30)	.385"	9' 8"	3	SJT	37F3302	3.96
17534C	18 (41 x 34)	.302"	6' 6"	2	SVT	81F6098	1.65
17535C	18 (41 x 34)	.302"	9' 8"	3	SVT	81F6099	2.01

CEE COLOR CODED



CONTACT VIEW



MOLDED VINYL GROUNDING CONNECTOR SPH-386

OUTER JACKET STRIPPED 2" CONDUCTORS STRIPPED AND TWISTED ⅝"

SHIELDED

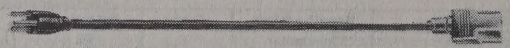
Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17749C	18 (41 x 34)	.270"	6' 6"	2	SVT	37F3303	3.77
17750C	18 (41 x 34)	.270"	9' 8"	3	SVT	37F3304	4.63
17618C	18 (41 x 34)	.337"	6' 6"	2	SJT	37F3305	4.17
17619C	18 (41 x 34)	.337"	9' 8"	3	SJT	37F3306	5.30
17620C	16 (65 x 34)	.367"	6' 6"	2	SJT	37F3307	4.65
17621C	16 (65 x 34)	.367"	9' 8"	3	SJT	37F3308	6.01

UNSHIELDED

Type	AWG and Stranding	O.D.	Length ft.	Length m	UL Type	Stock No.	NET
17254B	18 (41 x 34)	.253"	7' 8"	2.29	SVT	36F890	2.21
17518C	18 (41 x 34)	.328"	6' 6"	2	SJT	37F3311	2.34
17519C	18 (41 x 34)	.328"	9' 8"	3	SJT	37F3312	2.89
17520C	16 (65 x 34)	.353"	6' 6"	2	SJT	37F3313	2.68
17521C	16 (65 x 34)	.353"	9' 8"	3	SJT	37F3314	3.38

CEE COLOR CODED

3 CONDUCTOR SPECIAL USE ELECTRONIC CORDS



CONTACT VIEW

NEMA 5-15P MOLDED VINYL GROUNDING PLUG PH-2809

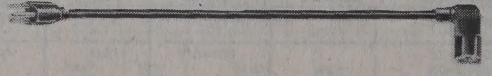
MOLDED VINYL GROUNDING CONNECTOR SPH-386

BELFOIL SHIELDED

17742C	18 (41 x 34)	.270"	6' 7"	2	SVT	37F3331	4.36
17743C	18 (41 x 34)	.270"	9' 10"	3	SVT	37F3332	5.21
17600C	18 (41 x 34)	.337"	6' 7"	2	SJT	37F3333	4.79
17601C	18 (41 x 34)	.337"	9' 10"	3	SJT	37F3334	5.85
17602C	16 (65 x 34)	.367"	6' 7"	2	SJT	37F3335	5.30
17603C	16 (65 x 34)	.367"	9' 10"	3	SJT	37F3336	6.55
17604C	14 (41 x 30)	.406"	6' 7"	2	SJT	37F3337	5.86
17605C	14 (41 x 30)	.406"	9' 10"	3	SJT	37F3338	7.57
17660C*	18 (41 x 34)	.302"	6' 7"	2	SVT	81F6106	7.03
17661C*	18 (41 x 34)	.302"	9' 10"	3	SVT	81F6107	8.37

17251B	18 (41 x 34)	.253"	7' 6"	2.29	SVT	36F889	2.56
17500C	18 (41 x 34)	.328"	6' 7"	2	SJT	37F3339	2.82
17501C	18 (41 x 34)	.328"	9' 10"	3	SJT	37F3340	3.27
17502C	16 (65 x 34)	.353"	6' 7"	2	SJT	37F3341	3.21
17503C	16 (65 x 34)	.353"	9' 10"	3	SJT	37F3342	3.91
17504C	14 (41 x 30)	.385"	6' 7"	2	SJT	37F3343	3.83
17505C	14 (41 x 30)	.385"	9' 10"	3	SJT	37F3344	4.84
17316C	18 (16 x 30)	.302"	6'		SJT	81F6096	2.68
17318C	18 (16 x 30)	.302"	8'		SJT	81F6097	2.97

NEMA 5-15P



NEMA 5-15P

NEMA 5-15P MOLDED VINYL GROUNDING PLUG PH-2908

MOLDED VINYL RIGHT ANGLE GROUNDING FEMALE CONNECTOR SPH-390

CONTACT VIEW

BELFOIL SHIELDED

17745C	18 (41 x 34)	.270"	6' 7"	2	SVT	37F3345	4.52
17746C	18 (41 x 34)	.270"	9' 10"	3	SVT	37F3346	5.37
17606C	18 (41 x 34)	.337"	6' 7"	2	SJT	37F3347	4.95
17607C	18 (41 x 34)	.337"	9' 10"	3	SJT	37F3348	6.01
17608C	16 (65 x 34)	.367"	6' 7"	2	SJT	37F3349	5.46
17609C	16 (65 x 34)	.367"	9' 10"	3	SJT	37F3350	6.71

17506C	18 (41 x 34)	.328"	6' 7"	2	SJT	37F3353	2.89
17507C	18 (41 x 34)	.328"	9' 10"	3	SJT	37F3354	3.43
17508C	16 (65 x 34)	.353"	6' 7"	2	SJT	37F3355	3.37
17509C	16 (65 x 34)	.353"	9' 10"	3	SJT	37F3356	4.07

*CEE—COLOR CODED

* DUOFOIL—BRAID SHIELD

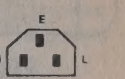
ELECTRICAL POWER CORDS, CORD SETS AND EXTENSION CORDS MEET O.S.H.A. REQUIREMENTS

3 CONDUCTOR SPECIAL USE ELECTRONIC CORDS

PIN VIEW

MOLDED VINYL GROUNDING MALE PLUG SPH-388

MOLDED VINYL GROUNDING FEMALE CONNECTOR SPH-386



CONTACT VIEW

SHIELDED

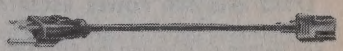
Type	AWG and Stranding	O.D.	Length ft., in.	Length m	U/L Type	Stk. No.	Net
17753C	18 (41 × 34)	.270	3′ 3″	1	SVT	**37F3000**	3.83
17625C	16 (65 × 34)	.367	3′ 3″	1	SJT	**37F3002**	4.25

UNSHIELDED

Type	AWG and Stranding	O.D.	Length ft., in.	Length m	U/L Type	Stk. No.	Net
17524C	18 (41 × 34)	.328	3′ 3″	1	SJT	**37F3004**	2.55
17525C	16 (65 × 34)	.353	3′ 3″	1	SJT	**37F3005**	4.51

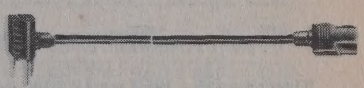
3 CONDUCTOR DETACHABLE POWER SUPPLY CORDS 6A, 250V

Type	AWG and Stranding	Nom. O.D.	Length ft., in.	Length m	U/L Type	Rating	Color	Stk. No.	Net
17566	18 (41 x 34)	.253	6′ 7″	2	SVT	1250 Watts 6A-250V	Black	**81F6100**	2.63
17567	18 (41 x 34)	.253	9′ 10″	3	SVT	1250 Watts 6A-250V	Black	**81F6101**	2.98
17568	18 (41 x 34)	.315	6′ 7″	2	SJT	1250 Watts 6A-250V	Black	**81F6102**	2.90
17569	18 (41 x 34)	.315	9′ 10″	3	SJT	1250 Watts 6A-250V	Black	**81F6103**	3.35



3 CONDUCTOR DETACHABLE AND STACKABLE POWER SUPPLY CORDS 6A, 250V *

Type	AWG and Stranding	Nom. O.D.	Length ft., in.	Length m	U/L Type	Rating	Color	Stk. No.	Net
17666	18 (41 x 34)	.270	6′ 7″	2	SVT Beldfoil	1250 Watts 10A-125V	Black	**81F6108**	5.60
17667	18 (41 x 34)	.270	9′ 10″	3	SVT Beldfoil	1250 Watts 10A-125V	Black	**81F6109**	6.12
17668	18 (41 x 34)	.340	6′ 7″	2	SJT Beldfoil	1250 Watts 10A-125V	Black	**81F6110**	5.88
17669	18 (41 x 34)	.340	9′ 10″	3	SJT Beldfoil	1250 Watts 10A-125V	Black	**81F6111**	6.50



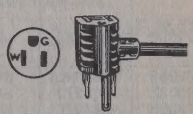
*Only U/L -Listed

ADD-A-LINE EXTENSION CORD

Added convenience of an outlet in the adapter plug so you can Add-A-Line.

Type	Stk. No.	Lgth. Ft.	AWG and Stranding	U/L Type	Spec. Color	Each
17462S	**36F965**	8	18 (16 x 30)	SJT	Black	4.84
17463S	**36F1257**	15	18 (16 x 30)	SJT	Black	6.55

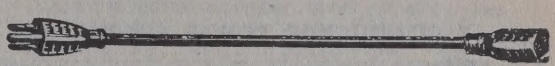
10 AMP-250V-1250 WATTS
3 COND. ADD-A-LINE EXTENSION CORDS



HEAVY DUTY EXTENSION CORD

For use with heavy-duty floor maintenance equipment and other appliances requiring grounding.

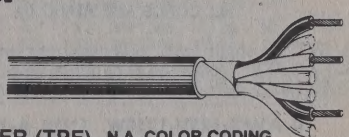
17460S	**36F1039**	10	18 (16 x 30)	SJ	Black	4.79
17461S	**36F964**	10	16 (26 x 30)	SJ	Black	5.32



HOSPITAL GRADE PORTABLE CORDAGE

Specify color; brown, blue or gray.

Type	AWG	Nom. O.D.	No. of Cond.	Stk. No.	100′	Stk. No.	500′	Stk. No.	1000′
9997	18 (41 x 34)	.430	3	**37F3057WA**	85.00	**37F3057WF**	303.00	**37F3057WM**	606.00
9998	16 (65 x 34)	.475	3	**37F3058WA**	101.75	**37F3058WF**	363.75	**37F3058WM**	727.50

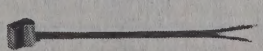


3 CONDUCTOR POWER SUPPLY CORD THERMOPLASTIC ELASTOMER (TPE) N.A. COLOR CODING

Type	AWG and Stranding	Nom. O.D.	Length ft., in.	Length m	U/L Type	Rating	Color	Stk. No.	Net
17316	18 (16 × 30)	.328	6′	1.83	SJE/ SJTE	1250 Watts 10A-125V	Blk.	**81F6096**	2.68
17318	18 (16 × 30)	.328	8′	2.44	SJE/ SJTE	1250 Watts 10A-125V	Blk.	**81F6097**	3.21

TYPE SPT COOLING FAN CORDS

Cooling fan cords designed with plug end at a 45° angle to fit contour of most cooling fans with terminal tabs perpendicular to air flow direction—fits terminal tabs ranging from .019-025″ thickness x 110 x 120″ width to 360″ length on 9/16″ centers.

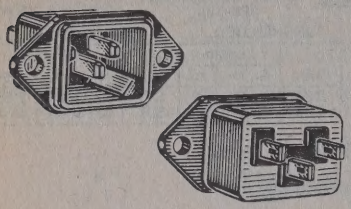


Type	AWG and Stranding	Nom. O.D.	Length ft.	Length m	U/L Type	Rating	Stk. No.	Net
17902	18	110	2′	.6	SPT-1	105°C	**37F5003**	.80
17903	(41 × 34)	×	3′	.9			**37F5004**	.96
17904	bare	207	4′	1.2			**37F5005**	1.12
17905	copper		5′	1.5			**37F5006**	1.28
17906			6′	1.8			**37F5007**	1.44

Acceptable for use with Pamotor, Rotron, IMC Fans.

ELECTRICAL POWER CORDS, CORD SETS AND EXTENSION CORDS MEET O.S.H.A. REQUIREMENTS

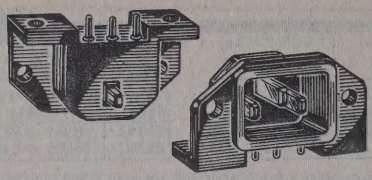
RECEPTACLES



17253 RECESSED POWER RECEPTACLE

The recessed power receptacle mates with any Belden cord having the SPH-386, SPH-390, or SPH-391 molded vinyl connector. May be used for equipment in the U.S., Canada and European countries. Rating: 6 AMPS, 250 VAC.

81F6090. NET ..... .80

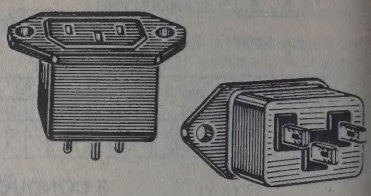


17265 AC RECEPTACLE

6A, 250VAC. SPH-386 390 391

Primary power receptacle with 6A, 250V rtng. for U.S. and European equipment. 3-pin type grounding. 2, .136" dia. holes allow fastening to PC board; 2 more .136" dia. holes allow fastening to panel or chassis, PC pins have ⅛" projection to fit thru PC board. Ground pin can connect to lug on rear of housing. Mates with connectors SPH-386, 390 & 391.

37F3022. NET 1.04



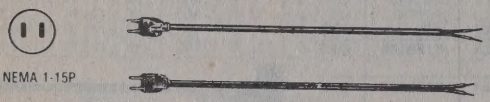
17267 AC RECEPTACLE

15A, 250VAC. SPH-388

Primary power receptacle with rating for U.S.A. and European equipment. Grounding, 3-contact type; front mount. Mounts with 2, #5 screws or ⅛" dia. rivets (not supplied). U.L. listed; C. S.A. Mates with Belden molded vinyl plugs SPH-388, SPH-388C and SPH-388D. Rating: 15 AMPS, 125 VAC—6 AMPS, 250VAC.

37F3023. NET 1.04

2 CONDUCTOR POWER SUPPLY

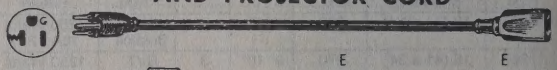


NEMA 1-15P

10 amps.—125v 1250 watts (*) 13A—125v 1625 watts.

Mfr. No.	Stk. No.	Lgth. ft.	AWG & Stranding	U/L Type	Specify Color	Each
17106B	**36F950**	6	18(41x34)	SPT-1	Brown, Gray, Ivory	.88
17109B	**36F953**	9	18(41x34)	SPT-1	Brown, White	1.16
17205B	**36F840**	6	18(41x34)	SVT	Black	1.17
17308B	**36F973**	8	18(16-30)	SJ	Black	2.21
17328B*	**36F975**	8	16(26x30)	SJ	Black	2.68

3-CONDUCTOR BUSINESS MACHINE AND PROJECTOR CORD



NEMA 5-15P

17250

17280

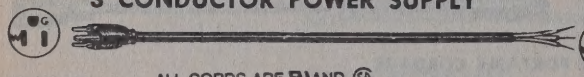
17952

Mfr. No.	Stock No.	Lgth. ft.	AWG & Stranding	U/L Type	Spec. Color	Each
17250B†	**36F1255**	7½	18 (41x34)	SVT	Black	1.17
	Recessed 3 blade con. for 17250.					
EAC302	**36F1256**					1.85
17255B	**36F888**	7½	16 (65x34)	SJT	Black	3.24
17952S	**36F986**	7½	18 (41x34)	SVT	Gray	3.35
17280S#	**36F987**	7½	18 (41x34)	SVT	Gray	3.01

(#) CEE Color Coding

13

3 CONDUCTOR POWER SUPPLY



NEMA 5-15P

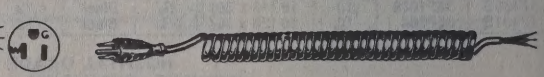
ALL CORDS ARE UL AND CSA

SV & SVT for small tools, business machines and instruments. SJ, SJT & SJO for tools such as sanders, saws, grinders and polishers. S for heavy duty power tools and equipment.

10 AMPS-125V-1250W (†)13 A-125V-1625W (*)15A-125V-1875W

Mfr. No.	Stock No.	Lgth. ft.	AWG & Stranding	U/L Type	Color	Each
17236B	**36F1037**	6	18 (41x34)	SV	Black	2.31
17238B	**36F1038**	8	18 (41x34)	SV	Black	2.68
17237B	**36F1821**	6	18 (41x34)	SVT	Gray	1.54
17239B	**36F1822**	8	18 (41x34)	SVT	Gray	1.80
17406B	**36F842**	6	18 (16x30)	SJ	Black	2.63
17405B	**36F957**	6	18 (16x30)	SJT	Gray	1.52
17408B	**36F857**	8	18 (16x30)	SJ	Black	2.92
17407B	**36F958**	8	18 (16x30)	SJT	Gray	2.00
17409B	**36F959**	8	18 (16x30)	SJO	Black	3.06
17412B	**36F960**	12	18 (41x34)	SJ	Black	4.00
17419B†	**36F843**	9	16 (65x34)	SJ	Black	3.88
17422B†	**36F961**	12	16 (65x34)	SJ	Black	4.93
17425S†	**36F849**	15	16 (65x34)	SJ	Black	6.92
17276C†	**36F1251**	20	16 (26x30)	SJT	Gray	5.20
40403C†	**36F1252**	32	16 (26x30)	SJT	Gray	7.30
17629B*	**36F1823**	9	14 (41x30)	S	Black	6.37
17635S*	**36F1253**	15	14 (41x30)	S	Black	11.17

3-CONDUCTOR RETRACTILE CORDS



NEMA 5-15P

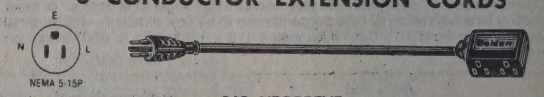
17447

13 AMPS-125 V-1625 WATTS (†)10 AMPS-125V-1250 WATTS RETRACTILE CORDS

Stay neat, allow free movement of the appliance or tool and prevent accidents.

Mfr. No.	Stock No.	Lgth. ft.	AWG & Stranding	U/L Type	Spec. Color	Each
17447S†	**36F844**	1-6	18 (41x34)	SJO	Black	5.12
17448S	**36F845**	1-6	16 (65x34)	SJO	Black	5.46
17449S	**36F1250**	2-12	16 (65x34)	SJO	Black	7.60

3 CONDUCTOR EXTENSION CORDS



NEMA 5-15P

SJO NEOPRENE

17475S	**37F3024**	25	16 (26x30)	SJO	Black	12.87
17476S	**37F3025**	50	16 (26x30)	SJO	Black	21.04

SJT VINYL

17675S	**37F3026**	25	14 (41x30)	SJT	Black	22.36

RUBBER-VINYL MULTICONDUCTOR PORTABLE CORDAGE—300V —60°C

ypes 8462 and 8888 are standard household "lamp cord;" other pes have color-coded rubber insulation, black rubber jacket erall. All conductors are of stranded copper. *Rubber insulated, in brown, white or black—specify color. †Vinyl insulation, in brown, white or grey—specify color.

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	lb./ 100′	Stock Number	100′	Stock Number	250′	Stock Number	500′	Stock Number	1000′
8462*	SP-1	18-2	.223″	1.67	**36F047WA**	19.50	**36F047WE**	44.50	.....	.....	.....	.....
8888†	SPT-1	18-2	.207″	2.0	**36F048WA**	17.05	**36F048WE**	36.60	.....	.....	.....	.....
8452	SV	18-2	.245″	3.4	**36F030WA**	29.15	**36F030WE**	64.10	**36F030WF**	125.00	**36F030WM**	211.05
8453	SV	18-3	.265″	4.8	**36F031WA**	39.60	.....	.....	**36F031WF**	152.50	.....	.....
8454	.....	18-4	.265″	4.88	**36F032WA**	44.50	.....	.....	**36F032WF**	166.90	**36F032WM**	333.75
8478	SJ	18-2	.298″	5.1	**36F1811WA**	31.85	**36F049WE**	75.10	.....	.....	**36F181WM**	246.75
8472	SJ	16-2	.325″	6.2	**36F049WA**	43.95	**36F049WE**	102.05	.....	.....	.....	.....
8479	.....	14-3	.380″	9.6	**36F1352WA**	64.35	**36F1352WE**	129.15	.....	.....	.....	.....

Type	AWG Stranding	Nom. O.D. & Color	Lb./ 250′	Stock No.	250″ Length 1-3	4-19	20-Up
SPT-1 PLASTIC PARALLEL LAMP CORD							
19122	2-18 (41x34)	.110 x .250 Brown Black	6.0	**37F3061 37F3062**	20.33	18.92	17.52
SPT-2 PLASTIC PARALLEL LAMP CORD 300V-60°C							
19123	2-18 (41 x 34)	.144 x .296 Brown Black	8.5	**37F3063 37F3064**	26.60	24.77	22.92
19126	2-16 (65 x 34)	.155 x .314 Brown Black	11.0	**37F3065 36F1820**	35.35	32.90	30.44
SP-1 RUBBER PARALLEL LAMP CORD 300V-60°C							
19115	2-18 (41 x 34)	.123 x .277 Brown Black	6.5	**36F161 36F160**	27.67	25.75	23.83
HPN-2 CONDUCTOR-NEOPRENE HEATER CORD							
19328	2-18 (41 x 34)	.140 x .276 Black	7.0	**37F3066**	37.67	35.05	32.44
19326	2-16 (65 x 34)	.152 x .300 Black	12.0	**37F3067**	49.77	46.32	42.87
SVT-2 CONDUCTOR-PLASTIC JACKET 300V-60°C Color Code-Black, White							
19140	2-18 (41 x 34)	.243 Black	10.0	**37F3068**	33.85	31.52	29.17
SVT-2 CONDUCTOR-RUBBER JACKET 300V-60°C Color Code-Black, White							
19120	2-18 (41 x 34)	.243 Black	10.0	**37F3069**	43.27	40.27	33.64
SJO-2 CONDUCTOR-NEOPRENE JACKET 300V-60°C (*) Flex							
19227	18 (16 x 30)*	.298 Black	13.5	**36F984**	56.79	52.85	48.92
19228	16 (26 x 30)*	.323 Black	17.5	**36F985**	68.89	64.12	59.33
SO-2 CONDUCTOR-NEOPRENE JACKET 600V-60°C							
19204	18 (41 x 34)	.386 Black	24.0	**36F1366**	91.65	85.29	78.93
19203	16 (65 x 34)	.401 Black	26.0	**36F1367**	106.45	99.07	91.68
19202	14 (41 x 30)	.528 Black	39.0	**36F1368**	167.27	155.67	144.07
19201	12 (65 x 30)	.599 Black	50.5	**37F3070**	233.73	217.52	201.30
SJT-3 CONDUCTOR-VINYL JACKET 300V-60°C							
19348	18 (41 x 34)	.328 Black	15.0	**36F1167**	59.59	55.45	51.33
19349	16 (65 x 34)	.353 Black	9.5	**36F1169**	73.13	68.05	62.98

All cordage is CSA except 19115 and 19351

Type	AWG Stranding	Nom. O.D.	Lb./ 250′	Stock No.	250″ Length 1-3	4-19	20-Up
SYT-3 CONDUCTOR-PLASTIC JACKET 300V-60°C							
19350	18 (41 x 34)	.253	10.5	**36F1172**	43.90	40.87	37.82
19351	17 (52 x 34)	.268	13.0	**36F1175**	51.13	47.58	44.04
SJ-3 CONDUCTOR-RUBBER JACKET 300V-60°C (*) Flex							
19129	18 (16 x 30)*	.328	17.5	**36F1372**	60.43	56.24	52.04
19130	16 (26 x 30)*	.353	21.0	**36F1373**	77.83	72.43	67.03
19125	18 (41 x 34)	.328	12.5	**37F3071**	65.47	60.93	56.39
S-3 CONDUCTOR-RUBBER JACKET 600V-60°C							
19109	18 (41 x 34)	.401	22.0	**36F1363**	82.43	76.72	70.99
19108	16 (65 x 34)	.426	27.0	**36F1364**	102.90	95.77	88.63
19107	14 (41 x 30)	.558	45.0	**36F1365**	166.50	154.95	143.40
19124	16 (65 x 34)	.353	21.0	**37F3072**	84.65	78.78	72.90
19106	12 (65 x 30)	.634	57.0	**37F3073**	222.49	207.05	191.62
19105	10 (105 x 30)	.689	74.0	**37F3074**	302.85	281.84	260.83
SJO-3 CONDUCTOR-NEOPRENE JACKET 300V-60°C (*) Flex							
19229	18 (16 x 30)*	.328	18.0	**36F1374**	70.40	65.53	60.74
19230	16 (26 x 30)*	.353	21.0	**36F1375**	90.50	84.23	77.95
SO-3 CONDUCTOR-NEOPRENE JACKET 600V-60°C							
19209	18 (41 x 34)	.401	23.0	**36F1369**	104.69	97.43	90.17
19208	16 (65 x 34)	.426	28.0	**36F1370**	128.93	119.99	111.04
19207	14 (41 x 30)	.558	48.0	**36F1371**	214.87	199.97	185.05
19206	12 (65 x 30)	.634	60.0	**36F3075**	285.45	265.64	245.84
19205	10 (105 x 30)	.689	70.0	**37F3076**	348.46	324.29	300.11
SJT-3 CONDUCTOR-PLASTIC JACKET 300V-60°C+UNSHIELDED CEE Color Code-Light Blue, Brown, Green/Yellow							
19352	3-18 (41 x 34)	.328	15.0	**37F3077**	59.59	55.45	51.33
19353	3-16 (65 x 34)	.353	19.0	**37F3078**	73.13	68.05	62.98
19354	3-14 (41 x 30)	.385	24.5	**37F3079**	85.13	79.23	73.32
19402	18 (41 x 34)	.253	10.5	**81F6016**	43.95	40.87	37.82
SJT-3 CONDUCTOR-PLASTIC JACKET 300V-60°C+SHIELDED CEE Color Code-Light Blue, Brown, Green/Yellow							
19362	3-18 (41 x 34)	.337	16.4	**37F3080**	72.55	67.52	62.48
19364	3-14 (65 x 34)	.406	25.6	**37F3082**	106.73	99.33	91.92
19401	18 (41 x 34)	.270	11.8	**81F6015**	72.55	67.52	62.48

Type	AWG Stranding	Nom. O.D.	Lb./200′	Stock No.	1-19	20-99	100-Up
SO-4 CONDUCTOR-NEOPRENE JACKET 600V-60°C 50′ Coil Color Code-Black, White Green, Red							
19217	4-14 (41 x 30)	.603	44	**37F3083**	50.12	46.64	43.16
19216	4-12 (65 x 30)	.690	60	**37F3084**	68.93	320.72	59.37

13

VOLTREX® brand Hook-up Wire & Power Cords

Voltrex hook-up wire is offered in three vinyl insulation styles: 300V-80°C 600V-105°C, and 1000V-80°C. Conductors are tinned copper, solid or stranded, or unitized stranded: bare copper strands with tin overcoat ("U" in table). Specify color and color no. when ordering. All colors are not available in all types. See stock color column.

COLOR CODING

1. Brown
2. Red
3. Orange
4. Yellow
5. Green
6. Light Blue
7. Violet
8. Gray
9. White
10. Black
11. Tan
12. Pink
13. Dark Blue
14. White/Black
15. White/Red
16. White/Green
17. White/Yellow
18. White/Blue
19. White/Brown
20. White/Orange
21. White/Gray
22. White/Violet

UL STYLE 1007 (CSA TYPE TR-64) 300V 80°C

Type	AWG and Stranding	Insul. Thick	Nom. O.D.	Stock Colors	Stock No.	100 Ft.	Stock No.	1000 Ft.	Stock No.	5000 Ft.
VW-1007-22B	22 (7/30)	.016	.062	2, 4, 5, 9, 10	81N6694WA	5.07	81N6694WM	40.80	.....	.....
VW-1007-20B	20 (7/28)	.016	.069	2, 5, 9, 10	81N6695WA	7.05	81N6695WM	48.80	.....	.....
VW-1007-20BU	20 (7/28) U	.016	.068	2, 5, 9, 10, 13	.....	.....	.....	.....	81N6696WX	224.75
VW-1007-18E	18 (16/30)	.016	.079	1-5, 9, 10, 13	81N6697WA	7.65	81N6697WM	55.55	.....	.....
VW-1007-16G	16 (26/30)	.016	.092	2, 9, 10	81N6698WA	10.75	81N6698WM	83.55	.....	.....

UL STYLE 1015 (CSA TYPE TEW) 600V 105°C

VW-1015-24A	24 (SOL)	.031	.083	2,4,5, 8-10, 13	.....	.....	.....	.....	81N6684WX	125.75
VW-1015-22BU	22 (7/30) U	.031	.093	2, 5, 9, 10	.....	.....	.....	.....	81N6685WX	192.00
VW-1015-22B	22 (7/30)	.031	.093	2, 9, 10, 13	81N6686WA	6.40	81N6686WM	46.25	81N6686WX	184.00
VW-1015-22A	22 (SOL)	.031	.088	2, 5, 9	.....	.....	.....	.....	81N6687WX	154.75
VW-1015-20D	20 (10/30)	.031	.100	1-5, 9, 10, 13	81N6688WA	7.90	81N6688WM	58.45	.....	.....
VW-1015-18E	18 (16/30)	.031	.110	1-5, 9, 10, 13	81N6693WA	9.75	81N6693WM	69.75	81N6693WT*	253.40
VW-1015-16G	16 (26/30)	.031	.123	2, 4, 5, 9, 10, 13	81N6691WA	12.05	81N6691WM	101.75	81N6691WT*	337.20
VW-1015-14J	14 (41/30)	.031	.138	10, 13	81N6689WA	17.20	.....	.....	.....	.....
VW-1015-12L	12 (65/30)	.031	.158	10	81N6690WA	28.40	.....	.....	.....	.....
VW-1015-10L	10 (65/28)	.031	.183	2, 10	81N6693WA	3.95	.....	.....	.....	.....

MIL-W-76B TYPE MW-VINYL 1000V 80°C *4000 FT SPOOL

VW-76B-MW-24B	24 (7/32)	.017	.058	1,2,3,5, 9, 10	81N6675WA	5.65	81N6675WM	37.15	.....	.....
VW-76B-MW-22A	22 (SOL)	.017	.059	1-10, 13	81N6676WA	5.35	81N6676WM	33.85	.....	.....
VW-76B-MW-22B	22 (7/30)	.017	.064	1-22	81N6677WA	6.30	81N6677WM	43.50	.....	.....
VW-76B-MW-20A	20 (SOL)	.017	.066	1-6, 9, 10	81N6678WA	6.35	81N6678WM	42.45	.....	.....
VW-76B-MW-20D	20 (10/30)	.017	.070	1-13, 18	81N6679WA	7.35	81N6679WM	49.50	.....	.....
VW-76B-MW-18E	18 (16/30)	.017	.080	1-22	81N6680WA	8.70	81N6680WM	65.20	.....	.....
VW-76B-MW-16G	16 (26/30)	.019	.098	1-10, 13	81N6681WA	12.30	81N6681WM	93.55	.....	.....
VW-76B-MW-14J	14 (41/30)	.020	.111	2-6, 9, 10	81N6682WA	17.30	81N6682WM	125.00	.....	.....
VW-76B-MW-12L	12 (65/30)	.020	.130	2, 5, 9, 10	81N6683WA	26.15	81N6683WM	173.25	.....	.....

VOLTREX 3 CONDUCTOR POWER SUPPLY CORDS

Round rubber (SJ & SV) or vinyl (SJT & SVT) power cordage with molded-on vinyl connectors. Available with standard or European (CEE) color coded conductors. All cords rated 125 Volts. AWG 18 cords rated 10 Amp, 1250 Watt. AWG 16 cords 13 Amp, 1625 Watt. AWG 14 cords 15 Amp, 1875 Watt.

CONDUCTOR COLOR CODES

Function	STD	CEE
L-Live	Blk	Brn
N-Neutral	Wht	Lt Blu
G-Ground	Grn	Grn/Yel

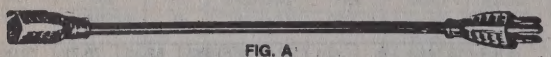


FIG. A

MOLDED VINYL GROUNDING RECEPTACLE FOR 5-15P PLUG

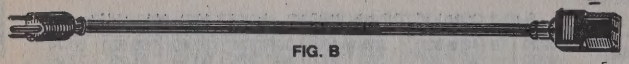


FIG. B

NEMA 5-15P MOLDED VINYL GROUNDING PLUG PH-2908

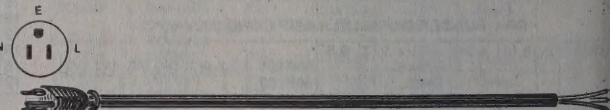


FIG. C

NEMA 5-15P MOLDED VINYL GROUNDING PLUG

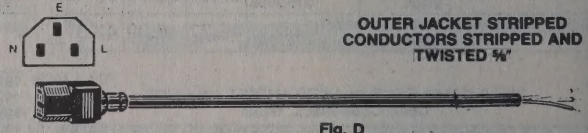


Fig. D

MOLDED VINYL GROUNDING CONNECTOR

OUTER JACKET STRIPPED
CONDUCTORS STRIPPED AND TWISTED ⅝"

Type	Fig.	Length Ft.	Length M.	Conductor AWG (Str)	Conductor Color Code	Cord Type	Cord O.D.	Color	Stock No.	Net 1-24	Net 25-up
VCX-10131-SB	A	10	3.05	18(16/30)	STD	SJ	.328	Black	81N6706	4.79	4.28
VCX-13131-SB	A	10	3.05	16(26/30)	STD	SJ	.353	Black	81N6707	5.32	4.75
VCB-40223-SB	B	7' 6"	2.29	18(41/34)	STD	SVT	.253	Black	81N6708	2.56	2.29
VCB-40223-CB	B	7' 6"	2.29	18(41/34)	CEE	SVT	.253	Black	81N6700	2.56	2.29
VCB-40230-CB	B	9'10"	3	18(41/34)	CEE	SJT	.328	Black	81N6701	3.27	2.93
VCB-43223-SB	B	7' 6"	2.29	16(65/34)	STD	SJT	.353	Black	81N6709	3.24	2.89
VCP-30218-SB	C	6	1.83	18(41/34)	STD	SV	.265	Black	81N6710	2.31	2.06
VCP-30224-SB	C	8	2.44	18(41/34)	STD	SV	.265	Black	81N6711	2.68	2.39
VCP-40218-SG	C	6	1.83	18(41/34)	STD	SVT	.253	Gray	81N6712	1.54	1.38
VCP-40224-SG	C	8	2.44	18(41/34)	STD	SVT	.253	Gray	81N6713	1.80	1.61
VCP-10118-SB	C	6	1.83	18(16/30)	STD	SJ	.328	Black	81N6715	2.63	2.35
VCP-10124-SB	C	8	2.44	18(16/30)	STD	SJ	.328	Black	81N6716	2.92	2.61
VCP-13146-SB	C	15	4.57	16(26/30)	STD	SJ	.353	Black	81N6718	6.92	6.18
VCP-20118-SG	C	6	1.83	18(16/30)	STD	SJT	.328	Gray	81N6714	1.70	1.52
VCP-20124-SG	C	8	2.44	18(16/30)	STD	SJT	.328	Gray	81N6717	2.00	1.79
VCP-20230-CB	C	9'10"	3	18(41/34)	CEE	SJT	.328	Black	81N6702	2.39	2.14
VCP-23230-CB	C	9'10"	3	16(65/34)	CEE	SJT	.353	Black	81N6703	3.03	2.71
VCP-23161-SG	C	20	6.10	16(26/30)	STD	SJT	.353	Gray	81N6719	5.20	4.65
VCP-25120-CB	C	6' 7"	2	14(41/30)	CEE	SJT	.385	Black	81N6704	2.95	2.64
VCF-40223-CB	D	7' 6"	2.29	18(41/34)	CEE	SVT	.253	Black	81N6705	2.21	1.98

CAROL

RUBBER-VINYL MULTICONDUCTOR PORTABLE CORDAGE—300V –60°C

All Cable UL and CSA listed where applicable. Types SP-1, SPT-1, SPT-2 are standard household "lamp cord," other types are rubber insulation black rubber jacket overall. All conductors are of stranded copper. Engineered to meet or exceed the stringent requirements of industrial standards. BLACK ONLY.

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′
02506-15	SP-1	18-2	.223	2.2	81F6739WE	30.19
02301-15	SPT-1	18-2	.207	2.2	81F6740WE	21.92
13532-15	SV	18-2	.235	3.9	81F6741WE	40.67
01302-15	SJ	18-2	.290	5.4	81F6742WE	41.50
01305-15	SJ	16-2	.320	6.6	81F6743WE	47.20
01362-15	SJ	14-3	.375	10.6	81F6744WE	99.79
Mfr. No.	**U/L Type**	**AWG & Cond.**	**Nom. O.D.**	**Lb./ 100′**	**Stock Number**	**500′**
13532-15	SV	18-2	.235	3.9	81F6745WF	81.33
13533-15	SV	18-3	.255	4.9	81F6746WF	103.83
Mfr. No.	**U/L Type**	**AWG & Cond.**	**Nom. O.D.**	**Lb./ 100′**	**Stock Number**	**1000′**
13532-41	SV	18-2	.235	3.9	81F6747WM	162.65
01302-41	SJ	18-2	.290	5.4	81F6748WM	166.00

SPT-2 PLASTIC PARALLEL LAMP CORD 300V -60°C

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
02302-15	SPT-2	18-2 (41x34)	.144x.296	2.5	81F6749WE	26.03
02303-15	SPT-2	16-2 (65x34)	.155x.314	3.8	81F6750WE	26.03

HPN-2 CONDUCTOR-NEOPRENE HEATER CORD

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
25202-15	HPN	18-2(41x34)	.140x.276 Black	3.4	81F6751WE	46.18
25212-15	HPN	18-3(65x34)	.152x.300 Black	4.4	81F6752WE	57.04

SVT-2 CONDUCTOR-PLASTIC JACKET 300V –60°C

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
86002-15	SVT	18-2(41x34)	.235	3.7	81F6753WE	46.72

SJO-2 CONDUCTOR-NEOPRENE JACKET 300V –60°C ( ) Flex

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
01310-15	SJO	18-2(16x30)	.290	5.6	81F6754WE	47.62
01312-15	SJO	16-2(26x30)	.320	6.9	81F6755WE	59.57

SO-2 CONDUCTOR-NEOPRENE JACKET 600V –60°C

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
02763-15	SO	18-2(16x30)	.350	8.3	81F6756WE	67.54
02722-15	SO	16-2(16x30)	.380	9.6	81F6757WE	77.12
02723-85	SO	14-2(41x30)	.515	16.0	81F6758WE	120.59
02724-85	SO	12-2(65x30)	.585	20.8	81F6759WE	155.62

SJT-3 CONDUCTOR-VINYL JACKET 300V –60°C

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
86013-15	SJT	18-3(16x30)	.290	6.8	81F6760WE	57.13
86023-15	SJT	16-3(26x30)	.740	8.3	81F6761WE	141.00

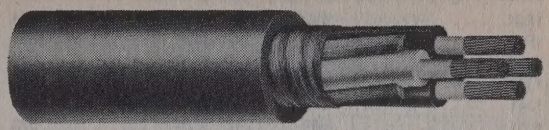
SVT-3 CONDUCTOR-PLASTIC JACKET 300V –60°C

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
86003-15	SVT	18-3(41x30)	2.55	3.9	81F6762WE	57.13

SJ-3 CONDUCTOR-RUBBER JACKET 300V –60°C (*) Flex

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
01303-15	SJ	18-3(16x30)	3.20	7.0	81F6763WE	52.83
01306-15	SJ	16-3(26x30)	3.40	8.9	81F6764WE	66.47
01308-15	SJ	18-3(41x34)	3.20	7.2	81F6765WE	61.53

CALL YOUR NEWARK BRANCH
FOR CURRENT PRICES AND PROMPT SERVICE



S-3 CONDUCTOR-RUBBER JACKET 600V –60°C

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
02708-15	S	18-3(16x30)	.370	9.7	81F6766WE	65.13
02711-15	S	16-3(26x30)	.400	10.7	81F6767WE	80.95
02714-85	S	14-3(41x30)	.540	17.5	81F6768WE	20.49
02717-85	S	12-3(65x30)	.615	27.4	81F6769WE	163.63
02720-85	S	10-3(105x30)	.665	30.1	81F6770WE	212.65

SJO-3 CONDUCTOR-NEOPRENE JACKET 300V –60°C (*) Flex

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
01311-15	SJO	18-3(16x30)	.320	2.2	81F6771WE	57.76
01342-15	SJO	16-3(26x30)	.240	9.2	81F6772WE	76.93

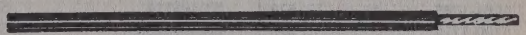
SO-3 CONDUCTOR-NEOPRENE JACKET 600V –60°C

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
02769-15	SO	18-3(16x30)	.370	9.3	81F6773WE	79.17
02765-15	SO	16-3(26x30)	.40	11.4	81F6774WE	83.58
02762-85	SO	14-3(41x30)	.540	18.5	81F6775WE	145.69
02725-85	SO	12-3(65x30)	.615	24.9	81F6776WE	193.67
02728-85	SO	10-3(105x30)	.665	31.9	81F6777WE	243.33

SO-4 CONDUCTOR-NEOPRENE JACKET 600V –60°C 50′ Coil

Mfr. No.	U/L Type	AWG & Cond.	Nom. O.D.	Lb./ 100′	Stock Number	250′ Lgth.
02768-85	SO	14-4(41x30)	.585	22.3	81F6778WE	181.93
02726-85	SO	12-4(65x30)	.650	29.1	81F6779WE	223.33

UL LISTED APPLIANCE WIRING MATERIAL (AWM)



Meets the requirements of appliance wire and is listed by Underwriters Laboratories and Canadian Standards Association (CSA) as TEW. Ratings: 105°C in air, 60°C in water, 60°C in oil. Black only.

TYPE TEW/AWM 600 VOLT—105°C—LIGHT WALL

Mfr. No.	AWG Size	Strand	Nom. O.D.	Stock Number	500′ Each
76180-18	18	16x30	.113	81F6727WF	22.85
76160-18	16	26x30	.125	81F6728WF	29.43
76140-18	14	19	.139	81F6729WF	40.63
76120-18	12	19	.158	81F6730WF	57.33
76100-18	10	19	.182	81F6731WF	81.20
76080-18	8	19	.246	81F6732WF	128.18

TYPE MTW/AWM 600 VOLT—LIGHT WALL

Mfr. No.	AWG Size	Strand	Nom. O.D.	Stock Number	500′ Each
76502-18	18	16x30	.113	81F6712WF	22.85
76512-18	16	16x30	.125	81F6722WF	29.43
76812-18	14	19	.139	81F6723WF	40.63
76822-18	12	19	.158	81F6724WF	57.33
76832-18	10	19	.182	81F6725WF	81.20
76843-18	8	19	.246	81F6726WF	128.18

TYPE TEW/AWM 600 FT—HEAVY WALL

Mfr. No.	AWG Size	Strand	Nom. O.D.	Stock Number	500′ Each
76913-18	14	19	.171	81F6733WF	22.85
76923-18	12	19	.190	81F6734WF	29.43
76933-18	10	19	.214	81F6735WF	40.63
76944-18	8	19	.277	81F6736WF	57.33
76954-18	6	19	.315	81F6737WF	81.20
76994-38	4	19	.365	81F6738WF	128.18

13

alpha Index

Alpha No.	Page No.
1E31	582
1E41	582
1E51	582
1J31	582
1J41	582
1J51	582
1K31	582
1K41	582
1K51	582
1T31	582
1T41	582
1T51	582
1E33	582
1E43	582
1E53	582
1J33	582
1J43	582
1J53	582
1K33	582
1K43	582
1K53	582
1T33	582
1T43	582
1T53	582
286-299/3	587
501-506	584
511-523	584
531-546	585
531F-550F	585
605-607	584
615	584
631-636	585
650N-650NP	584
654-659	584
725-728/4	584
729-729/4	584
775-789	584
1064-1085	578
1120-1122	579
1172-1181/60	578
1221-1242/4	587
1244-1247/20	579
1248-1250/18	579
1250-1255/20	579
1274-1285	578
1300-1313	578
1316-1330	578
1449-1450/16	579
1550-1560	571
1561-1565	571
1702-1728	579
1735-1761	578
1805-1808	571
1850-1859/19	571
1891-1899/4	578
2132-2152	587
2160-2176	587
2254-2268/3	578
2400-2444	576
2450-2451	576
2460-2461	576
3071-3079	571
3200-3248	579
2464-2465	576
2471-2473	576
2824-2824/15	579
2826-2826/8	579
2827-2827/10	579
2831-2837/3	579
2840/7-2845/19	571
2841/1-2844/1	571
2853/1-2857/1	571
3050-3057	571
3302-3320	575
3405-3430	575
3530-3573	587
3580/9-3580/64	586
3581/9-3581/64	586
3589/9-3589/50	586
3590/9-3590/50	586
5002-5010/00	573
5012-5020/00	573
5021-5029/02	573
5033-5039/27	573
5092-5100/00	574
5121-5129/02	575
5133-5139/27	575
5192-5199/00	574
5200-5208	572
5210-5218	572
5220-5228	572
5230-5238	572
5240-5248	572
5250-5258	572
5271-5279/02	575
5293-5299/27	575
5300-5308	572
5310-5318	572
5320-5328	572
5330-5338	572
5340-5348	572
5350-5358	572
5362-5370/60	574
5373-5379/27	575
5382-5390/90	574
5453-5459/27	575
5462-5470/00	574
5481-5489/02	575
5491-5499/02	575
5504-5509/25	574
5514-5519/25	574
5524-5509/25	574
5534-5539/25	574
5544-5549/25	574
5610B1602-5610B1636	580
5610B2002-5610B2050	580
5616B1201-5616B2001	580
5616B1601-5616B1624	580
5620B2002-5620B2050	580
5630B1601-5630B2001	580
5640B1401-5640B2201	580
5646B1401-5646B1801	580
5703-5704	581
5710/5716S	581
5710/1601-5714/1601	581
5710/2001-5713/2001	581
5712/2002-5712/2050	581
5720/2002-5720/2050	581
5720-5725	581
5722/2002-5722/2050	581
5730-5731S	581
5740-5741H	581
5752	581
5760-5769/1	581
5782-5789F	581
5874-5879/12	571
5900-5900/16	577
5910/10-5910/16	575
5951-5954	571
6000-6008	576
6010-6022	576
6023-6027	576
6033-6045	576
7053-7058/19	571
7130-7134	571
7149-7163	571
9006A	577
9008	577
9008A	577
9009B	577
9011	577
9011A	577
9012A	577
9055	577
9055B	577
9058	577
9058A	577
9058C	577
9059	577
9059B	577
9062	577
9062A	577
9063B	577
9071B	577
9159	577
9174	577
9178B	577
9179B	577
9180B	577
9187A	577
9188A	577
9195A	577
9196A	577
9212	577
9213	577
9214	577
9217	577
9223	577
9801	577
9802	577
9803	577
9804	577
9814	577
9815	577
9819	577
9820	577
9821	577
9822	577
9823	577
9824	577
9830	577
9843	577
9845	577
9846	577
9847	577
9848	577
ASK	582
FCC 130-14-FCC 130-40	588
FCC 140-10-FCC 140-50	588
FCC 170-10-FCC 170-50	589
FCC 171-10-FCC 171-50	589
FCC 201/10-50	588
FCC 202/10-50	588
FCC 205/10-50	588
FCC 210/10-50	588
FCC 220/10-50	588
FCC 251/10-50	588
FCC 252/10-50	588
FCC 255/10-50	588
FCC 261/10-50	588
FCC 262/10-50	588
FCC 265/10-50	588
FCC 291/10-50	588
FCC 292/10-50	588
FCC 295/10-50	588
FCC 182-9-FCC 182-37	589
FCC 183-9-FCC 183-37	589
FCC KEY-2	588
FCT 11, 30, 12, 80	589
FCT 34-43A	589
FCT 81 FCT 100	589
FIT 105	583
FIT 221	583
FIT 295	583
FIT 300	583
FIT 321	583
FIT 400	583
SBO SERIES	582
SFE SERIES	582
SJJ SERIES	582
SJK SERIES	582
SJT SERIES	582
SHA SERIES	582
SHC SERIES	582
SYA SERIES	582
SYC SERIES	582
ZIP 31 ZIP 41	587
ZIP 31M ZIP 41M	587
ZIP 50 ZIP 60	587

13

MAKE NEWARK YOUR DEPENDABLE SOURCE FOR ALL ELECTRONIC PARTS AND EQUIPMENT

Mil-Spec and UL Hook-Up Wire

MIL-W-76B-TYPE MW
80°C 1000 VOLTS

- Solid or Stranded Tinned Copper Conductor
- .016" Wall PVC Insulation
- Resistant to Oil, Chemicals, Flame, Moisture, and Fungus

Stocked in Colors 1-10, Specify color

Alp. No.	Cond. Size	Nom. O.D.	Wt./ 100'	Stock No.	Net 100'	Stock No.	Net 1000'
1550	24	.059"	.4	37F500WA	5.75	37F500WM	38.07
1551	22	.064"	.5	37F501WA	6.22	37F501WM	43.19
1553	20	.073"	.6	37F502WA	7.50	37F502WM	50.71
1555	18	.084"	.8	37F503WA	8.63	37F503WM	64.83
1557	16	.095"	1.7	37F504WA	12.52	37F504WM	95.91
1559	14	.110"	1.7	37F505WA	17.20	37F505WM	119.75
1560	12	.125"	2.6	37F506WA	26.77	37F506WM	177.75
1561*	22	.060"	.4	37F507WA	5.31	37F507WM	33.60
1563*	20	.066"	.6	37F508WA	6.32	37F508WM	42.13
1565*	18	.074"	.8	37F509WA	8.41	37F509WM	59.64

*Solid Conductor — Colors 1-19

MIL-W-168780 TYPE B
105°C 600 VOLTS

- Stranded Tinned Copper Conductor
- .010" Wall PVC Insulation
- Resistant to Oil, Chemicals, Flame, Moisture, and Fungus

Alp. No.	Cond. Size	Nom. O.D.	Wt./ 100'	Stock No.	Net 100'	Stock No.	Net 1000'
1850	32	.028"	.1	37F593WA	7.32	37F593WM	51.60
1851	30	.032"	.1	37F544WA	6.01	37F544WM	42.35
1852	28	.034"	.2	37F545WA	5.71	37F545WM	37.35
1853	26	.038"	.2	37F546WA	5.90	37F546WM	42.15
1854	24	.043"	.3	37F547WA	5.82	37F547WM	37.93
1854/19	24	.043"	.3	37F1326WA	7.53	37F1326WM	47.47
1855	22	.050"	.4	37F548WA	6.37	37F548WM	41.31
1855/19	22	.050"	.4	37F1327WA	9.30	37F1327WM	58.53
1856	20	.058"	.6	37F549WA	8.03	37F549WM	51.31
1856/19	20	.058"	.6	37F1328WA	8.15	37F1328WM	58.33
1857	18	.068"	.8	37F570WA	8.35	37F570WM	63.45
1857/19	18	.068"	.8	37F1329WA	10.57	37F1329WM	78.79
1858/19	16	.077"	1.1	37F571WA	10.90	37F571WM	86.54
1859/19	14	.091"	2.0	37F1331WA	24.52	37F1331WM	109.70

UL STYLE 1007, CSA TYPE TR-64
80°C 300 VOLTS

Colors 1-10

- Stranded Tinned Copper Conductor
- .016" PVC Insulation

Alp. No.	Cond. Size	Nom. O.D.	Wt./ 100'	Stock No.	Net 100'	Stock No.	Net 1000'
3050	24	.057"	.3	37F1300WA	5.22	37F1300WM	35.02
3051	22	.065"	.4	37F1301WA	5.99	37F1301WM	41.75
3053	20	.071"	.5	37F1302WA	7.81	37F1302WM	51.60
3055	18	.080"	.1	37F1303WA	7.83	37F1303WM	56.82
3057	16	.095"	.1	37F1304WA	10.99	37F1304WM	85.74

UL STYLE 1015, CSA TYPE TEW-105
105°C 600 VOLTS

- Stranded Tinned Copper Conductor
- .032" Wall PVC Insulation

Alp. No.	Cond. Size	Nom. O.D.	Wt./ 100'	Stock No.	Net 100'	Stock No.	Net 1000'
3071	22	.095"	.6	37F1305WA	6.17	37F1305WM	46.06
3073	20	.102"	.8	37F1306WA	8.06	37F1306WM	59.88
3075	18	.112"	1.0	37F1307WA	9.68	37F1307WM	69.38
3077	16	.125"	1.4	37F1308WA	12.32	37F1308WM	104.26
3079	14	.142"	2.5	37F1309WA	17.09	37F1309WM	114.87

KYNAR WIRE WRAP 125°C

Colors 1-10

- Solid Silver Plated OFHC Copper Conductor
- Extruded .005" Kynar Insulation
- High Resistance to Cut-Thru and Abrasion

Stocked in White only — other colors available.

Alpha No.	Cond. Size	Nom. O.D.	Wt./ 1000'	Stock No.	Net 1000'
5961	30	.020"	1.0	37F1998WM	100.00
5952	28	.023"	1.5	37F3400WM	107.37
5953	26	.026"	1.8	37F3401WM	109.82
5964	24	.030"	2.4	37F3402WM	135.77

TEFZEL WIRE WRAP
150°C

- Solid Silver Plated OFMC Copper Conductor
- Extruded .005" Tefxel Insulation
- High Resistance to Cut Thru and Abrasion

Alp. No.	Cond. Size	Nom. O.D.	Wt./ 100'	Stock No.	Net 100'	Stock No.	Net 1000'
1805	30	.019"	.1	37F119WA	36.05	37F119WM	226.53
1806	28	.023"	.2	37F120WA	38.38	37F120WM	244.14
1807	26	.026"	.2	37F121WA	40.82	37F121WM	262.65
1808	24	.029"	.3	37F122WA	45.32	37F122WM	296.04

GENERAL STOCK COLORS — Colors 1-10

1—White 2—Black 3—Red 4—Green 5—Yellow 6—Light Blue 7—

MIL-W-168780 TEFLON
200°C 250, 600, or 1000 VOLTS

- Solid or Stranded Silver Plated Copper Conductor
- Extruded TFE Teflon Insulation
- Impervious to Flame, Chemicals, and Moisture

E-STRANDED .010" WALL 600 VOLTS

Alp. No.	Cond. Size	Nom. O.D.	Wt./ 100'	Stock No.	Net 100'	Stock No.	Net 1000'
5851	30	.028"	.1	37F650WA	17.82	37F650WM	100.00
5852	28	.031"	.3	37F651WA	17.75	37F651WM	100.00
5853	26	.035"	.4	37F652WA	18.71	37F652WM	102.98
5854	24	.040"	.5	37F653WA	28.92	37F653WM	153.75
5854/7	24	.039"	.3	37F561WA	21.89	37F561WM	119.99
5855	22	.046"	.6	37F654WA	32.98	37F654WM	180.87
5855/7	22	.045"	.4	37F562WA	26.17	37F562WM	143.52
5856	20	.054"	.8	37F655WA	41.20	37F655WM	226.29
5856/7	20	.053"	.3	37F563WA	34.87	37F563WM	199.89
5857	18	.064"	.9	37F656WA	54.76	37F656WM	300.80
5858	16	.073"	1.2	37F657WA	67.21	37F657WM	368.88

EE-STRANDED .014" WALL 1000 VOLTS

5874	24	.055"	.5	37F564WA	33.51	37F564WM	184.20
5875	22	.062"	.7	37F565WA	36.67	37F565WM	201.08
5877	18	.080"	1.1	37F567WA	58.11	37F567WM	319.20

E SOLID .010" WALL 600 VOLTS

2853/1	26	.036"	.2	37F1964WA	15.60	37F1964WM	100.00
2854/1	24	.040"	.4	37F1965WA	15.72	37F1965WM	100.00
2855/1	22	.045"	.4	37F1966WA	21.68	37F1966WM	135.57
2856/1	20	.052"	.4	37F1967WA	25.17	37F1967WM	164.10
2857/1	18	.060"	.6	37F1968WA	31.32	37F1968WM	214.08

ET STRANDED .006" WALL 250 VOLTS

2840/7	32	.021"	.1	37F1954WA	17.73	37F1954WM	100.00
2841/7	30	.024"	.2	37F1955WA	19.36	37F1955WM	106.25
2842/7	28	.027"	.2	37F1956WA	20.78	37F1956WM	114.06
2842/19	28	.027"	.2	37F1957WA	29.79	37F1957WM	203.01
2843/7	26	.031"	.2	37F1958WA	21.08	37F1958WM	115.76
2843/19	26	.032"	.3	37F1959WA	26.21	37F1959WM	174.50
2844/7	24	.036"	.3	37F1960WA	25.43	37F1960WM	139.53
2844/19	24	.037"	.3	37F1961WA	31.36	37F1961WM	172.26
2845/7	22	.042"	.3	37F1962WA	27.01	37F1962WM	148.11
2845/19	22	.044"	.3	37F1963WA	35.49	37F1963WM	194.76

ET SOLID .006" WALL 250 VOLTS

2841/1	30	.022"	.1	37F1950WA	17.38	37F1950WM	104.13
2842/1	28	.025"	.2	37F1951WA	16.93	37F1951WM	101.33
2843/1	26	.028"	.2	37F1952WA	17.38	37F1952WM	106.98
2844/1	24	.032"	.2	37F1953WA	18.71	37F1953WM	117.45

IRRADIATED PVC WIRE
IMPROVED HEAT RESISTANCE
WITHSTANDS DIRECT SOLDER IRON CONTACT
WITHOUT MELT OR SHRINK BACK

Colors 1-10

- Stranded or Solid Tinned Copper Conductor

MIL-W-168780 TYPE B 150°C 600 VOLTS

Alp. No.	Cond. Size	Nom. O.D.	Stock No.	100'	Stock No.	1000'
7053	26	.038"	37F3403WA	6.64	37F3403WM	47.43
7054	24	.043"	37F3404WA	8.10	37F3404WM	50.09
7054/19	24	.043"	37F3405WA	8.81	37F3405WM	57.62
7055	22	.050"	37F3406WA	8.46	37F3406WM	56.73
7055/19	22	.050"	37F3407WA	8.83	37F3407WM	65.83
7056	20	.058"	37F3408WA	9.88	37F3408WM	70.56
7056/19	20	.058"	37F3409WA	9.61	37F3409WM	70.07
7057	18	.068"	37F3410WA	12.27	37F3410WM	88.78
7057/19	18	.068"	37F3411WA	14.16	37F3411WM	109.70
7058/19	16	.077"	37F3412WA	16.84	37F3412WM	122.09

UL STYLE 1430 105 & 300 VOLTS — Colors 1 & 2

Alpha No.	Cond Size	Nom. O.D.	Wt./ 100'	Stock No.	Net 100' Ft.	Stock No.	Net 1000' Ft.
7130	24	.056"	.3	37F123WA	9.48	37F123WM	65.63
7131	22	.062"	.4	37F124WA	11.10	37F124WM	79.57
7132	20	.070"	.5	37F125WA	12.81	37F125WM	93.09
7133	18	.080"	.8	37F126WA	15.88	37F126WM	109.23
7134	16	.091"	1.8	37F127WA	20.15	37F127WM	130.49

UL STYLE 1429 80°C 150 VOLTS — Colors 1-10

7149	26	.028"	.2	37F128WA	7.95	37F128WM	54.78
7150	24	.043"	.3	37F129WA	9.45	37F129WM	56.18
7151	22	.050"	.4	37F130WA	9.90	37F130WM	61.10
7153	20	.068"	.5	37F131WA	11.59	37F131WM	75.93
7155	18	.068"	.8	37F132WA	14.25	37F132WM	99.65
7157	16	.077"	1.0	37F133WA	20.26	37F133WM	132.15
7161*	22	.045"	.2	37F134WA	8.94	37F134WM	48.43
7161/24*	24	.040"	.4	37F135WA	8.41	37F135WM	45.10
7163*	20	.054"	.2	37F136WA	11.78	37F136WM	83.99

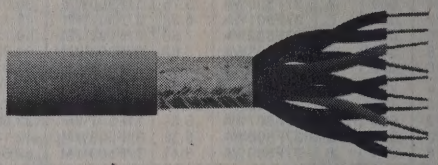
Colors 1-10 — *Solid Conductor

8—Orange 9—Gray (slate) 10—Violet (purple) 11—White/Black 12—White/Red 13—White/Green 14— 15—White/Blue 16—White/Brown 17—White/Orange 18—White/Gray 19—White/Violet

alpha Computer Interconnect Cable

UL Listed Installation | CSA Certified Site Improvement | OSHA Acceptable Repair

- Stranded Tinned Copper Conductors
- .010″ Semi-rigid PVC insulation
- Braided Tinned Copper Shield (Optional)
- Gray PVC Jacket
- 80°C 300 Volt Rating



UNSHIELDED

24 GAUGE, MULTI. Strand, 7/32.

Alpha No.	No. of Cond.	Nom. O.D.	Stock No.	NET 100'	Stock No.	NET 500'
5200	5	.250	37F1692WA	106.62	37F1692WF	484.68
5201	7	.265	37F1693WA	113.25	37F1693WF	514.76
5202	12	.320	37F1694WA	156.48	37F1694WF	711.09
5203	15	.340	37F1695WA	212.67	37F1695WF	966.81
5204	19	.360	37F1696WA	230.46	37F1696WF	1047.87
5205	27	.410	37F1697WA	308.19	37F1697WF	1401.00
5206	37	.445	37F1821WA	424.77	37F1821WF	1930.71
5207	48	.495	37F1822WA	533.97	37F1822WF	2427.15
5208	60	.535	37F1823WA	637.41	37F1823WF	2897.48

24 GAUGE, PAIRED. Strand, 7/32.

5230	5 pr.	.345	37F1824WA	162.12	37F1824WF	735.69
5231	7 pr.	.355	37F1825WA	173.21	37F1825WF	787.35
5232	12 pr.	.445	37F1826WA	249.53	37F1826WF	1134.75
5233	15 pr.	.485	37F1827WA	318.98	37F1827WF	1450.16
5234	19 pr.	.505	37F1828WA	362.34	37F1828WF	1647.05
5235	27 pr.	.575	37F1829WA	491.57	37F1829WF	2234.67
5236	37 pr.	.640	37F1830WA	659.10	37F1830WF	2995.97
5237	48 pr.	.710	37F1831WA	822.78	37F1831WF	3739.88
5238	60 pr.	.760	37F1832WA	1050.72	37F1832WF	4776.14

22 GAUGE, MULTI. Strand, 7/30.

5210	5	.270	37F1833WA	113.39	37F1833WF	515.21
5211	7	.285	37F1834WA	121.61	37F1834WF	552.86
5212	12	.345	37F1835WA	171.32	37F1835WF	778.65
5213	15	.370	37F1836WA	229.88	37F1836WF	1044.93
5214	19	.390	37F1837WA	252.78	37F1837WF	1149.15
5215	27	.440	37F1838WA	336.83	37F1838WF	1531.28
5216	37	.490	37F1839WA	464.90	37F1839WF	2113.07
5217	48	.545	37F1840WA	580.74	37F1840WF	2639.93
5218	60	.580	37F1841WA	720.48	37F1841WF	3275.10

22 GAUGE, PAIRED. Strand, 7/30.

5240	5 pr.	.370	37F1842WA	165.54	37F1842WF	752.61
5241	7 pr.	.385	37F1843WA	191.64	37F1843WF	871.25
5242	12 pr.	.485	37F1844WA	281.46	37F1844WF	1279.41
5243	15 pr.	.535	37F1845WA	369.98	37F1845WF	1681.79
5244	19 pr.	.565	37F1846WA	415.83	37F1846WF	1890.17
5245	27 pr.	.645	37F1847WA	551.43	37F1847WF	2506.74
5246	37 pr.	.735	37F1848WA	740.60	37F1848WF	3366.41
5247	48 pr.	.815	37F1849WA	957.14	37F1849WF	4350.62
5248	60 pr.	.915	37F1885WA	1184.46	37F1885WF	5384.04

20 GAUGE, MULTI. Strand, 19/32.

5220	5	.295	37F1886WA	128.63	37F1886WF	584.75
5221	7	.320	37F1887WA	143.84	37F1887WF	654.20
5222	12	.390	37F1888WA	208.74	37F1888WF	948.84
5223	15	.415	37F1889WA	275.69	37F1889WF	1253.34
5224	19	.440	37F1890WA	312.66	37F1890WF	1421.25
5225	27	.510	37F1891WA	415.83	37F1891WF	1890.17
5226	37	.560	37F1892WA	572.48	37F1892WF	2602.31
5227	48	.630	37F1893WA	724.05	37F1893WF	3291.21
5228	60	.680	37F1894WA	880.13	37F1894WF	4000.44

20 GAUGE, PAIRED. Strand, 19/32.

5250	5 pr.	.420	37F1895WA	197.40	37F1895WF	897.35
5251	7 pr.	.435	37F1896WA	237.50	37F1896WF	1079.69
5252	12 pr.	.555	37F1897WA	355.98	37F1897WF	1618.11
5253	15 pr.	.610	37F1898WA	431.76	37F1899WF	1962.57
5254	19 pr.	.650	37F1899WA	539.96	37F1899WF	2454.65
5255	27 pr.	.750	37F1901WA	722.15	37F1901WF	3282.53
5256	37 pr.	.890	37F1902WA	992.15	37F1902WF	4509.84
5257	48 pr.	.990	37F1903WA	1250.06	37F1903WF	5682.23
5258	60 pr.	1.065	37F1904WA	1545.50	37F1904WF	7025.25

SHIELDED

24 GAUGE, MULTI. Strand, 7/32.

Alpha No.	No. of Cond.	Nom. O.D.	Stock No.	NET 100'	Stock No.	NET 500'
5200	5	.275	37F1905WA	126.02	37F1905WF	573.14
5301	7	.290	37F1906WA	138.77	37F1906WF	631.01
5302	12	.345	37F1907WA	187.80	37F1907WF	853.91
5303	15	.365	37F1908WA	247.13	37F1908WF	1123.08
5304	19	.380	37F1909WA	268.10	37F1909WF	1218.60
5305	27	.430	37F2560WA	352.77	37F2560WF	1603.59
5306	37	.470	37F2561WA	479.58	37F2561WF	2179.65
5307	48	.520	37F2562WA	600.51	37F2562WF	2729.63
5308	60	.555	37F2563WA	710.66	37F2563WF	3230.46

24 GAUGE, PAIRED. Strand, 7/32

5330	5 pr.	.365	37F2564WA	175.41	37F2564WF	797.40
5331	7 pr.	.380	37F2565WA	200.64	37F2565WF	912.09
5332	12 pr.	.465	37F2566WA	293.18	37F2566WF	1332.63
5333	15 pr.	.510	37F2567WA	364.61	37F2567WF	1657.62
5334	19 pr.	.525	37F2568WA	410.93	37F2568WF	1867.88
5335	27 pr.	.595	37F2569WA	546.68	37F2569WF	2485.01
5336	37 pr.	.670	37F2570WA	715.49	37F2570WF	3252.38
5337	48 pr.	.740	37F2571WA	883.71	37F2571WF	4017.03
5338	60 pr.	.815	37F2572WA	1110.20	37F2572WF	5046.45

22 GAUGE, MULTI Strand, 7/30

5310	5	.290	37F2573WA	138.77	37F2573WF	631.01
5311	7	.310	37F2574WA	150.30	37F2574WF	683.12
5312	12	.380	37F2575WA	206.34	37F2575WF	937.83
5313	15	.390	37F2576WA	268.70	37F2576WF	1221.54
5314	19	.410	37F2577WA	294.18	37F2577WF	1337.33
5315	27	.470	37F2578WA	391.59	37F2578WA	1780.22
5316	37	.510	37F2579WA	532.41	37F2579WF	2419.89
5317	48	.570	37F2580WA	657.83	37F2580WF	2990.18
5318	60	.610	37F2581WA	794.76	37F2581WF	3612.48

22 GAUGE, PAIRED. Strand, 7/30

5340	5 pr.	.395	37F2582WA	194.04	37F2582WF	882.11
5341	7 pr.	.410	37F2583WA	222.27	37F2583WF	1010.39
5342	12 pr.	.510	37F2584WA	331.62	37F2584WF	1507.41
5343	15 pr.	.555	37F2585WA	403.35	37F2585WF	1833.56
5344	19 pr.	.590	37F2586WA	473.01	37F2586WF	2143.70
5345	27 pr.	.680	37F2587WA	614.01	37F2587WF	2790.89
5346	37 pr.	.770	37F2588WA	808.65	37F2588WF	3675.66
5347	48 pr.	.890	37F2589WA	1027.91	37F2589WF	4672.40
5348	60 pr.	.950	37F2590WA	1268.22	37F2590WF	5764.67

20 GAUGE, MULTI. Strand, 19/32

5320	5	.325	37F2591WA	157.26	37F2591WF	714.93
5321	7	.345	37F2592WA	175.13	37F2592WF	796.01
5322	12	.410	37F2593WA	244.49	37F2593WF	1111.52
5323	15	.440	37F2594WA	318.98	37F2594WF	1450.16
5324	19	465	37F1948WA	355.34	37F1948WF	1615.19
5325	27	.530	37F1949WA	482.03	37F1949WF	2191.20
5326	37	.585	37F1975WA	647.00	37F1975WF	2940.90
5327	48	.660	37F1976WA	744.30	37F1976WF	3383.10
5328	60	.715	37F1977WA	976.83	37F1977WF	4440.38

20 GAUGE, PAIRED. Strand, 19/32

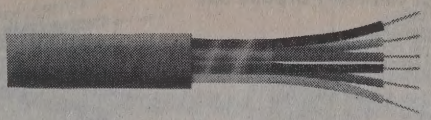
5350	5 pr.	.440	37F1978WA	227.69	37F1978WF	1034.99
5351	7 pr.	.460	37F1979WA	278.15	37F1979WF	1264.01
5352	12 pr.	.580	37F1980WA	410.93	37F1980WF	1867.88
5353	15 pr.	.645	37F1981WA	519.65	37F1981WF	2362.11
5354	19 pr.	.680	37F1982WA	599.52	37F1982WF	2725.32
5355	27 pr.	.785	37F1983WA	788.79	37F1983WF	3585.00
5356	37 pr.	.930	37F1984WA	1059.18	37F1984WF	4814.40
5357	48 pr.	1.030	37F1985WA	1333.11	37F1985WF	6059.64
5358	60 pr.	1,100	37F1986WA	1626.89	37F1986WF	7394.97

13

Control and Signal Cable

UL Listed CSA Certified OSHA Acceptable for General Purpose Use

- Stranded tinned copper conductors
- Color coded PVC insulation
  .010" wall (24 and 22 AWB)
  .016" wall (20, 18, 16 AWG)
- Gray PVC Jacket
- UL/CSA rated 80°C 300 Volts



UNSHIELDED MULTICONDUCTOR

24AWG (7/32)

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100' EACH	Stock No.	500' EACH
5012	2	.160	37F1776WA	31.61	37F1776WF	125.39
5013	3	.165	37F1777WA	36.18	37F1777WF	143.45
5014	4	.180	37F1778WA	40.66	37F1778WF	161.21
5016	6	.205	37F1779WA	50.09	37F1779WF	198.53
5018	8	.220	37F1780WA	59.90	37F1780WF	237.38
5020	10	.245	37F1781WA	70.02	37F1781WF	277.52
5020/15	15	.275	37F1451WA	100.00	37F1451WF	407.34
5020/20	20	.300	37F1452WA	108.21	37F1452WF	520.31
5020/25	25	.340	37F1453WA	131.97	37F1453WF	634.53
5020/30	30	.360	37F1454WA	155.63	37F1454WF	748.26
5020/40	40	.400	37F1455WA	203.13	37F1455WF	976.62
5020/50	50	.440	37F1456WA	250.94	37F1456WF	1206.59
5020/60	60	.470	37F1457WA	299.36	37F1457WF	1439.19
5020/70	70	.510	37F1458WA	348.62	37F1458WF	1669.37
5020/80	80	.530	37F1459WA	394.43	37F1459WF	1896.38
5020/90	90	.560	37F1460WA	441.84	37F1460WF	2124.44
5020/00	100	.640	37F1461WA	500.51	37F1461WF	2406.32

22AWG (7/30)

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100' EACH	Stock No.	500' EACH
5002	2	.170	37F1462WA	32.83	37F1462WF	130.29
5003	3	.180	37F1463WA	38.40	37F1463WF	152.28
5004	4	.195	37F1464WA	46.72	37F1464WF	185.12
5006	6	.225	37F1465WA	55.49	37F1465WF	219.96
5008	8	.240	37F1466WA	67.19	37F1466WF	266.49
5010	10	.270	37F1467WA	79.42	37F1467WF	314.82
5010/15	15	.300	37F1468WA	100.00	37F1468WF	461.40
5010/20	20	.340	37F1469WA	123.41	37F1469WF	593.40
5010/25	25	.375	37F1470WA	151.08	37F1470WF	726.48
5010/30	30	.400	37F1471WA	178.55	37F1471WF	858.42
5010/40	40	.445	37F1472WA	233.69	37F1472WF	1123.56
5010/50	50	.485	37F1473WA	290.19	37F1473WF	1395.32
5010/60	60	.525	37F1474WA	345.05	37F1474WF	1690.74
5010/70	70	.610	37F1475WA	410.78	37F1475WF	1975.02
5010/80	80	.630	37F1476WA	465.80	37F1476WF	2239.40
5010/90	90	.660	37F1477WA	523.79	37F1477WF	2518.16
5010/00	100	.710	37F1478WA	577.74	37F1478WF	2777.67

20AWG (10/30)

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100' EACH	Stock No.	500' EACH
5052	2	.220	37F1479WA	36.27	37F1479WF	143.85
5053	3	.225	37F1480WA	44.12	37F1480WF	174.81
5054	4	.245	37F1483WA	52.03	37F1483WF	206.21
5056	6	.285	37F1484WA	69.72	37F1484WF	276.29
5058	8	.315	37F1485WA	83.70	37F1485WF	331.74
5060	10	.360	37F1486WA	100.00	37F1486WF	401.37
5060/15	15	.405	37F1487WA	120.77	37F1487WF	580.71
5060/20	20	.450	37F1488WA	155.81	37F1488WF	749.16
5060/25	25	.500	37F1489WA	194.45	37F1489WF	934.91
5060/30	30	.535	37F1490WA	230.51	37F1490WF	1108.13
5060/40	40	.635	37F1491WA	312.96	37F1491WF	1504.70
5060/50	50	.695	37F1492WA	386.73	37F1492WF	1859.40
5060/60	60	.750	37F1493WA	459.20	37F1493WF	2207.79
5060/70	70	.885	37F1496WA	557.25	37F1496WF	2679.23
5060/80	80	.915	37F1497WA	630.78	37F1497WF	3032.64
5060/90	90	.955	37F1498WA	704.66	37F1498WF	3387.77
5060/00	100	1.030	37F1499WA	780.69	37F1499WF	3753.54

18AWG (16/30)

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100' EACH	Stock No.	500' EACH
5062	2	.230	37F1698WA	42.90	37F1698WF	170.00
5063	3	.245	37F1699WA	54.05	37F1699WF	214.37
5064	4	.265	37F1700WA	65.48	37F1700WF	259.53
5066	6	.320	37F1701WA	88.62	37F1701WF	351.27
5068	8	.345	37F1702WA	100.00	37F1702WF	441.66
5070	10	.395	37F1703WA	111.42	37F1703WF	535.91
5070/15	15	.445	37F1704WA	162.23	37F1704WF	780.03
5070/20	20	.495	37F1705WA	213.17	37F1705WF	1025.00
5070/25	25	.555	37F1706WA	263.34	37F1706WF	1266.15
5070/30	30	.625	37F1707WA	322.85	37F1707WF	1552.26
5070/40	40	.700	37F1708WA	423.83	37F1708WF	2037.77
5070/50	50	.770	37F1709WA	525.53	37F1709WF	2526.66
5070/60	60	.895	37F1710WA	650.09	37F1710WF	3125.55
5070/70	70	.975	37F1711WA	754.64	37F1711WF	3628.08
5070/80	80	1.010	37F1713WA	854.64	37F1713WF	4108.95
5070/90	90	1.055	37F1714WA	955.95	37F1714WF	4595.93
5070/00	100	1.135	37F1715WA	1059.77	37F1715WF	5095.08

16AWG (26/30)

Alpha No.	No. Conds.	Nom. O.D.	Stock No.	100' EACH	Stock No.	500' EACH
5072	2	.260	37F1716WA	53.73	37F1716WF	213.15
5073	3	.275	37F1717WA	71.23	37F1717WF	282.33
5074	4	.300	37F1718WA	88.42	37F1718WF	350.28
5076	6	.365	37F1719WA	101.43	37F1719WF	487.82
5078	8	.395	37F1720WA	129.54	37F1720WF	623.04
5080	10	.455	37F1721WA	177.72	37F1721WF	854.52
5080/15	15	.515	37F1722WA	233.48	37F1722WF	1122.56
5080/20	20	.610	37F1723WA	316.17	37F1723WF	1520.16
5080/25	25	.680	37F1724WA	390.90	37F1724WF	1879.52
5080/30	30	.725	37F1725WA	463.80	37F1725WF	2229.85
5080/40	40	.875	37F1726WA	635.31	37F1726WF	3054.59
5080/50	50	.960	37F1727WA	785.33	37F1727WF	3775.58
5080/60	60	1.030	37F1728WA	935.03	37F1728WF	4495.43

UNSHIELDED MULTIPAIR

24 AWG (7/32)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5261	1	.160	37F1209WA	31.61	37F1209WF	125.39
5262	2	.215	37F1210WA	42.82	37F1210WF	169.70
5263	3	.235	37F1211WA	54.04	37F1211WF	214.17
5264	4	.270	37F1212WA	65.70	37F1212WF	260.34
5265	5	.275	37F1213WA	76.88	37F1213WF	304.76
5266	6	.285	37F1214WA	88.14	37F1214WF	349.37
5269	9	.355	37F1215WA	101.45	37F1215WF	487.88
5269/11	11	.370	37F1216WA	120.11	37F1216WF	577.49
5269/15	15	.425	37F1217WA	159.75	37F1217WF	768.33
5269/19	19	.440	37F1200WA	196.55	37F1200WF	944.99
5269/27	27	.510	37F1201WA	272.58	37F1201WF	1310.70
5269/51	51	.710	37F1202WA	511.58	37F1202WF	2459.52
5269/77	77	.905	37F1203WA	798.11	37F1203WF	3837.27
5269/02	102	1.005	37F1204WA	1052.22	37F1204WF	5058.84

22 AWG (7/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5021	1	.170	37F1205WA	32.83	37F1205WF	130.29
5022	2	.230	37F1206WA	46.48	37F1206WF	184.17
5023	3	.260	37F1207WA	59.59	37F1207WF	236.25
5024	4	.295	37F1208WA	73.24	37F1208WF	290.34
5025	5	.310	37F1218WA	86.27	37F1218WF	342.00
5026	6	.320	37F1219WA	99.41	37F1219WF	393.72
5029	9	.395	37F1220WA	115.34	37F1220WF	554.73
5029/11	11	.415	37F1221WA	136.95	37F1221WF	658.56
5029/15	15	.470	37F1222WA	183.44	37F1222WF	882.00
5029/19	19	.505	37F1223WA	226.37	37F1223WF	1088.58
5029/27	27	.620	37F1224WA	323.03	37F1224WF	1553.15
5029/51	51	.785	37F1225WA	588.74	37F1225WF	2830.62
5029/77	77	1.000	37F1226WA	916.52	37F1226WF	4406.40
5029/02	102	1.115	37F1227WA	1207.88	37F1227WF	5807.13

20 AWG (10/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5283	3	.345	37F1228WA	74.29	37F1228WF	294.41
5286	6	.425	37F1229WA	104.79	37F1229WF	503.88
5289	9	.525	37F1230WA	150.62	37F1230WF	724.16
5289/12	12	.570	37F1231WA	193.83	37F1231WF	931.91
5289/15	15	.675	37F1232WA	249.65	37F1232WF	1200.30
5289/19	19	.720	37F1233WA	307.55	37F1233WF	1478.76
5289/27	27	.900	37F1234WA	449.31	37F1234WF	2160.38

18AWG (16/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5033	3	.375	37F1235WA	95.22	37F1235WF	377.39
5036	6	.470	37F1236WA	139.82	37F1236WF	672.32
5039	9	.620	37F1237WA	213.66	37F1237WF	1027.31
5039/12	12	.670	37F1238WA	275.00	37F1238WF	1322.01
5039/15	15	.745	37F1239WA	337.19	37F1239WF	1621.14
5039/19	19	.795	37F1240WA	417.92	37F1240WF	2009.42
5039/27	27	.990	37F1241WA	609.17	37F1241WF	2928.86

13

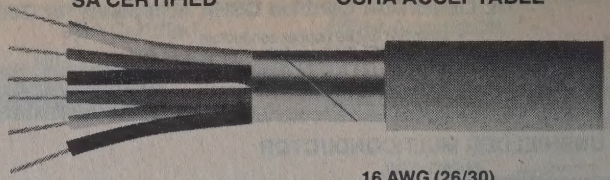
alpha Control and Signal Cable

UL LISTED **SA CERTIFIED** **OSHA ACCEPTABLE**

For General Purpose Use

Shielded Multiconductor
UL 2464 80°C 300 Volts

- Stranded tinned copper conductors
- Color coded PVC insulation
  .010" wall (24 and 22 AWG)
  .016" wall (20, 18 and 16 AWG)
- AL/Mylar foil wrap shield
- Gray PVC Jacket



24 AWG (7/32)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5092	2	.165	2.5	37F3790WA	45.88	37F3790WF	183.60
5093	3	.170	2.7	37F3791WA	51.00	37F3791WF	203.84
5094	4	.185	3.0	37F3792WA	56.04	37F3792WF	223.74
5096	6	.210	4.6	37F3793WA	66.59	37F3793WF	265.53
5098	8	.225	5.1	37F3794WA	77.57	37F3794WF	309.03
5100	10	.250	5.7	37F3795WA	88.87	37F2795WF	354.00
5100/15	15	.280	6.9	37F3796WA	112.00	37F3796WF	499.40
5100/20	20	.305	8.1	37F3797WA	221.94	37F3797WF	625.92
5100/25	25	.345	9.3	37F3798WA	156.44	37F3798WF	751.55
5100/30	30	.365	10.5	37F3799WA	182.93	37F3799WF	881.22
5100/40	40	.405	12.0	37F3800WA	236.16	37F3800WF	1136.99
5100/50	50	.445	16.1	37F3801WA	289.70	37F3801WF	1394.57
5100/60	60	.475	18.4	37F3802WA	343.92	37F3802WF	1655.07
5100/70	70	.515	20.3	37F3803WA	399.09	37F3803WF	1912.86
5100/80	80	.535	22.8	37F3804WA	450.39	37F3804WF	2167.11
5100/90	90	.610	25.2	37F3805WA	503.52	37F3805WF	2422.56
5100/00	100	.645	29.6	37F3806WA	569.19	37F3806WF	2738.27

22 AWG (7/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5192	2	.175	2.7	37F3807WA	47.25	37F3807WF	189.09
5193	3	.185	3.1	37F3808WA	53.51	37F3808WF	213.74
5194	4	.200	3.5	37F3809WA	62.81	37F3809WF	250.52
5196	6	.230	5.3	37F3810WA	72.64	37F3810WF	289.53
5198	8	.245	6.2	37F3811WA	85.72	37F3811WF	341.64
5199/10	10	.275	6.7	37F3812WA	99.44	37F3812WF	395.79
5199/15	15	.305	8.7	37F3813WA	116.12	37F3813WF	559.95
5199/20	20	.345	10.1	37F3814WA	146.87	37F3814WF	707.81
5199/25	25	.380	11.9	37F3815WA	177.83	37F3815WF	856.83
5199/30	30	.405	13.5	37F3816WA	208.61	37F3816WF	1004.64
5199/40	40	.450	17.8	37F3817WA	270.36	37F3817WF	1301.58
5199/50	50	.490	21.0	37F3818WA	333.66	38F3818WF	1467.02
5199/60	60	.530	24.3	37F3819WA	395.10	37F3819WF	1936.79
5199/70	70	.615	30.3	37F3920WA	468.71	37F3820WF	2255.18
5199/80	80	.635	32.8	37F3821WA	530.33	37F3821WF	2551.31
5199/90	90	.665	36.1	37F3822WA	595.28	37F3822WF	2863.52
5199/00	100	.715	41.6	37F3823WA	655.71	37F3823WF	3154.17

20 AWG (10/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5462	2	.225	4.4	37F3824WA	51.11	37F3824WF	204.30
5463	3	.230	5.0	37F3825WA	59.91	37F3825WF	238.95
5464	4	.250	5.6	37F3826WA	68.78	37F3826WF	274.11
5466	6	.290	6.9	37F3827WA	88.60	37F3827WF	352.61
5468	8	.315	8.0	37F3838WA	104.23	37F3828WF	414.71
5470	10	.365	9.3	37F3829WA	112.00	37F3829WF	492.75
5470/15	15	.410	12.1	37F3830WA	143.90	37F3830WF	693.56
5470/20	20	.455	15.9	37F3831WA	183.14	37F3831WF	888.23
5470/25	25	.505	18.7	37F3832WA	226.41	37F3832WF	997.19
5470/30	30	.535	21.4	37F3833WA	226.81	37F3833WF	1284.27
5470/40	40	.640	28.9	37F3834WA	359.15	37F3834WF	1728.44
5470/50	50	.715	34.6	37F3835WA	441.78	38F3835WF	2125.71
5470/60	60	.775	42.1	37F3836WA	522.96	37F3836WF	2515.91
5470/70	70	.890	52.6	37F3837WA	632.76	37F3837WF	3043.91
5470/80	80	.920	58.1	37F3838WA	715.13	37F3838WF	3439.76
5470/90	90	.960	63.8	37F3938WA	797.85	37F3939WF	3837.45
5470/00	100	1.035	69.9	37F3840WA	883.01	37F3840WF	4247.15

18 AWG (16/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5382	2	.235	4.9	37F3841WA	58.53	37F3841WF	233.57
5383	3	.250	5.8	37F3842WA	71.03	37F3852WF	283.26
5384	4	.270	6.6	37F3843WA	83.85	37F3843WF	333.86
5386	6	.325	8.3	37F3844WA	109.70	37F3944WF	436.49
5388	8	.350	9.9	37F3845WA	112.00	37F3845WF	537.84
5390	10	.400	11.7	37F3846WA	133.44	37F3846WF	643.41
5390/15	15	.450	16.6	37F3847WA	190.32	37F3847WF	916.83
5390/20	20	.495	20.6	37F3848WA	247.40	37F3848WF	1191.15
5390/25	25	.605	24.5	37F3849WA	303.57	37F3849WF	1461.27
5390/30	30	.635	30.4	37F3850WA	370.25	37F3850WF	1781.73
5390/40	40	.705	38.3	37F3851WA	483.32	37F3851WF	2325.48
5390/50	50	.785	48.2	37F3852WA	597.23	37F3852WF	2874.57
5390/60	60	.900	50.9	37F3753WA	736.74	37F3853WF	3543.80
5390/70	70	.980	67.3	37F3854WA	853.83	37F3854WF	4106.63
5390/80	80	1.015	77.1	37F3855WA	965.85	37F3855WF	4645.22
5390/90	90	1.060	85.0	37F3856WA	1079.31	37F3856WF	5190.60

16 AWG (26/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5362	2	.265	5.9	37F3857WA	70.65	37F3857WF	281.93
5363	3	.280	7.1	37F3858WA	90.27	37F3858WF	359.40
5364	4	.305	8.3	37F3859WA	109.50	37F3859WF	435.50
5366	6	.365	10.9	37F3860WA	122.25	37F3865WF	589.53
5368	8	.390	13.8	37F3861WA	153.74	37F3861WF	740.99
5370	10	.455	16.9	37F3862WA	207.68	37F3862WF	100.26
5370/15	15	.520	22.7	37F3863WA	270.15	37F3863WF	1300.44
5370/20	20	.615	30.6	37F3864WA	362.76	37F3864WF	1745.75
5370/25	25	.685	37.8	37F3865WA	446.45	37F3865WF	2145.93
5370/30	30	.720	44.7	37F3866WA	528.11	37F3866WF	2540.72
5370/40	40	.865	59.2	37F3867WA	720.18	37F3867WF	3464.31
5370/50	50	.965	73.5	37F3868WA	888.18	37F3868WF	4271.82
5370/60	60	1.026	85.7	37F3869WA	1055.87	37F3869WF	5078.09

Shielded Multiconductor
UL 2501 105°C 600 Volts

- Stranded tinned copper conductors
- .032" color coded PVC insulation
- Braided tinned copper shield
- Gray PVC Jacket

22 AWG (7/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5504	4	.390	9.5	37F1732WA	112.00	37F1732WF	461.94
5505	5	.420	11.5	37F1733WA	112.00	37F1733WF	521.73
5507	7	.450	13.2	37F1734WA	126.53	37F1734WF	608.34
5509	9	.510	15.6	37F1735WA	160.04	37F1735WF	769.62
5509/12	12	.555	18.1	37F1736WA	191.09	37F1736WF	918.74
5509/15	15	.510	21.6	37F1737WA	230.42	37F1737WF	1107.81
5509/15	19	.650	24.8	37F1738WA	270.29	37F1738WF	1299.39
5509/25	25	.745	32.5	37F1739WA	336.23	37F1739WF	1616.34

20 AWG (10/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5514	4	.419	11.3	37F1740WA	112.00	37F1740WF	507.20
5515	5	.440	12.5	37F1731WA	128.82	37F1741WF	619.37
5517	7	.470	14.7	37F1742WA	149.57	37F1742WF	719.18
5519	9	.535	17.3	37F1743WA	183.18	37F1743WF	880.80
5519/12	12	.595	21.3	37F1744WA	224.25	37F1744WF	1078.02
5519/15	15	.640	24.3	37F1745WA	266.48	37F1745WF	1281.29
5519/19	19	.685	28.3	37F1746WA	317.58	37F1746WF	1526.94
5519/25	25	7.35	37.0	37F1747WA	424.80	37F1747WF	2042.40

18 AWG (16/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5524	4	.435	12.7	37F1748WA	124.34	37F1748WF	597.83
5525	5	.465	14.4	37F1749WA	147.54	37F1749WF	709.47
5527	7	.500	11.0	37F1759WA	180.71	37F1750WF	868.88
5529	9	.570	20.1	37F1751WA	218.37	37F1751WF	1049.96
5529/12	12	.635	25.1	37F1752WA	272.94	37F1752WF	1312.49
5529/15	15	.685	29.2	37F1753WA	328.31	37F1753WF	1578.51
5529/19	19	.735	35.9	37F1754WA	386.78	37F1754WF	1859.61
5529/25	25	.885	47.8	37F1755WA	508.67	37F1755WF	2445.62

16 AWG (28/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5534	4	.465	15.0	37F1756WA	156.29	37F1756WF	751.49
5535	5	.500	17.0	37F1757WA	182.73	37F1757WF	878.63
5537	7	.540	20.5	37F1758WA	227.10	37F1758WF	1091.96
5539	9	.630	25.5	37F1759WA	281.24	37F1759WF	1352.15
5539/12	12	.690	31.2	37F1769WA	353.45	37F1760WF	1699.35
5539/15	15	.750	38.5	37F1761WA	419.07	37F1761WF	2014.70
5539/19	19	.805	45.3	37F1762WA	507.23	37F1762WF	2438.64
5539/25	25	.965	60.4	37F1763WA	699.44	37F1763WF	3362.84

14 AWG (41/30)

Alpha No.	No. Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
5544	4	.505	18.0	37F1765WA	199.53	37F1765WF	959.30
5545	5	.545	20.7	37F1764WA	233.04	37F1764WF	1120.47
5547	7	.600	26.3	37F1766WA	297.14	37F1766WF	1287.21
5549	9	.690	32.9	37F1768WA	368.52	37F1768WF	1772.07
5549/12	12	.765	41.8	37F1770WA	465.95	37F1770WF	2240.18
5549/15	15	.835	49.0	37F1771WA	560.39	37F1771WF	2694.27
5549/19	19	.940	62.2	37F1773WA	705.92	37F1773WF	3394.02
5549/25	25	1.070	77.8	37F1775WA	904.58	37F1775WF	4349.15

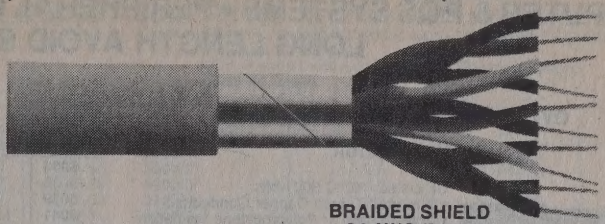
13

Control and Signal Cable

alpha

UL Listed **CSA Certified** **OSHA Acceptable**

For General Purpose Use



Shielded Multipair
UL 2464 80°C 300 Volts
- Stranded tinned copper conductors
- Color coded PVC insulation
  .010" Wall (24 & 22 AWG)
  .016" Wall (20 & 18 AWG)
- Braided tinned copper or AL/Mylar foil wrap shield
- Gray PVC jacket

FOIL SHIELD
24 AWG (7/32)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5491	1	.165	37F3870WA	45.88	37F3870WF	183.60
5492	2	.220	37F3871WA	58.46	37F3871WF	233.22
5493	3	.240	37F3872WA	71.02	37F3872WF	283.07
5494	4	.275	37F3873WA	84.08	37F3873WF	334.76
5495	5	.280	37F3874WA	96.59	37F3874WF	382.46
5496	6	.290	37F3875WA	109.20	37F3875WF	434.45
5499	9	.360	37F3876WA	122.27	37F3876WF	589.59
5499/11	11	.375	37F3877WA	143.18	37F3877WF	689.97
5499/15	15	.430	37F3878WA	189.89	37F3878WF	903.72
5499/19	19	.445	37F3879WA	228.77	37F3879WF	1101.56
5499/27	27	.515	37F3880WA	313.94	37F3880WF	1511.16
5499/51	51	.715	37F3881WA	581.58	37F3881WF	2797.85
5499/77	77	.910	37F3882WA	902.54	37F3882WF	4340.93
5499/02	102	1.010	37F3883WA	1187.10	37F3883WF	5709.08

22 AWG (7/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5481	1	.175	37F3884WA	47.25	37F3884WF	189.09
5482	2	.235	37F3885WA	62.54	37F3885WF	249.47
5483	3	.265	37F3886WA	77.53	37F3886WF	307.82
5484	4	.300	37F3887WA	92.53	37F3887WF	368.34
5485	5	.315	37F3888WA	107.12	37F3888WF	426.20
5486	6	.325	37F3889WA	112.00	37F3889WF	484.16
5489	9	.400	37F3890WA	137.81	37F3890WF	664.47
5489/11	11	.420	37F3891WA	162.02	37F3891WF	780.75
5489/15	15	.475	37F3892WA	214.08	37F3892WF	1031.01
5489/19	19	.510	37F3893WA	262.19	37F3893WF	1262.42
5489/27	27	.625	37F3894WA	370.44	37F3894WF	1782.71
5489/51	51	.850	37F3895WA	668.03	37F3895WF	3213.47
5489/77	77	1.005	37F3896WA	1035.15	37F3896WF	4978.37
5489/02	102	1.120	37F3897WA	1361.46	37F3897WF	6547.16

20 AWG (10/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5453	3	.350	37F3898WA	93.71	37F3898WF	372.93
5456	6	.430	37F3899WA	126.00	37F3899WF	607.55
5459	9	.530	37F3900WA	177.35	37F3900WF	854.24
5459/12	12	.620	37F3901WA	225.72	37F3901WF	1086.92
5459/15	15	.680	37F3902WA	288.26	37F3902WF	1387.52
5459/19	19	.725	37F3903WA	353.09	37F3903WF	1699.35
5459/27	27	.905	37F3904WA	511.88	37F3904WF	2462.79

18 AWG (16/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5373	3	.380	37F3905WA	112.00	37F3905WF	465.87
5376	6	.475	37F3906WA	165.23	37F3906WF	796.17
5379	9	.625	37F3907WA	247.95	37F3907WF	1159.20
5379/12	12	.675	37F3908WA	316.59	37F3908WF	1523.63
5379/15	15	.745	37F3909WA	386.27	37F3909WF	1858.86
5379/19	19	.860	37F3910WA	476.72	37F3910WF	2293.74

BRAIDED SHIELD
24 AWG (7/32)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5271	1	.180	37F1242WA	58.44	37F1242WF	231.78
5272	2	.240	37F1243WA	77.44	37F1243WF	306.90
5273	3	.260	37F1244WA	93.04	37F1244WF	368.66
5274	4	.290	37F1245WA	111.89	37F1245WF	443.40
5275	5	.300	37F1246WA	112.00	37F1246WF	495.27
5276	6	.315	37F1247WA	113.60	37F1247WF	546.17
5279	9	.380	37F1248WA	152.16	37F1248WF	731.55
5279/11	11	.395	37F1249WA	173.69	37F1249WF	835.07
5279/15	15	.445	37F1250WA	231.11	37F1250WF	1111.01
5279/19	19	.465	37F1251WA	280.20	37F1251WF	1347.35
5279/27	27	.540	37F1252WA	375.18	37F1252WF	1803.81
5279/51	51	.745	37F1253WA	668.24	37F1253WF	3212.78
5279/77	71	.945	37F1254WA	1018.70	37F1254WF	4897.82
5279/02	.102	1.045	37F1255WA	1324.22	37F1255WF	6366.47

22 AWG (7/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5121	1	.195	37F1256WA	63.70	37F1256WF	252.71
5122	2	.255	37F1257WA	84.99	37F1257WF	336.95
5123	3	.280	37F1258WA	102.49	37F1258WF	406.16
5124	4	.325	37F1259WA	112.00	37F1259WF	486.83
5125	5	.335	37F1119WA	114.35	37F1119WF	549.92
5126	6	.345	37F1120WA	126.27	37F1120WF	607.10
5129	9	.415	37F1121WA	178.17	37F1121WF	856.49
5129/11	11	.435	37F1124WA	204.77	37F1124WF	984.47
5129/15	15	.495	37F1125WA	265.88	37F1125WF	1278.42
5129/19	19	.535	37F1126WA	323.04	37F1126WF	1553.22
5129/27	27	.655	37F1127WA	442.58	37F1127WF	2127.81
5129/51	51	.885	37F1128WA	789.03	37F1128WF	3793.56
5129/77	77	.975	37F1129WA	1162.38	37F1129WF	5588.63
5129/02	102	1.160	37F1130WA	1512.11	37F1130WF	7269.74

18 AWG (16/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5133	3	.400	37F1182WA	134.57	37F1182WF	647.27
5136	6	.490	37F1183WA	217.44	37F1183WF	1045.37
5139	9	.650	37F1185WA	321.63	37F1185WF	1546.28
5139/12	12	.700	37F1186WA	392.13	37F1186WF	1885.28
5139/15	15	.780	37F1187WA	476.31	37F1187WF	2290.04
5139/19	19	.895	37F1188WA	602.72	37F1188WF	2897.76
5139/27	27	1.030	37F1189WA	820.70	37F1189WF	3945.51

20 AWG (10/30)

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 500'
5293	3	.365	37F1167WA	109.70	37F1167WF	491.55
5296	6	.445	37F1169WA	166.17	37F1169WF	798.95
5299	9	.555	37F1172WA	235.47	37F1172WF	1132.01
5299/12	12	.635	37F1175WA	296.93	37F1175WF	1427.69
5299/15	15	.705	37F1177WA	357.56	37F1177WF	1719.06
5299/19	19	.755	37F1179WA	432.24	37F1179WF	2078.28
5299/27	27	.940	37F1181WA	609.41	37F1181WF	2929.77

Military Control Cable
105°C 600 and 1000 Volts
- Stranded tinned copper conductors
- Color coded PVC insulation
- Braided tinned copoper shield
- Gray PVC jacket

18 GAUGE HEAVY DUTY — 1000 VOLTS

Alpha No.	Cond. No.	Nom. Jacket	Nom. O.D.	Stock No.	100 Feet	Stock No.	1000 Feet
3405	5	.025"	.300	37F1281WA	209.48	37F1281WM	2028.59
3408	8	.025"	.350"	37F1287WA	315.32	37F1987WM	2727.93
3410	10	.035"	.405"	37F1282WA	370.11	37F1282WM	3637.20
3412	12	.035"	.430"	37F1988WA	502.97	37F1988WM	4352.13
3415	15	.040"	.450"	37F1283WA	502.77	37F1283WM	4952.48
3420	20	.045"	.530"	37F1284WA	676.86	37F1284WM	6696.41
3430	30	.050"	.650"	37F1285WA	1011.84	37F1285WM	9905.07

28 GAUGE MINIATURE — 600 VOLTS

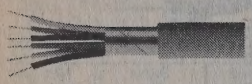
Alpha No.	Cond. No.	Nom. Jacket	Nom. O.D.	Stock No.	100 Feet	Stock No.	1000 Feet
3302	2	.012"	.125"	37F1272WA	64.14	37F1272WM	483.87
3303	3	.012"	.130"	37F1273WA	83.16	37F1273WM	644.67
3304	4	.012"	.140"	37F1274WA	100.34	37F1274WM	786.93
3306	6	.015"	.170"	37F1275WA	109.70	37F1275WM	1005.81
3308	8	.015"	.175"	37F1276WA	118.41	37F1276WM	1145.31
3310	10	.018"	.210"	37F1277WA	149.40	37F1277WM	1454.46
3312	12	.018"	.215"	37F1278WA	172.04	37F1278WM	830.06
3315	15	.022"	.230"	37F1279WA	206.82	37F1279WM	1007.28
3320	20	.022"	.260"	37F1280WA	256.97	37F1280WM	2497. 8

13

COMPUTER & POS SYSTEMS • PERIPHERAL HOOK-UP • CRT DISCONNECT LONG LENGTH AVOID SYSTEMS

OVERALL SHIELDED CABLES

MULTICONDUCTOR



UL Listed - 60°C 300 Volts
- Stranded Tinned Copper Conductors
- Polyethylene or Polypropylene Insulation
- Al/Mylar Foil Wrap Shield with Drain Wire
- Gray PVC Jacket

Alpha No.	No. of Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
2402	2	22	7/30	.170″	37F1286WA	20.00	37F1286WF	78.81
2403	3	22	7/30	.185″	37F1287WA	17.85	37F1287WF	71.05
2404	4	22	7/30	.210″	37F1288WA	46.48	37F1288WF	177.17
2411	2	20	10/30	.186″	37F2252WA	17.69	37F2252WF	71.05
2412	2	20	10/30	.186″	37F1289WA	22.60	37F1289WA	98.57
2413	3	20	10/30	.205″	37F1290WA	21.35	37F1290WA	84.92
2414	4	20	10/30	.225″	37F1291WA	45.01	37F1291WF	169.91
2421	2	18	16/30	.210″	37F2253WA	22.20	37F2253WF	84.99
2422	2	18	16/30	.210″	37F1292WA	24.84	37F1292WF	109.70
2423	3	18	16/30	.230″	37F1293WA	30.43	37F1293WF	109.70
2424	4	18	16/30	.255″	37F1294WA	53.05	37F1294WF	202.53
2432	2	16	26/30	.245″	37F1531WA	29.98	37F1531WF	123.72
2433	3	16	26/30	.270″	37F1532WA	45.55	37F1532WF	170.36
2460	2	22	Solid	.118″*	37F2254WA	15.58	37F2254WF	55.29
2461	2	22	7/30	.135″*	37F2255WA	16.31	37F2255WF	62.44

MULTIPAIR

UL Listed - 80°C 300 Volts
- 22 Awg Solid Tinned Copper Conductors
- .013″ Color Coded PVC Insulation
- Al/Mylar Foil Wrap Shield with Drain Wire
- Gray PVC Jacket

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
5902	2	.224	81F6169WA	19.55	81F6169WF	81.35
5905	4	.265	81F6170WA	33.31	81F6170WF	113.13
5906	6	.321	81F6171WA	39.31	81F6171WF	146.70
5909	9	.373	81F6172WA	56.93	81F6172WF	211.49
5909/15	15	.437	81F6173WA	99.17	81F6173WF	375.80
5909/19	19	.475	81F6174WA	109.70	81F6174WF	462.41
5909/27	27	.571	81F6176WA	132.45	81F6176WF	629.40

MULTIPAIR — INDIVIDUAL SHIELDS

Al/Mylar Foil Shields Provide 100% Coverage with Maximum Circuit Isolation

UL Listed - 60°C
- Solid or Stranded Tinned Copper Conductors
- High Density Polyethylene Insulation
- Al/Mylar Foil Wrap Shield Over Each Pair
- Gray6 PVC Jacket

#22 — SOLID

Alpha No.	No. Pairs	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
6000	3	.275	4.9	37F1535WA	38.35	37F1535WF	142.55
6002	6	.348	11.0	37F1536WA	80.44	37F1536WF	306.23
6004	9	.401	14.0	37F1537WA	109.05	37F1537WF	435.54
6006	11	.434	16.0	37F1538WA	109.70	37F1538WF	502.58
6008	15	.495	20.0	37F1539WA	148.71	37F1539WF	710.81

#22 — STRANDED

Alpha No.	No. Pairs	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
6010	3	.292	5.3	37F1540WA	43.48	37F1540WF	165.59
6012	6	.372	9.5	37F1541WA	89.91	37F1541WF	357.83
6014	9	.430	14.0	37F1542WA	116.49	37F1543WF	510.72
6016	11	.467	16.0	37F1543WA	130.67	37F1542WF	625.22
6017	12	.486	3.0	37F3767WA	138.23	37F3767WF	650.81
6018	15	.563	20.5	37F1544WA	166.41	37F1544WF	802.32
6019	17	.565	25.0	37F3768WA	208.13	37F3768WF	965.09
6020	19	.590	26.0	87F1545WA	225.56	37F1545WF	1070.28
6022	27	.697	44.0	37F1546WA	319.49	37F1546WF	1565.96

#20 — STRANDED

Alpha No.	No. Pairs	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
6033	3	.365	6.7	37F3769WA	55.38	37F3769WF	205.37
6036	6	.500	25.6	37F3770WA	107.33	37F3770WF	404.09
6039	9	.615	18.3	37F3771WA	134.70	37F3771WF	608.43
6041	11	.620	20.5	37F3772WA	153.38	37F3772WF	712.71
6042	12	.690	21.9	37F3773WA	169.85	37F3773WF	791.37
6045	15	.740	28.1	37F3774WA	199.32	37F3774WF	926.93

#18 — STRANDED

Alpha No.	No. Pairs	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
6023	3	.392	8.2	37F1190WA	68.69	37F1190WF	255.68
6024	6	.585	16.8	37F1191WA	118.76	37F1191WF	539.61
6025	9	.630	33.8	37F1192WA	174.80	37F1192WF	790.08
6026	12	.765	33.5	37F1193WA	237.93	37F1193WF	1084.26
6027	15	.830	40.5	37F1194WA	287.94	37F1194WF	1311.38

- Stranded Tinned Copper Conductors
- Polyethylene or Polypropylene Insulation
- Al/Mylar Foil Wrap Shield
- PVC Jacket

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
UL LISTED 60C-600 VOLTS						
2471	1	.304	81F6177WA	31.52	81F6177WM	247.46
2472	1	.340	81F6178WA	48.03	81F6178WM	377.13
2473	1	.400	81F6179WA	74.29	81F6179WM	576.71
COMPOSITE TWO PAIR-ONE PAIR SHIELDED						
2464	2	.165	81F6180WA	23.26	81F6180WM	157.70
2465	2	.230	81F6181WA	33.54	81F6181WM	236.04
2468	2	.165	81F6182WA	23.31	81F6182WM	166.83
2469	2	.205	81F6183WA	28.67	81F6183WM	224.97
EACH PAIR SHIELDED 105C-400 VOLTS						
2463	4	.235	81F6184WA	61.01	81F6184WM	452.51
2466	2	.165	81F6185WA	23.82	81F6185WM	168.00
2467	4	.345	81F6186WA	89.76	81F6186WM	704.61

ALPHA BYTE™-LOW NOISE, HIGH SPEED DATA LINK
SPECIAL LOW-LOSS CELLULAR POLY PROPYLENE INSULATION
24 AWG STRANDED CONDUCTORS

Alpha No.	No. Pairs	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
6072	2	.420	81F6188WA	64.63	81F6188WM	507.21
6073	3	.350	81F6189WA	50.81	81F6189WM	379.16
6076	6	.460	81F6190WA	102.68	81F6190WM	767.78
6079	9	.570	81F6191WA	124.14	81F6191WM	1130.35
6079/11	11	.610	81F6192WA	152.22	81F6192WM	1388.04
6079/12	12	.630	81F6193WA	158.76	81F6193WM	1446.59
6079/15	15	.700	81F6194WA	202.17	81F6194WM	1842.90
6079/17	17	.730	81F6195WA	228.15	81F6195WM	2077.04
6079/19	19	.740	81F6196WA	260.40	81F6196WM	2370.26
6079/27	27	.920	81F6197WA	381.17	81F6197WM	3460.55

*22AWG Solid Conductors

COAXIAL DATA CABLES
93 OHM CRT INTERFACE
FOR IBM AND IBM COMPATIBLE SYSTEMS

Alpha No.	Type	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
9062A	Standard	.247	37F2071WA	26.10	37F2071WM	161.61
9162	Plenum	.225	81F6199WA	131.48	81F6199WM	1314.75
9805	Outdoor	.260	81F6200WA	30.10	81F6200WM	236.33

MINIATURE COAX
LIGHT WEIGHT SPACE-SAVING — USE FOR INTERNAL DATA LINKS

Alpha No.	Nom. Impedance	Nom. O.D.	Stk. No.	Net 100′
9806	93	.115	81F6201WA	21.95
9500	100	.080	81F6202WA	148.11
9450	50	.040	81F6203WA	148.11
9475	75	.065	81F6204WA	148.11

HEAVY DUTY OUTDOOR VIDEO CABLE
WEATHER RESISTANT — 100% SWEEP TESTED

Alpha No.	Nom. Impedance	Nom. O.D.	Stk. No.	Net 100′	Stk. No.	Net 1000′
9807	75	.304	81F6205WA	70.27	81F6205WM	551.60

Data Cable Assemblies and Coaxial Cables

RS 232 C ASSEMBLIES

- Meets RS 232C requirements
- Full Shielding Complies with FCC docket 20780
- Integral Strain Relief
- Factory Tested

MALE-TO-MALE FULLY PINNED

Alpha No.	Length Ft.	Stock No.	Net Each
DCA512A-6	6	81F6507	39.93
DCA512A-10	10	81F6508	45.63
DCA512A-15	15	81F6509	49.38
DCA512A-25	25	81F6510	61.33
DCA512A-50	50	81F6511	87.71

MALE-TO-FEMALE FULLY PINNED

Alpha No.	Length Ft.	Stock No.	Net Each
DCA522A-6	6	81F6513	41.36
DCA522A-10	10	81F6514	47.06
DCA522A-15	15	81F6515	50.89
DCA522A-25	50	81F6516	62.75
DCA522A-50	50	81F6517	89.13

Data Cable Assemblies

IEEE 488 (GPIB,HPIB) ASSEMBLIES

- Single and double shielded types comply with FCC docket 20780
- Inherent Polarization
- Fully Molded—Environmental and Electrical Integrity
- Factory Tested

SINGLE SHIELD

Alpha No.	Length Ft.	Stock No.	Net Each
5900/1	3.3	81F6518	72.02
5900/2	6.6	81F6519	75.69
5900/3	9.9	81F6520	80.85
5900/4	13.1	81F6521	86.00
5900/8	26.2	81F6522	102.90
5900/12	39.4	81F6523	120.55
5900/16	52.6	81F6524	138.17

DOUBLE SHIELD

Alpha No.	Length Ft.	Stock No.	Net Each
5910/1	3.3	81F6525	108.03
5910/2	6.6	81F6526	113.54
5910/3	9.9	81F6527	121.28
5910/4	13.1	81F6528	129.00
5910/8	26.2	81F6529	154.35
5910/12	39.4	81F6530	180.83
5910/16	52.5	81F6531	207.26

- CATV
- MATV
- MICROWAVE
- RADAR
- HIGH SPEED DATA

RG Type Coaxial Cable

Alpha No.	Type	Inner Cond. Mat.	Inner Cond. Strand	Dielec. O.D.	Dielec. Mat.	Shields O.D.	Shields Inner	Shields Outer	Jacket O.D.	Jacket Mat.	Jacket O.D.	Imped., Ohms	Wt./ 100′	Stock No.	100 Feet	Stock No.	1000 Feet
9006A	6A/U	CW	1	.0285	PE	.189	SC	C	.264	NCV	.336	75.5	8.0	37F2052WA	336.80	37F2052WM	3229.16
9008	B/U	C	7/.0285	.086	PE	.295	C	. . .	.340	V	.415	52.5	12.0	37F2053WA	52.00	37F2053WM	340.14
9008A	8A/U	C	7/.0285	.086	PE	.295	C	. . .	.340	NCV	.415	52.5	12.0	37F2054WA	75.06	37F2054WM	480.87
9009B	9B/U	SC	7/.0285	.086	PE	.285	SC	SC	.355	NCV	.430	50.5	13.0	37F2055WA	464.00	37F2055WM	4236.95
9011	11/U	TC	7/.0159	.048	PE	.295	C	. . .	.340	V	.415	75.5	10.0	37F2056WA	57.52	37F2056WM	371.27
9011A	11A/U	TC	7/.0159	.048	PE	.292	C	. . .	.340	NCV	.412	75.5	10.0	37F2057WA	65.48	37F2057WM	428.00
9012A	12A/U	TC	7/.0159	.048	PE	.292	C	. . .	.340	NCV	.412	75.5	12.0	37F2058WA	191.52	37F2058WM	1518.75
9055	55/U	C	1	.032	PE	.121	TC	TC	.176	NP	.206	53.5	3.0	37F2063WA	54.78	37F2063WM	405.32
9055B	55B/U	SC	1	.032	PE	.121	TC	TC	.176	BP	.206	53.5	4.0	37F2064WA	60.92	37F2064WM	463.98
9058	58/U	C	1	.032	PE	.121	TC	. . .	.150	V	.200	53.5	3.3	37F2065WA	19.47	37F2065WM	114.03
9058A	58A/U	TC	19/.0071	.0375	PE	.120	TC	. . .	.150	V	.199	50.5	3.3	37F2066WA	22.79	37F2066WM	130.65
9058C	58C/U	TC	19/.0071	.0375	PE	.120	TC	. . .	.150	NCV	.199	50.5	3.3	37F2067WA	29.67	37F2067WM	154.74
9059	59/U	CW	1	.0253	PE	.150	C	. . .	.191	V	.250	73.5	4.5	37F2068WA	24.02	37F2068WM	126.05
9059B	59B/U	CW	1	.023	PE	.150	C	. . .	.191	NCV	.246	75.5	4.5	37F2069WA	33.49	37F2069WM	195.38
9062	62/U	CW	1	.025	SSP	.151	C	. . .	.191	V	.250	93.5	4.3	37F2070WA	25.26	37F2070WM	155.58
9062A*	62A/U	CW	1	.025	SSP	.151	C	. . .	.191	V	.249	93.5	3.5	37F2071WA	26.10	37F2071WM	148.80
9063B	63B/U	CW	1	.0253	SSP	.295	C	. . .	.340	NCV	.415	125.5	8.0	37F2072WA	98.13	37F2072WM	682.62
9071B	71B/U	CW	1	.025	SSP	.151	C	TC	.208	BP	.250	93.5	4.0	37F2073WA	62.01	37F2073WM	442.20
9174	174/U	CW	7/.0063	.019	PE	.060	TC	. . .	.088	NCV	.105	50.5	.7	37F2074WA	18.33	37F2074WM	109.70
9212	212/U	SC	1	.056	PE	.189	SC	SC	.265	NCV	.336	50.5	9.0	37F2075WA	364.32	37F2075WM	3388.22
9213	213/U	C	7/.0296	.090	PE	.292	C	. . .	.340	NCV	.412	50.5	12.0	37F2076WA	75.60	37F2076WM	480.87
9214	214/U	SC	7/.0296	.090	PE	.292	SC	SC	.360	NCV	.432	50.5	13.0	37F2077WA	385.74	37F2077WM	3197.91
9217	217/U	C	1	.106	PE	.380	C	C	.463	NCV	.555	50.5	23.0	37F2079WA	147.60	37F2079WM	1390.56
9223	223/U	SC	1	.036	PE	.120	SC	SC	.176	NCV	.216	50.5	4.0	37F2082WA	140.73	37F2082WM	1216.32

All dimensions are maximum except where indicated. *2000′ spool available from stock.

TEFLON DIELECTRIC COAXIAL CABLE

Conductors are silver plated copperweld. Operating temperature of 200°C. Cond., 7/.004 except Alpha No. 9188A, 7/.0067. Suitable for a wide variety of commercial or industrial applications. In 100′ or 1000′ put-ups.

Alpha No.	Type	Wall Thick.	Jacket Thick.	Jacket Type	Max. O.D.	Cap. Nom.	Imped., Ohms	Wt. 100′	Stock No.	100 Feet	Stock No.	Net 1000′
9178B	178B/U	.012	.010	Extruded FEP	.075	27.9	50±2	.8	37F2083WA	75.17	37F2083WM	538.64
9179B	179B/U	.021	.010	Extruded FEP	.105	20.4	75±3	1.2	37F1084WA	91.42	37F2084WM	654.75
9180B	180B/U	.045	.010	Extruded FEP	.145	15.3	93±2	2.0	37F2085WA	126.83	37F2085WM	1102.35
9187A	187A/U	.024	.012	Fused TFE Tape	.110	19.5	75′3	1.3	37F1482WA	98.03	37F1482WM	730.62
9188A	188A/U	.020	.012	Fused TFE Tape	.110	27.5	50±2	1.3	37F2086WA	98.03	37F2086WM	707.27
9195A	195A/U	.045	.014	Fused TFE Tape	.155	14.5	95±3	2.2	37F2087WA	177.39	37F2087WM	1684.67
9196A	196A/U	.011	.012	Fused TFE Tape	.080	28.5	50±2	.8	37F2088WA	77.30	37F2088WM	517.02

DATA & VIDEO TRANSMISSION CABLE

Designed specifically for commercial and CATV, MATV and CCTV applications.

Alpha No.	Stock No.	Type	Dielec. Material	Shield	Jacket Material	O.D.	Imped., Ohms	Color	Wt. 1000′	Net 1000′
9843	37FX2050WM	6/U	Foam PE	Foil	PVC	.242	75	Black	28.0	109.70
9846	37FX2089WM	8/U	Foam PE	BBC	PVC	.407	50	Black	111.5	394.40
9847	37FX2090WM	11/U	Foam PE	BBC	PE	.405	75	Black	90.0	346.02
9848	37FX2091WM	58/U	Foam PE	BTC	PVC	.195	50	Black	26.5	144.99
9830	37FX1970WM	59/U	Solid PE	BBC	PVC	.242	75	Black	38.0	115.14
9840	37FX1971WM	59/U	Foam PE	BBC	PVC	.242	75	Black	27.0	137.30
9844	37FX2051WM	59/U	Foam PE	Foil	PVC	.218	80	Black	22.0	109.70

SHIELD AND JACKET MATERIAL: BBC—Braided Bare Copper BTC—Braided Tin Copper
Foil—Aluminum Polyester Tape with 4-28 AWG Tinned Copperweld Drain Wires PE—Unicellular Foamed Polyethylene

1, 2 AND 3 PAIR DATA CABLES FOR HIGH SPEED, CONTROLLED IMPEDANCE SYSTEMS

Alpha No.	No. Cond.	Nom Impedance	Nom O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
9814	2	78	.243	81F6154WA	40.93	81F6154WM	235.14
9815	2	78	.242	81F6155WA	35.38	81F6155WM	233.43
9819	4	100	.290	81F6156WA	39.84	81F6156WM	273.18
9820	2	124	.440	81F6157WA	81.55	81F6157WM	640.49
9821	2	124	.242	81F6158WA	19.36	81F6158WM	124.64
9822	6	124	.450	81F6159WA	98.37	81F6159WM	672.05
9823	2	150	.350	81F6160WA	43.66	81F6160WM	342.77
9824	2	200	.245	81F6161WA	34.00	81F6161WM	350.76

C = Bare Copper; TC = Tinned Copper, SC = Silver Covered Copper, CW = Copper Covered Steel, PE = Solid Polyethylene.

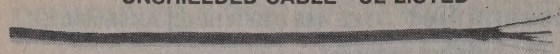
SPECIAL COAX FOR VIDEO, DATA, AND RF TRANSMISSIONS

Alpha No.	RG Type	Nom Impedance	Nom O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
9801[1]	58/U	50	.216	81F6162WA	24.77	81F6162WM	194.51
9802[2]	8/U	50	.480	81F6163WA	90.09	81F6163WM	728.60
9803	59U	75	.242	81F6164WA	31.56	81F6164WM	179.60
9159[3]	59B/U	75	.215	81F6165WA	161.27	81F6165WM	1612.59
9804[1]	6/U	75	.270	81F6166WA	18.91	81F6166WM	137.51
9845[4]	59B/U	75	.242	81F6168WA	59.22	81F6168WM	464.85

1. Al./mylar foil shield
2. Suitable for outdoor use
3. For non-conduit plenum installation
4. Dual (siamese) construction

Audio and Communication Cable

UNSHIELDED CABLE—UL LISTED



- Solid or stranded tinned copper conductors
- Color coded PVC insulation
- Gray PVC jacket

MULTIPAIR—22 AWG—80°C 150 VOLTS

22 GAUGE—SOLID CONDUCTORS

Alpha No.	No. of Pairs	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
1300	1	.154″	1.0	37F1383WA	9.14	37F1383WF	32.91
1302	2	.222″	1.7	37F1384WA	16.91	37F1384WF	65.47
1306	5	.280″	4.0	37F3760WA	31.23	37F3760WF	116.16
1307	6	.289″	4.3	37F1386WA	35.95	37FX1386WF	132.35
1307/9	9	.334″	6.4	37F1388WA	52.03	37FX1388WF	197.97
1309	13	.374″	4.5	37F1390WA	73.84	37FX1390WF	287.93
1309/15	15	.397″	9.8	37F1391WA	86.67	37FX1391WF	330.95
1310	16	.425″	9.8	37F1392WA	109.70	37FX1392WF	461.58
1313	27	.521″	17.5	37F1393WA	123.20	37FX1393WF	590.81

MULTICONDUCTOR—22 AWG—80°C 150 VOLTS

STRANDED CONDUCTORS

Alpha No.	No. of Cond.	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
1172	2	.164″	1.3	37F1336WA	9.70	37F1336WF	74.71
1173	3	.169″	1.5	37F1337WA	11.72	37F1337WF	47.25
1174	4	.194″	2.1	37F1338WA	15.31	37F1338WF	62.64
1175	5	.199″	2.3	37F1339WA	18.53	37F1339WF	76.99
1176	6	.209″	2.6	37F1340WA	27.57	37F1340WF	109.70
1177	7	.214″	2.8	37F1341WA	28.37	37F1341WF	109.70
1178	8	.224″	3.5	37F1342WA	35.44	37F1342WF	115.64
1179	9	.249″	3.8	37F1343WA	40.31	37F1343WF	140.58
1180	10	.259″	4.2	37F1344WA	42.88	37F1344WF	158.01
1181	12	.279″	5.0	37F1345WA	49.69	37F1345WF	185.06
1181/15	15	.304″	6.2	37F1346WA	76.00	37F1346WF	276.36
1181/20	20	.324″	8.2	37F1347WA	98.77	37FX1347WF	367.91
1181/25	25	.364″	10.0	37F1348WA	109.70	37FX1348WF	460.73
1181/30	30	.379″	12.3	37F1349WA	113.06	37FX1349WF	513.15
1181/40	40	.439″	15.0	37F1512WA	154.01	37F1512WF	699.90
1181/50	50	.500″	19.0	37F1513WA	176.63	37F1513WF	850.37
1181/60	60	.500″	23.0	37FX1514WA	286.62	37F1514WF	1217.24

MULTICONDUCTOR—16 AND 14 AWG 80°C 600 VOLTS

STRANDED CONDUCTORS

Alpha No.	No. of Cond.	Cond. Size	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
1064	4	16	.400	8.2	81F6213WA	53.76	81F6213WF	206.31
1065	5	16	.445	11.0	81F6214WA	72.69	81F6214WF	249.08
1067	7	16	.480	13.5	81F6215WA	102.02	81F6215WF	374.12
1069	9	16	.590	17.8	81F6216WA	109.70	81F6216WF	448.82
1072	12	16	.650	25.4	81F6217WA	132.93	81F6217WF	613.35
1075	15	16	.725	27.2	81F6218WA	191.34	81F6218WF	911.37
1079	19	16	.765	43.5	81F6219WA	227.99	81F6219WF	1071.92
1085	25	16	.930	47.0	81F6220WA	270.03	81F6220WF	1268.88
1274	4	14	.515	14.2	81F6221WA	99.17	81F6221WF	371.78
1275	5	14	.595	18.0	81F6222WA	109.70	81F6222WF	430.89
1277	7	14	.650	23.5	81F6223WA	133.74	81F6223WF	619.86
1279	9	14	.755	32.5	81F6224WA	164.54	81F6224WF	804.47
1282	12	14	.885	39.0	81F6225WA	231.54	81F6225WF	1119.50
1285	15	14	.975	51.5	81F6226WA	279.80	81F6226WF	1355.78

SOUND BROADCAST, INTERCOM, ALARM SYSTEMS, LOW-SPEED DATA, TELECOMMUNICATION

22 GAUGE—STRANDED CONDUCTORS

Alpha No.	No. of Pairs	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
1316	1	.164″	1.3	37F2235WA	15.23	37F2235WF	60.66
1317	2	.239″	2.1	37F2236WA	19.95	37F2236WF	77.19
1318	3	.252″	2.3	37F2237WA	26.61	37F2237WF	109.70
1319	4	.274″	2.5	37F2238WA	34.20	37F2238WF	120.26
1320	5	.304″	4.3	37F2239WA	41.35	37F2239WF	156.99
1322	6	.320″	5.2	37F2240WA	41.91	37FX2240WF	156.80
1323	9	.370″	7.3	37F2241WA	64.16	37FX2241WF	247.56
1324	11	.400″	9.5	37F2242WA	94.62	37FX2242WF	377.72
1325	12	.410″	4.5	37F3761WA	88.65	37F3761WF	330.53
1327	15	.450″	11.6	37F2243WA	103.96	37FX2243WF	403.76
1327/19	19	.480″	15.7	37F2244WA	115.40	37FX2244WF	525.93
1328	23	.530″	18.8	37F2245WA	143.93	37FX2245WF	654.87
1329	27	.708″	21.8	37FX3246WA	166.91	37FX2246WF	789.69

MULTICONDUCTOR—20—12AWG—80°C 300 VOLTS

SOLID

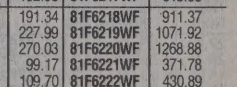
Alpha No.	No. of Cond.	Cond. Size	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
1793	2	22	.130″	1.0	37F1642WA	15.27	37F1642WF	54.16
1797	2	18	.190″	1.9	37F1648WA	35.04	37F1648WF	121.94

STRANDED

Alpha No.	No. of Cond.	Cond. Size	Nom. O.D.	Wt./ 100′	Stock No.	Net 100′	Stock No.	Net 500′
1893	2	22	.164	1.3	37F1654WA	11.36	37F1654WF	42.68
1894	3	22	.169	1.5	37F1655WA	16.76	37F1655WF	54.58
1894/4	4	22	.194	2.1	37F1656WA	17.00	37F1656WF	69.40
1895	2	20	.180	1.7	37F1657WA	12.16	37F1657WF	43.99
1896	3	20	.190	2.3	37F1658WA	18.73	37F1658WF	78.95
1896/4	4	20	.215	2.8	37F1659WA	19.26	37F1659WF	81.35
1896/5	5	20	.233	4.3	81F6227WA	23.11	81F6227WF	99.43
1896/6	6	20	.255	4.5	81F6228WA	32.54	81F6228WF	126.96
1896/7	7	20	.255	5.9	81F6229WA	38.09	81F6229WF	138.14
1896/8	8	20	.270	5.5	81F6230WA	48.54	81F6230WF	188.79
1896/9	9	20	.300	8.2	81F6231WA	51.83	81F6231WF	191.34
1896/10	10	20	.335	7.7	81F6232WA	59.40	81F6232WF	218.48
1896/12	12	20	.350	9.8	81F6233WA	61.97	81F6233WF	233.28
1896/15	15	20	.395	11.9	81F6234WA	83.59	81F6234WF	320.07
1897	2	18	.200	2.5	37F1660WA	19.36	37F1660WF	76.40
1898	3	18	.210	3.0	37F1661WA	25.86	37F1661WF	109.70
1898/4	4	18	.240	3.6	37F1662WA	27.97	37F1662WF	109.70
1898/5	5	18	.262	6.6	81F6235WA	35.34	81F6235WF	131.84
1896/6	6	18	.290	4.6	81F6236WA	48.61	81F6236WF	178.94
1898/7	7	18	.286	9.0	81F6237WA	58.57	81F6237WF	216.18
1898/8	8	18	.315	5.8	81F6238WA	61.90	81F6238WF	244.83
1898/9	9	18	.346	11.6	81F6239WA	75.06	81F6239WF	286.92
1898/10	10	18	.370	6.8	81F6240WA	84.59	81F6240WF	330.35
1898/12	12	18	.385	8.0	81F6242WA	100.31	81F6242WF	398.70
1898/15	15	18	.445	18.7	81F6243WA	112.82	81F6243WF	530.27
1898/19	19	18	.470	19.6	81F6244WA	141.99	81F6244WF	647.03
1898/25	25	18	.558	26.6	81F6245WA	177.90	81F6245WF	808.83
1899	2	16	.225	3.2	37F1663WA	26.03	37F1663WF	109.41
1899/3	3	16	.245	4.6	81F6246WA	49.19	81F6246WF	194.99
1899/4	4	16	.270	6.0	81F6247WA	64.97	81F6247WF	258.87
1891	2	14	.260	5.0	37F1666WA	40.70	37F1666WF	147.20
1891/3	3	14	.280	6.0	37F1667WA	86.29	37F1667WF	339.27
1892	2	12	.300	6.8	81F6248WA	52.58	81F6248WF	201.03
1892/3	3	12	.320	9.0	81F6249WA	109.70	81F6249WF	480.92

SHIELDED CABLE—UL LISTED—80°C 300 VOLTS

- Stranded tinned copper conductors
- Color coded PVC insulation
- Braided or spiral wrapped copper shield
- Gray PVC jacket



BRAIDED SHIELD

Alpha No.	No. Cond.	Cond. Size	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 500′
1736	2	22	.185″	37F1075WA	26.35	37F1075WF	109.70
1737	3	22	.200″	37F1076WA	27.30	37F1076WF	109.70
1738	4	22	.210″	37F1299WA	41.22	37F1299WF	158.43
1741	2	20	.200″	37F1077WA	47.34	37F1077WF	176.33
1742	3	20	.220″	37F1078WA	54.31	37F1078WF	206.21
1746	2	18	.235″	37F1079WA	56.69	37F1079WF	216.05
1747	3	18	.245″	37F1080WA	81.99	37F1080WF	320.09
1748	2	16	.250″	37F1081WA	79.83	37F1081WF	310.64
1750*†	2	14	.290″	37F1082WA	100.46	37F1082WF	395.84
1751*†	3	14	.295″	37F1409WA	124.71	37F1409WF	621.57

*Non UL.

SPIRAL WRAPPED COPPER SHIELD

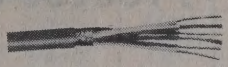
Alpha No.	No. Cond.	Cond. Size	Nom. O.D.	Stock No.	Net 100	Stock No.	Net 500′
2254/1	1	22	.115	37F2247WA	17.25	37F2247WF	71.85
2254	2	22	.175	37F1086WA	19.55	37F1086WF	81.88
2254/3	3	22	.190	37F1087WA	48.12	37F1087WF	175.62
2254/4	4	22	.200	37F2248WA	76.42	37F2248WF	292.68
2254/6	6	22	.235	37F2249WA	96.68	37F2249WF	377.43
2256/1	1	20	.130	37F1089WA	20.18	37F1089WF	83.65
2256	2	20	.195	37F1090WA	24.32	37F1090WF	95.97
2256/3	3	20	.210	37F1091WA	50.63	37F1091WF	187.59
2256/4	4	20	.225				
2256/6	6	20	.265				
2258/1	1	18	.135				
2258	2	18	.230	37F1092WA	30.14	37F1092WF	109.70
2258/3	3	18	.235	37F1093WA	37.87	37F1093WF	136 .11
2258/4	4	18	.245	37F2250WA	46.88	37F2250WF	182.84
2260	2	16	.240	37F2251WA	38.84	37F2251WF	138.72
2260/3	3	16	.245				

CONTROL AND SOUND CABLE

WIDE RANGE OF CONSTRUCTIONS AND ENVIRONMENTS

PE/PVC SHIELDED CABLE –80°C 600 VOLTS

- 20 AWG stranded tinned copper conductors
- Color coded polyethylene insulation
- Braided tinned copper shield
- Gray PUC jacket



Alpha No.	No. Cond.	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
1712	2	.245"	37F1515WA	45.26	37F1515WF	181.47
1713	3	.250"	37F1410WA	48.01	37F1410WF	173.60
1715	4	.260"	37F1411WA	53.09	37F1411WF	196.76
1716	5	.275"	37F473WA	56.04	37F473WF	223.20
1717	6	.300"	37F474WA	102.03	37F474WF	493.76
1719	8	.330"	37F475WA	135.21	37F475WF	669.50
1721	10	.375"	37F476WA	167.69	37F476WF	822.03
1723	12	.380"	37F1516WA	262.67	37F1516WF	1424.13
1726	15	.410"	37F1517WA	404.91	37F1517WF	2011.98
1728	20	.455"	37F1518WA	527.63	37F1518WF	2619.60

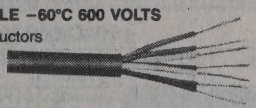
RUBBER/RUBBER SHIELDED CABLE –60°C 600 VOLTS

- Stranded tinned copper conductors
- Color coded rubber insulation
- Braided tinned copper shield
- Flexible black rubber jacket

Alpha No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
1250/18	2	18	41/34	.290"	37F1519WA	99.54	37F1519WF	400.04
1250	2	20	26/34	.270"	37F1520WA	46.43	37F1520WF	173.33
1251	3	20	26/34	.275"	37F1521WA	51.03	37F1521WF	195.66
1252	4	20	26/34	.295"	37F1522WA	59.22	37F1522WF	227.45
1253	5	20	26/34	.315"	37F1523WA	79.06	37F1523WF	312.00
1254	6	20	26/34	.340"	37F1524WA	97.32	37F1524WF	385.65
1255/8	8	20	26/34	.365"	37F1526WA	100.00	37F1526WF	472.65
1255/10	10	20	26/34	.400"	37F1527WA	255.81	37F1527WF	1220.37
1255/12	12	20	26/34	.480"	37F1528WA	372.42	37F1528WF	1800.41
1255/15	15	20	26/34	.520"	37F1529WA	482.28	37F1529WF	2349.02
1255/20	20	20	26/34	.570"	37F1530WA	598.85	37F1530WF	2928.89

RUBBER/RUBBER UNSHIELDED CABLE –60°C 600 VOLTS

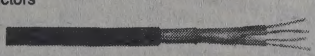
- 20 AWG Stranded tinned copper conductors
- Color coded rubber insulation
- Flexible black rubber jacket



Alpha No.	No. of Cond.	Nom. Cond.	Stock No.	100 FT.	Stock No.	500 Ft.
1244	2	.230"	37F1350WA	60.72	37F1350WF	237.00
1245	3	.240"	37F1351WA	65.21	37F1351WF	258.90
1246	4	.260"	37F1352WA	73.40	37F1352WF	293.37
1247	5	.285"	37F1353WA	100.00	37F1353WF	387.42
1247/6	6	.310"	37F1354WA	100.00	37F1354WF	468.18
1247/7	7	.310"	37F1355WA	119.37	37F1355WF	567.42
1247/8	8	.330"	37F1356WA	124.10	37F1356WF	595.83
1247/10	10	.370"	37F1357WA	202.89	37F1357WF	941.45
1247/12	12	.390"	37F1858WA	281.69	37F1358WF	1346.06

RUBBER/NEOPRENE SHIELDED CABLE 60°C 600 VOLTS

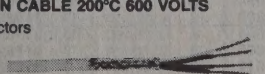
- Stranded tinned copper conductors
- Color coded rubber insulation
- Braided tinned copper shield
- Flexible, flame retardant neoprene jacket



Alpha No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
1449	1	18	41/34	.240"	37F689WA	83.03	37F689WF	330.00
1450	2	18	41/34	.290"	37F690WA	100.00	37F690WF	431.24
1451	3	18	41/34	.305"	37F691WA	166.07	37F691WF	761.48
1452	4	18	41/34	.325"	37F692WA	203.28	37F692WF	947.60
1450/16	2	16	65/34	.335"	37F470WA	172.82	37F470WF	795.36
1451/16	3	16	65/34	.355"	37F471WA	207.78	37F471WF	970.25
1452/16	4	16	65/34	.385"	37F472WA	236.58	37F472WF	1114.01

HEAT RESISTANT SHIELDED TEFLON CABLE 200°C 600 VOLTS

- Stranded silver plated copper conductors
- Color coded TFE teflon insulation
- Braided silver plated copper shield
- TFE tape wrap or extruded FEP teflon jacket



TFE

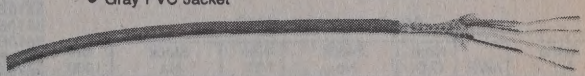
Alpha No.	Stock No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	100 Feet
2824	37F1029WA	1	22	19/34	.101"	101.87
2824/2	37F1042WA	2	22	19/34	.150"	181.92
2824/3	37F2256WA	3	22	19/34	.158"	224.61
2824/4	37F2257WA	4	22	19/34	.172"	279.38
2826	37F1028WA	1	16	19/29	.130"	170.36
2826/2	37F1027WA	2	16	19/29	.210"	293.96
2827	37F1045WA	1	20	19/32	.110"	129.98
2827/2	37F1046WA	2	20	19/32	.170"	212.81
2827/3	37F2258WA	3	20	19/32	.177"	269.21
2827/4	37F2259WA	4	20	19/32	.195"	320.90
2829	37F1049WA	1	18	19/30	.120"	138.15
2829/2	37F1050WA	2	18	19/30	.190"	250.70

FEP

2831	37F1053WA	1	24	19/36	.085"	122.69
2831/2	37F1054WA	2	24	19/36	.130"	170.22
2831/3	37F1055WA	3	24	19/36	.135"	234.11
2834	37F1056WA	1	22	19/34	.091"	122.69
2834/2	37F1057WA	2	22	19/34	.150"	181.08
2834/3	37F1058WA	3	22	19/34	.158"	264.71
2837	37F1059WA	1	20	19/32	.100"	133.55
2837/2	37F1060WA	2	20	19/32	.168"	200.04
2837/3	37F1061WA	3	20	19/32	.178"	291.24

MIL-SPEC SHIELDED CABLE 105°C 600 VOLTS

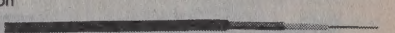
- Stranded tinned copper conductors
- Color coded PVC/Nylon insulation meets Mil-W-168780
- Braided tinned copper shield
- Gray PVC Jacket



Alpha No.	No. Cond.	Conductor Size	Conductor Strand	Nom. O.D.	Stock No.	100 Feet	Stock No.	500 Feet
3210	1	24	19/36	.092"	37F1260WA	20.26	37F1260WF	92.78
3211	2	24	19/36	.152"	37F1261WA	28.23	37F1261WF	109.91
3212	3	24	19/36	.161"	37F1262WA	36.20	37F262WF	141.32
3213	4	24	19/36	.172"	37F1504WA	44.84	37F1504WF	171.44
3220	1	22	19/34	.100"	37F1263WA		37F1263WF	
3221	2	22	19/34	.168"	37F1264WA	37.31	37F1264WF	138.86
3222	3	22	19/34	.178"	37F1265WA	51.29	37F1265WF	188.37
3230	1	20	19/32	.106"	37F1266WA	23.39	37F1266WF	100.00
3231	2	20	19/32	.186"	37F1505WA	41.81	37F1505WF	153.84
3232	3	20	19/32	.196"	37F1268WA	52.49	37F1268WF	203.38
3240	1	18	19/30	.120"	37F1269WA	33.00	37F1269WF	123.09
3241	2	18	19/30	.210"	37F1270WA	52.51	37F1270WF	204.12
3242	3	18	19/30	.227"	37F1271WA	69.12	37F1271WF	273.29
3245	1	16	19/29	.137"	37F1508WA	31.03	37F1508WF	115.91
3246	2	16	19/29	.236"	37F1509WA	50.23	37F1509WF	198.92
3247	3	16	19/29	.240"	37F1510WA	71.38	37F1510WF	280.22

UL LISTED SHIELDED MICROPHONE CABLE

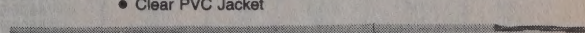
- Single (1702-1706) or two (1709-1710) stranded tinned copper conductors
- Polyethylene insulation
- Tinned copper shield
- Gray PVC Jacket



Alpha No.	Size & Strand	Nom. O.D.	Stk. No.	100 Feet	Stk. No.	1000 Feet
1702*	26 (7)	.110"	37F1376WA	25.66	37F1376WM	165.51
1703	24 (10)	.145"	37F1377WA	19.18	37F1377WM	127.26
1704	24 (10)	.190"	37F1378WA	24.41	37F1378WM	167.54
1705*	24 (10)	.110"	37F1379WA	31.25	37F1379WM	191.12
1706	20 (26)	.175"	37F1380WA	47.74	37F1380WM	319.71
1709*	24 (10)	.190"	37F1381WA	43.59	37F1381WM	312.48
1710	22 (16)	.230"	37F1382WA	35.44	37F1382WM	238.80

MINIATURE SHIELDED CABLE 80°C 200 VOLTS

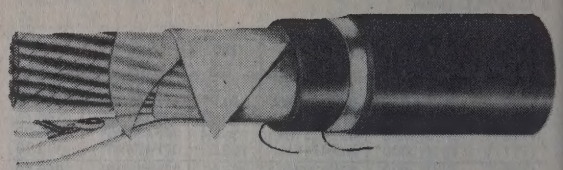
- 28AWG stranded tinned copper conductors
- Color coded PVC insulation
- Braided tinned copper shield
- Clear PVC Jacket



Alpha No.	No. of Cond.	Nom. O.D.	Wt./ 100'	Stock No.	Net 100'	Stock No.	Net 500'
1120	2	.105"	.9	37F2020WA	43.08	37F2020WF	161.31
1121	3	.115"	1.3	37F2021WA	49.76	37F2021WF	189.75
1122	4	.120"	1.8	37F2022WA	61.70	37F2022WF	239.15

Instrumentation Cable • Process Control

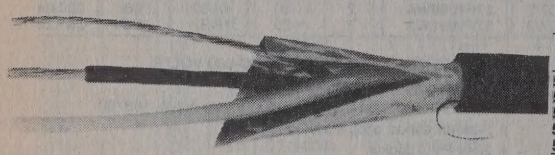
- Stranded copper conductors
- PVC or PVC/nylon insulation
  Note: Conductors are both color and number coded
- Shields are aluminum/polyester tape with drain wire.
- Nylon rip cord to aid in jacket removal
- Black flame and weather resistant PVC jacket



PVC CONSTRUCTIONS
UL Subject 13; power limited tray cable per NEC Article 725; pass IEEE 383 vertical flame test

PVC/NYLON CONSTRUCTIONS
UL Subject 1277; tray cable per NEC Article 340; pass IEEE 383 vertical flame test

SHIELDED SINGLE PAIR



90°C 300 Volt PVC

Alpha No.	AWG	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5610B2401	24	.159	81F6250WA	30.00	81F6250WM	140.00
5610B2201	22	.191	81F6251WA	43.00	81F6251WM	180.00
5610B2001	20	.207	81F6252WA	55.00	81F6252WM	230.00
5610B1801	18	.239	81F6253WA	75.00	81F6253WM	320.00
5610B1601	16	.257	81F6254WA	81.00	81F6254WM	360.00
5610B1401	14	.309	81F6255WA	128.00	81F6255WM	540.00
5610B1201	12	.347	81F6256WA	184.00	81F6256WM	800.00

90°C 600 Volt PVC/Nylon

Alpha No.	AWG	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5616B2001	20	.219	81F6257WA	55.00	81F6257WM	270.00
5616B1801	18	.279	81F6258WA	58.00	81F6258WM	290.00
5616B1601	16	.297	81F6259WA	63.00	81F6259WM	300.00
5616B1401	14	.327	81F6260WA	121.00	81F6260WM	570.00
5616B1201	12	.365	81F6261WA	156.00	81F6261WM	750.00

MULTIPAIR OVERALL SHIELD

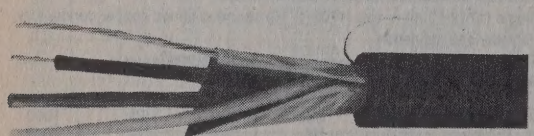
90°C 300 Volt PVC

Alpha No.	No. Pairs	AWG	Nom. O.D.	Stock No.	Net 100′	Stock No.	Ne 100
5610B2002	2	20	.310	81F6269WA	75.00	81F6269WM	410.
5610B2004	4	20	.409	81F6270WA	128.00	81F6270WM	690.
5610B2008	8	20	.486	81F6271WA	193.00	81F6271WM	1050.
5610B2010	10	20	.540	81F6272WA	267.00	81F6272WM	1470.
5610B2012	12	20	.566	81F6273WA	266.00	81F6273WM	1460.
5610B2016	16	20	.650	81F6274WA	355.00	81F6274WM	1940.
5610B2020	20	20	.702	81F6275WA	428.00	81F6275WM	2340.
5610B2024	24	20	.755	81F6276WA	473.00	81F6276WM	2580.
5610B2036	36	20	.914	81F6277WA	714.00	81F6277WM	3900.
5610B2050	50	20	1.048	81F6278WA	974.00	81F6278WM	5330.
5610B1602	2	16	.415	81F6279WA	143.00	81F6279WM	780.
5610B1604	4	16	.522	81F6280WA	217.00	81F6280WM	1190.
5610B1608	8	16	.648	81F6281WA	380.00	81F6281WM	2090.
5610B1612	12	16	.760	81F6282WA	513.00	81F6282WM	2820.
5610B1616	16	16	.849	81F6283WA	669.00	81F6283WM	3660.
5610B1624	24	16	1.015	81F6284WA	1001.00	81F6284WM	5460.
5610B1636	36	16	1.208	81F6285WA	1509.00	81F6285WM	8250.

90°C 600 Volt PVC/Nylon

Alpha No.	No. Pairs	AWG	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000
5616B1602	2	16	.436	81F6286WA	156.00	81F6286WM	960.
5616B1604	4	16	.587	81F6287WA	241.00	81F6287WM	1470.
5616B1608	8	16	.705	81F6288WA	380.00	81F6288WM	2330.
5616B1612	12	16	.870	81F6289WA	604.00	81F6289WM	3690.
5616B1624	24	16	1.131	81F6290WA	1059.00	81F6290WM	6480.

SHIELDED SINGLE TRIPLE



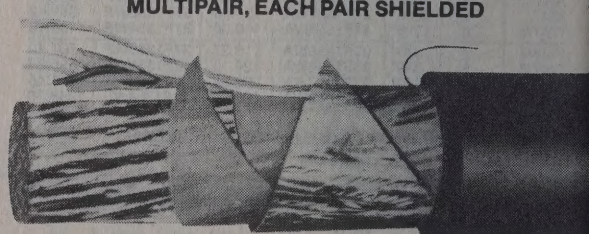
90°C 300 Volt PVC

Alpha No.	AWG	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5640B2201	22	.200	81F6262WA	58.00	81F6262WM	240.00
5640B2001	20	.217	81F6263WA	63.00	81F6263WM	270.00
5640B1801	18	.252	81F6264WA	88.00	81F6264WM	380.00
5640B1601	16	.271	81F6265WA	108.00	81F6265WM	470.00

90°C 600 Volt PVC/Nylon

Alpha No.	AWG	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5646B1801	18	.293	81F6266WA	86.00	81F6266WM	390.00
5646B1601	16	.313	81F6267WA	95.00	81F6267WM	450.00
5646B1401	14	.345	81F6268WA	144.00	81F6268WM	680.00

MULTIPAIR, EACH PAIR SHIELDED



90°C 300 Volt PVC

Alpha No.	No. Pairs	AWG	Nom. O.D.	Stock No.	Net 100′	Stock No.	Net 1000′
5620B2002	2	20	.365	81F6291WA	108.00	81F6291WM	560.0
5620B2004	4	20	.442	81F6292WA	166.00	81F6292WM	900.0
5620B2008	8	20	.561	81F6293WA	264.00	81F6293WM	1460.0
5620B2012	12	20	.693	81F6294WA	380.00	81F6294WM	2090.0
5620B2016	16	20	.766	81F6295WA	500.00	81F6295WM	2730.0
5620B2020	20	20	.847	81F6296WA	613.00	81F6296WM	3170.0
5620B2024	24	20	.959	81F6297WA	707.00	81F6297WM	3860.0
5620B2036	36	20	1.092	81F6298WA	1036.00	81F6298WM	5660.0
5620B2050	50	20	1.254	81F6299WA	1484.00	81F6299WM	8120.0
5620B1602	2	16	.487	81F6300WA	174.00	81F6300WM	900.0
5620B1604	4	16	.563	81F6301WA	282.00	81F6301WM	1460.0
5620B1608	8	16	.747	81F6302WA	496.00	81F6302WM	2570.0
5620B1612	12	16	.920	81F6303WA	752.00	81F6303WM	3870.0
5620B1616	16	16	1.021	81F6304WA	988.00	81F6304WM	5090.0
5620B1624	24	16	1.279	81F6305WA	1142.00	81F6305WM	5880.0

Thermocouple Wire and Cable

LIMITS OF ERROR FOR THERMOCOUPLE GRADE AND EXTENSION WIRE*

Thermocouple Grade				Thermocouple Extension				
ANSI Type	Material	Temperature Range °C	Standard Limits (±)	Special Limits (±)	ANSI Type	Temperature Range °C	Standard Limits (±)	Special Limits (±)
J	Iron/Constantan	0 to 277 277 to 760	2.22°C 3/4%	1.11°C 3/8%	JX	-18 to 204	2.22°C	1.11°C
K	Chromel/Alumel	0 to 277 277 to 1260	2.22°C 3/4%	1.11°C 3/8%	KX	-18 to 204	2.22°C	1.11°C
T	Copper/Constantan	-184 to -101 -101 to -59 -59 to +93 93 to 371	— 2% .83°C 3/4%	1% 1% .42°C 3/8%	TX	-59 to 93	.83°C	.42°C
E	Chromel/Constantan	0 to 316 316 to 871	1.67°C 1/2%	1.25°C 3/8%	EX	-18 to 204	2.22°C	1.11°C
R,S	Platinum/Platinum-Rhodium	0 to 538 538 to 1482	1.39°C 1/4%	— —	RX,SX**	24 to 204	6.67°C	—

*The limits of error based on a reference junction of 0°C (32°F) per ANSI Circular MC96.1-1975
Percentages apply to actual temperature being measured.
**Copper/Alloy #11—Compensating Extension for Platinum/Platinum-Rhodium Thermocouples.

THERMOCOUPLE EXTENSION WIRE

- Calibrated to standard limits of error
- ANSI color coded insulation and jacket
- Duplex-parallel construction

Alpha No.	AWG	ANSI Type	Insul. Mat'l	Jacket Mat'l	Nom. O.D.	Stock No.	Net 100'
5703	16	EX	PVC	PVC	.101 × .180	**81F6306WA**	80.00
5704	20	EX	PVC	PVC	.084 × .142	**81F6307WA**	61.00
5712	16	JX	PVC	PVC	.121 × .201	**81F6308WA**	63.00
5714	16	JX	Glass	Glass	.081 × .142	**81F6309WA**	108.00
5715	16	JX	Teflon	Teflon	.091 × .161	**81F6310WA**	163.00
5716	20	JX	PVC	PVC	.100 × .163	**81F6212WA**	32.00
5716S	20	JX	PVC	PVC	.090 × .154	**81F6311WA**	76.00
5721	16	KX	PVC	PVC	.121 × .201	**81F6312WA**	133.00
5723	16	KX	Glass	Glass	.081 × .142	**81F6313WA**	143.00
5724	20	KX	PVC	PVC	.100 × .163	**81F6314WA**	50.00
5724S	20	KX	PVC	PVC	.090 × .154	**81F6315WA**	120.00
5730	16	TX	PVC	PVC	.121 × .201	**81F6316WA**	65.00
5731	20	TX	PVC	PVC	.100 × .163	**81F6317WA**	32.00
5731S	20	TX	PVC	PVC	.090 × .154	**81F6318WA**	53.00
5740	16	RSX	PVC	PVC	.121 × .201	**81F6319WA**	51.00

Note: S denotes stranded conductors

THERMOCOUPLE GRADE WIRE

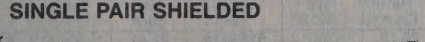
- Suitable for primary thermocouple fabrication
- Calibrated to standard limits of error
- ANSI color coded insulation and jacket

Alpha No.	AWG	ANSI Type	Insul. Mat'l	Jacket Mat'l	Nom. O.D.	Stock No.	Net 100'
5762	20	J	Glass	Glass	.064 × .109	**81F6320WA**	71.00
5762S	20	J	Glass	Glass	.090 × .154	**81F6321WA**	121.00
5765	20	J	Teflon	Teflon	.072 × .124	**81F6322WA**	76.00
5766	24	J	Glass	Glass	.049 × .081	**81F6323WA**	51.00
5769	28	J	Glass	Glass	.035 × .058	**81F6324WA**	45.00
5769/1	30	J	Glass	Glass	.032 × .052	**81F6325WA**	48.00
5772	20	K	Glass	Glass	.064 × .109	**81F6326WA**	95.00
5772S	20	K	Glass	Glass	.090 × .154	**81F6327WA**	188.00
5775	20	K	Teflon	Teflon	.072 × .124	**81F6328WA**	106.00
5776	24	K	Glass	Glass	.049 × .081	**81F6329WA**	61.00
5777	28	K	Glass	Glass	.035 × .058	**81F6330WA**	70.00
5778	30	K	Glass	Glass	.032 × .052	**81F6331WA**	50.00
5782	20	T	Glass	Glass	.064 × .109	**81F6332WA**	73.00
5785	20	T	Glass	Glass	.072 × .124	**81F6333WA**	76.00
5786	24	T	Glass	Glass	.049 × .081	**81F6334WA**	53.00
5783	28	T	Glass	Glass	.035 × .058	**81F6335WA**	50.00
5784	30	T	Glass	Glass	.032 × .052	**81F6336WA**	45.00
5752	20	E	Glass	Glass	.064 × .109	**81F6337WA**	96.00

Note: S denotes stranded conductors

THERMOCOUPLE EXTENSION CABLE SINGLE PAIR SHIELDED

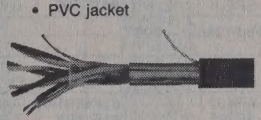
- Solid conductor
- PVC insulation
- PVC jacket



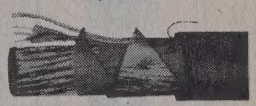
Alpha No.	AWG	ANSI Type	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 1000'
5710/1601	16	EX	.252	**81F6338WA**	191.00	**81F6338WM**	830.00
5711/1601	16	JX	.252	**81F6339WA**	126.00	**81F6339WM**	540.00
5712/1601	16	KX	.252	**81F6340WA**	188.00	**81F6340WM**	810.00
5713/1601	16	TX	.252	**81F6341WA**	131.00	**81F6341WM**	560.00
5714/1601	16	RSX	.252	**81F6342WA**	126.00	**81F6342WM**	540.00
5710/2001	20	EX	.202	**81F6343WA**	115.00	**81F6343WM**	480.00
5711/2001	20	JX	.202	**81F6344WA**	86.00	**81F6344WM**	350.00
5712/2001	20	KX	.202	**81F6345WA**	111.00	**81F6345WM**	480.00
5713/2001	20	TX	.202	**81F6346WA**	78.00	**81F6346WM**	330.00

THERMOCOUPLE EXTENSION CABLE MULTIPAIR 20AWG SHIELDED

- Solid conductor (alloy type as shown)
- PVC insulation
- PVC jacket



INDIVIDUAL SHIELD



OVERALL SHIELD

OVERALL SHIELD

Type EX			Type JX		
Alpha No.	Stock No.	Net 100'	Alpha No.	Stock No.	Net 100'
5710/2002	**81F6347WA**	227.00	5711//2002	**81F6357WA**	156.00
5710/2004	**81F6348WA**	274.00	5711//2004	**81F6358WA**	188.00
5710/2006	**81F6349WA**	397.00	5711//2006	**81F6359WA**	276.00
5710/2008	**81F6350WA**	481.00	5711/2008	**81F6360WA**	335.00
5710/2012	**81F6351WA**	697.00	5711/2012	**81F6361WA**	443.00
5710/2016	**81F6352WA**	923.00	5711/2016	**81F6362WA**	621.00
5710/2020	**81F6353WA**	1199.00	5711/2020	**81F6363WA**	744.00
5710/2024	**81F6354WA**	1311.00	5711/2024	**81F6364WA**	830.00
5710/2036	**81F6355WA**	2092.00	5711/2036	**81F6365WA**	1306.00
5710/2050	**81F6356WA**	2948.00	5711/2050	**81F6366WA**	1818.00

Type KX			Type TX		
Alpha No.	Stock No.	Net 100'	Alpha No.	Stock No.	Net 100'
5712/2002	**81F6367WA**	203.00	5713/2002	**81F6377WA**	166.00
5712/2004	**81F6368WA**	274.00	5713/2004	**81F6378WA**	201.00
5712/2006	**81F6369WA**	435.00	5713/2006	**81F6379WA**	282.00
5712/2008	**81F6370WA**	510.00	5713/2008	**81F6380WA**	335.00
5712/2012	**81F6371WA**	712.00	5713/2012	**81F6381WA**	461.00
5712/2016	**81F6372WA**	978.00	5713/2016	**81F6382WA**	656.00
5712/2020	**81F6373WA**	1247.00	5713/2020	**81F6383WA**	790.00
5712/2024	**81F6374WA**	1348.00	5713/2024	**81F6384WA**	888.00
5712/2036	**81F6375WA**	2067.00	5713/2036	**81F6385WA**	1394.00
5712/2050	**81F6376WA**	3073.00	5713/2050	**81F6386WA**	1922.00

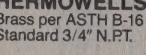
INDIVIDUAL SHIELD

Type EX			Type JX		
Alpha No.	Stock No.	Net 100'	Alpha No.	Stock No.	Net 100'
5720/2002	**81F6387WA**	217.00	5721/2002	**81F6396WA**	156.00
5720/2004	**81F6388WA**	299.00	5721/2004	**81F6397WA**	219.00
5720/2006	**81F6389WA**	447.00	5721/2006	**81F6398WA**	320.00
5720/2008	**81F6390WA**	543.00	5721/2008	**81F6399WA**	387.00
5720/2012	**81F6391WA**	782.00	5721/2012	**81F6400WA**	528.00
5720/2016	**81F6392WA**	1052.00	5721/2016	**81F6401WA**	715.00
5720/2024	**81F6393WA**	1484.00	5721/2024	**81F6402WA**	976.00
5720/2036	**81F6394WA**	2493.00	5721/2036	**81F6403WA**	1516.00
5720/2050	**81F6395WA**	3468.00	5721/2050	**81F6404WA**	2370.00

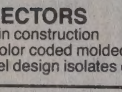
Type KX			Type TX		
Alpha No.	Stock No.	Net 100'	Alpha No.	Stock No.	Net 100'
5722/2002	**81F6405WA**	196.00	5723/2002	**81F6414WA**	161.00
5722/2004	**81F6406WA**	305.00	5723/2004	**81F6415WA**	231.00
5722/2006	**81F6407WA**	443.00	5723/2006	**81F6416WA**	322.00
5722/2008	**81F6408WA**	559.00	5723/2008	**81F6417WA**	410.00
5722/2012	**81F6409WA**	795.00	5723/2012	**81F6418WA**	556.00
5722/2016	**81F6410WA**	1066.00	5723/2016	**81F6419WA**	795.00
5722/2024	**81F6411WA**	1519.00	5723/2024	**81F6420WA**	1084.00
5722/2036	**81F6412WA**	2512.00	5723/2036	**81F6421WA**	1713.00
5722/2050	**81F6413WA**	3493.00	5723/2050	**81F6422WA**	2361.00

13

COMPONENTS

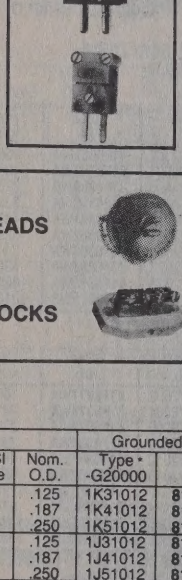


THERMOWELLS
- Brass per ASTH B-16
- Standard 3/4" N.P.T.



FITTINGS

CONNECTORS
- Solid pin construction
- ANSI color coded molded bodies
- Channel design isolates each wire



General Use

Alpha No.	Immersion Length "	Stock No.	Net Each
SW32SO0251	2.5	**81F5575**	33.21
SW32SO0451	4.5	**81F5576**	39.87
SW32SO0751	7.5	**81F5577**	59.04

Alpha No.	N.P.T.	Sheath O.D.	Mat'l	Stock No.	Net Each
SFC431	1/4"	.125	Brass	**81F5581**	4.74
SFC441	1/4"	.187	Brass	**81F5582**	4.74
SFC451	1/4"	.250	Brass	**81F5583**	3.30
SFC433	1/4"	.125	S. Steel	**81F5584**	11.91
SFC443	1/4"	.187	S. Steel	**81F5586**	11.91
SFC453	1/4"	.250	S. Steel	**81F5587**	9.96

Compression type immersion length can be set at time of installation but is not readjustable

Lagging Extension

Alpha No.	Immersion Length "	Stock No.	Net Each
SW32SL0251	2.5	**81F5578**	39.87
SW32SL0451	4.5	**81F5579**	59.04
SW32SL0751	7.5	**81F5580**	72.24

Alpha No.	N.P.T.	Sheath O.D.	Mat'l	Stock No.	Net Each
SFC433	1/4"	.125	S. Steel	**81F5585**	16.17
SFC443	1/4"	.187	S. Steel	**81F5588**	16.17
SFC453	1/4"	.250	S. Steel	**81F5589**	13.20

Readjustable immersion length may be reset as required.

Standard – 400°C

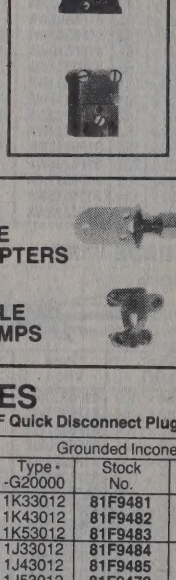
Alpha No.	Ansi Type	Stock No.	Net Each
SPK01	K	**81F5590**	6.75
SPJ01	J	**81F5592**	6.75
SPT01	T	**81F5594**	6.75
SPE01	E	**81F5596**	6.75

High Temp – 800°C

Alpha No.	Ansi Type	Stock No.	Net Each
SPK02	K	**81F5591**	7.43
SPJ02	J	**81F5593**	7.43
SPT02	T	**81F5595**	6.75
SPE02	E	**81F5597**	6.75

Miniature

Alpha No.	Ansi Type	Stock No.	Net Each
SPK03	K	**81F5598**	2.43
SPJ03	J	**81F5599**	2.43
SPT03	T	**81F5600**	2.43
SPE03	E	**81F5601**	2.43



Standard – 400°C

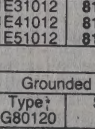
Alpha No.	Ansi Type	Stock No.	Net Each
SJK01	K	**81F5602**	4.05
SJJ01	J	**81F5603**	4.05
SJT01	T	**81F5604**	4.05
SJE01	E	**81F5605**	4.05

High Temp – 800°C

Alpha No.	Ansi Type	Stock No.	Net Each
SJK02	K	**81F5606**	5.07
SJJ02	J	**81F5607**	5.07
SJT02	T	**81F5608**	5.07
SJE02	E	**81F5609**	5.07

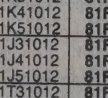
Miniature

Alpha No.	Ansi Type	Stock No.	Net Each
SJK03	K	**81F5610**	3.05
SJJ03	J	**81F5611**	3.05
SJT03	T	**81F5612**	3.05
SJE03	E	**81F5613**	3.05



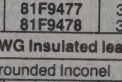
HEADS

Alpha No.	Type	Tube N.P.T.	Stock No.	Net Each
SHA34A	Univ.	3/4"	**81F5614**	17.02
SHA34I	Univ.	3/4"	**81F5615**	15.15
SHC14	Univ.	1/4"	**81F5616**	58.43



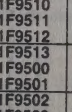
BLOCKS

Alpha No.	Stock No.	Net Each
SYC01	**81F5620**	1.08



TUBE ADAPTERS

Alpha No.	Tube O.D.	Stock No.	Net Each
SYA03	.125	**81F5617**	2.25
SYA04	.187	**81F5618**	2.25
SYA05	.250	**81F5619**	2.25



CABLE CLAMPS

Alpha No.	Type	Stock No.	Net Each
SB002	Simplex	**81F5621**	4.12
SB004	Simplex	**81F5622**	6.00

13

ASSEMBLIES

12" Alpha-Pak (MgO) Assembly with 400°F Quick Disconnect Plug

ANSI Type	Nom. O.D.	Grounded Stainless Steel Type * -G20000	Stock No.	Net Each	Ungrounded Stainless Steel Type * -U20000	Stock No.	Net Each	Grounded Inconel Type * -G20000	Stock No.	Net Each	Ungrounded Inconel Type * -U20000	Stock No.	Net Each
K	.125	1K31012	**81F9560**	29.91	1K31012	**81F9497**	34.41	1K33012	**81F9481**	30.86	1K33012	**81F9465**	35.36
K	.187	1K41012	**81F9540**	31.19	1K41012	**81F9498**	35.69	1K43012	**81F9482**	33.53	1K43012	**81F9466**	38.03
K	.250	1K51012	**81F9541**	33.36	1K51012	**81F9499**	37.86	1K53012	**81F9483**	36.98	1K53012	**81F9467**	42.98
J	.125	1J31012	**81F9542**	29.91	1J31012	**81F9486**	34.41	1J33012	**81F9484**	30.86	1J33012	**81F9468**	35.36
J	.187	1J41012	**81F9543**	31.19	1J41012	**81F9487**	35.69	1J43012	**81F9485**	33.53	1J43012	**81F9469**	38.03
J	.250	1J51012	**81F9544**	33.36	1J51012	**81F9488**	37.86	1J53012	**81F9472**	36.98	1J53012	**81F9470**	42.98
T	.125	1T31012	**81F9545**	30.10	1T31012	**81F9489**	35.30	1T33012	**81F9473**	31.73	1T33012	**81F9471**	36.23
T	.187	1T41012	**81F9546**	32.24	1T41012	**81F9490**	36.74	1T43012	**81F9474**	34.56	1T43012	**81F9535**	39.06
T	.250	1T51012	**81F9543**	34.59	1T51012	**81F9491**	39.09	1T53012	**81F9475**	38.15	1T53012	**81F9536**	43.40
E	.125	1E31012	**81F9494**	30.45	1E31012	**81F9492**	34.95	1E33012	**81F9476**	31.38	1E33012	**81F9537**	35.81
E	.187	1E41012	**81F9495**	32.37	1E41012	**81F9479**	36.87	1E43012	**81F9477**	34.26	1E43012	**81F9538**	38.76
E	.250	1E51012	**81F9496**	34.10	1E51012	**81F9480**	38.59	1E53012	**81F9478**	37.58	1E53012	**81F9539**	42.01

12" Alpha-Pak (Hg0) Assembly with 12" of Glass/Glass 20 AWG Insulated lead wire

ANSI Type	Nom. O.D.	Grounded Stainless Steel Type * -G80120	Stock No.	Net Each	Ungrounded Stainless Steel Type * -U80120	Stock No.	Net Each	Grounded Inconel Type * -G80120	Stock No.	Net Each	Ungrounded Inconel Type * -U80120	Stock No.	Net Each
K	.125	1K31012	**81F9528**	21.66	1K31012	**81F9526**	26.16	1K33012	**81F9510**	22.61	1K33012	**81F9548**	27.11
K	.187	1K41012	**81F9529**	22.94	1K41012	**81F9527**	27.44	1K43012	**81F9511**	25.28	1K43012	**81F9549**	29.78
K	.250	1K51012	**81F9530**	25.11	1K51012	**81F9514**	29.10	1K53012	**81F9512**	28.73	1K53012	**81F9550**	33.23
J	.125	1J31012	**81F9531**	21.66	1J31012	**81F9515**	26.16	1J33012	**81F9513**	22.61	1J33012	**81F9551**	27.11
J	.187	1J41012	**81F9532**	23.49	1J41012	**81F9516**	27.44	1J43012	**81F9500**	25.28	1J43012	**81F9552**	29.78
J	.250	1J51012	**81F9533**	25.11	1J51012	**81F9517**	29.10	1J53012	**81F9501**	28.73	1J53012	**81F9553**	33.23
T	.125	1T31012	**81F9534**	22.55	1T31012	**81F9518**	27.14	1T33012	**81F9502**	23.48	1T33012	**81F9554**	27.96
T	.187	1T41012	**81F9521**	23.99	1T41012	**81F9519**	28.19	1T43012	**81F9503**	26.31	1T43012	**81F9555**	32.31
T	.250	1T51012	**81F9522**	26.34	1T51012	**81F9520**	30.14	1T53012	**81F9504**	29.90	1T53012	**81F9556**	34.40
E	.125	1E31012	**81F9523**	22.20	1E31012	**81F9507**	26.70	1E33012	**81F9505**	23.13	1E33012	**81F9557**	27.63
E	.187	1E41012	**81F9524**	23.67	1E41012	**81F9508**	28.17	1E43012	**81F9506**	26.01	1E43012	**81F9558**	30.51
E	.250	1E51012	**81F9525**	25.15	1E51012	**81F9509**	30.35	1E53012	**81F9547**	29.33	1E53012	**81F9559**	33.83

* Type number is a suffix. Ex. 1K31012 – G20000

FIT® Shrinkable Tubing

FIT 221—GENERAL PURPOSE POLYOLEFIN

Rated 135°C, 2:1 shrinkage ratio at 121°C. Mil-Spec, UL listed CSA certified.

Alpha No.	Min. Supplied I.D.	Max. Recovered I.D.	Nom. Recovered Wall	4' Lengths Total Ftg.	Stk. No. Black	Stk. No. Clear	Each	6" Lengths Total Ftg.	Stk. No. Black	Stk. No. Clear	Each
FIT-221-3/64	.046	.023	.016	100	37F7022	37F7019	33.46	20	37F6989	37F6980	8.24
FIT-221-1/16	.063	.031	.017	100	37F7023	37F7016	35.66	18	37F6990	37F6981	
FIT-221-3/32	.093	.046	.020	100	37F7024	37F7014	40.42	16	37F6991	37F6982	
FIT-221-1/8	.125	.062	.020	100	37F4025	37F7011	42.78	14	37F6992	37F6983	
FIT-221-3/16	.187	.093	.020	100	37F7026	37F7013	51.94	12	37F6993	37F6984	8.24
FIT-221-1/4	.250	.125	.025	100	37F7027	37F7012	65.76	10	37F6994	37F6985	
FIT-221-3/8	.375	.187	.025	100	37F7028	37F7017	73.24	8	37F6995	37F6986	
FIT-221-1/2	.500	.250	.025	20	37F7029	37F7015	18.52	7	37F6996	37F6987	
FIT-221-3/4	.750	.375	.030	20	37F7030	37F7018	24.75	6	37F6997	37F6988	8.24
FIT-221-1	1.000	.500	.035	20	37F7031	37F7020	34.70	4	37F6998	37F6963	
FIT-221-1 1/2	1.500	.750	.040	20	37F7032	37F7021	62.20	2.5	37F6999	37F6964	
FIT-221-2	2.000	1.000	.045	20	37F7033	81F5724	85.84	1.5	37F7000	37F6965	
FIT-221-3	3.000	1.500	.050	8	37F7034	81F5725	54.39	1.0	37F7001	37F6966	8.24
FIT-221-4	4.000	2.000	.055	8	37F7035	81F5726	79.25	.5	37F7002	37F6967	

FIT 105 IRRADIATED PVC

Long lengths for wire harness jacketing. Mil-Spec, Rated 105°C, 2:1 shrinkage ratio at 175°C. Environmentally stable.

Alpha No.	Min. Supplied I.D.	Max. Recovered I.D.	Nom. Recovered Wall	Stock 25'	Net 25'	Stock No.	Net 100'
FIT-105-3/64	.046	.023	.020	37F6968A	8.83	37F6968C	32.50
FIT-105-1/16	.062	.031	.020	37F6969A	9.48	37F6969C	34.90
FIT-105-3/32	.093	.046	.020	37F6970A	10.73	37F6970C	39.47
FIT-105-1/8	.125	.062	.025	37F6971A	11.31	37F6971C	41.75
FIT-105-3/16	.187	.093	.025	37F6972A	13.84	37F6972C	50.85
FIT-105-1/4	.250	.125	.025	37F6973A	17.43	37F6973C	64.31
FIT-105-3/8	.375	.187	.030	37F6974A	19.42	37F6974C	71.55
FIT-105-1/2	.500	.250	.030	37F6975A	21.88	37F6975C	80.64
FIT-105-3/4	.750	.375	.035	37F6976A	29.37	37F6976C	108.08
FIT-105-1	1.000	.500	.040	37F6977A	41.15	37F6977C	151.29
FIT-105-1 1/2	1.500	.750	.045	37F6978A	77.50	37F6978C	285.26
FIT-105-2	2.000	1.000	.050	37F6979A	106.98	37F6979C	409.96

FIT 321—ADHESIVE LINED POLYOLEFIN

Adheres to substrate during and after shrinkage. Mil-Spec. Rated 135°C, 3:1 ratio at 125°C. Water resistant.

Alpha No.	Min. Supplied I.D.	Max. Recovered I.D.	Nom. Recovered Wall	4' Lengths Total Ftg.	Stock No.	Net Each	6" Lengths Total Ftg.	Stock No.	Net Each
FIT-321-1/8	.120	.040	.040	100	37F7050	131.62	14	37F6943	26.32
FIT-321-1/4	.240	.080	.040	100	37F7051	200.46	10	37F6944	
FIT-321-1/2	.470	.160	.070	20	37F7052	158.91	7	37F6945	
FIT-321-1	.940	.320	.100	20	37F7053	120.22	4	37F6946	
FIT-321-1 1/2	1.570	.510	.100	20	37F7054	197.81	2.5	37F6947	

Rated 135°C. UL listed VW-1. 2:1 shrinkage ratio at 121°C.

FIT 221V—HIGHLY FLAME RETARDANT POLYOLEFIN

Alpha Number	Min. Supplied I.D.	Max. Recovered I.D.	Nom Recovered Wall	4" Lengths Total Ftg.	Stock No. 4'	Net Each	6" Length Total Ftg.	Stock No. 6"	Net Each
FIT-221V-3/64	.046	.023	.016	100	37F7036	37.48	20	37F7003	8.24
FIT-221V-1/16	.063	.031	.017	100	37F7037	39.94	18	37F7004	
FIT-221V-3/32	.093	.046	.020	100	37F7038	45.27	16	37F7005	
FIT-221V-1/8	.125	.062	.020	100	37F7039	47.91	14	37F7006	
FIT-221V-3/16	.187	.093	.020	100	37F7040	58.17	12	37F7007	8.24
FIT-221V-1/4	.250	.125	.025	100	37F7041	73.65	10	37F7008	
FIT-221V-3/8	.375	.187	.025	100	37F7042	82.03	8	37F7009	
FIT-221V-1/2	.500	.250	.025	20	37F7043	18.52	7	37F7010	
FIT-221V-3/4	.750	.375	.030	20	37F7044	24.75	6	37F6937	8.24
FIT-221V-1	1.000	.500	.035	20	37F7045	34.70	4	37F6938	
FIT-221V-1.5	1.500	.750	.040	20	37F7046	62.20	2.5	37F6939	
FIT-221V-2	2.000	1.000	.045	20	37F7047	85.84	1.5	37F6940	
FIT-221V-3	3.000	1.500	.050	8	37F7048	54.39	1.0	37F6941	8.24
FIT-221V-4	4.000	2.000	.055	8	37F7049	79.25	.5	37F6942	

Excellent terminal strain relief, Mil-Spec, rated 135°C, 2:1 shrinkage ratio at 135°C. High tensile strength.

FIT 295—SEMI RIGID POLYOLEFIN

Alpha No.	Min. Supplied I.D.	Max. Recovered I.D.	Nom. Recovered Wall	4' Lengths Total Ftg.	Stock No.	Net Each	6" Lengths Total Ftg.	Stock No.	Net Each
FIT-295-3/64	.046	.023	.020	100	37F7055	40.78	20	37F6948	10.38
FIT-295-1/16	.063	.032	.020	100	37F7056	42.82	18	37F6449	
FIT-295-3/32	.093	.045	.020	100	37F7057	48.16	16	37F6950	
FIT-295-1/8	.125	.063	.020	100	37F7058	51.56	14	37F6951	
FIT-295-3/16	.187	.093	.025	100	37F7059	62.98	12	37F6952	10.38
FIT-295-1/4	.250	.125	.025	100	37F7060	78.52	10	37F6953	
FIT-295-3/8	.375	.187	.030	100	37F7061	87.30	8	37F6954	
FIT-295-1/2	.500	.250	.030	20	37F7062	22.15	7	37F6955	

FIT 300—DUAL WALL POLYOLEFIN

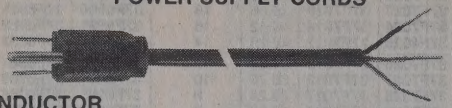
Outer wall shrinks, inner wall melts and encapsulates. Mil-Spec. Rated 110°C, shrinkage ratio ranges from 2.5:1 to 6:1 depending on size. Rigid.

Alpha No.	Min. Supplied I.D.	Max. Recovered I.D.	Nom. Recovered Wall	4' Lengths Total Ftg.	Stock No.	Net Each	6" Lengths Total Ftg.	Stock No.	Net Each
FIT-300-1/8	.125	.023	.038	100	37F7063	120.02	7	37F6956	10.02
FIT-300-3/16	.187	.060	.043	100	37F7064	146.76	6	37F6957	
FIT-300-1/4	.250	.080	.047	100	37F7065	182.58	5	37F6958	
FIT-300-3/8	.375	.135	.050	100	37F7066	203.38	4	37F6959	
FIT-300-1/2	.500	.195	.055	20	37F7067	53.72	3	37F6960	10.02
FIT-300-3/4	.750	.313	.065	20	37F7068	89.92	2	37F6961	
FIT-300-3/10	.300	.050	.100	100	37F7069	417.04	2	37F6962	

13

Cords and Cord Sets For OEM and Replacement

POWER SUPPLY CORDS



2 CONDUCTOR
SVT VINYL AND SV RUBBER

- Medium duty service
- Light appliance applications
- UL listed, CSA certified

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net each
605	6–0	18	.243	10	SVT	gray	**81F6491**	1.69
608	6–0	18	.245	10	SV	black gray	**61F6492**	1.97

SJ RUBBER

- Heavy duty appliances
- Fractional horsepower motors
- UL Listed; CSA Certified

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net each
606	8–0	18	.298	10	SJ	black	**81F6493**	2.74
607	8–0	16	.323	13	SJ	black	**81F6494**	3.26

3 CONDUCTOR
SVT VINYL AND SV RUBBER

- Medium duty service.
- Business machines, instruments, small tools.
- UL Listed; CSA Certified.

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net each
775	6–0	18	.265	10	SV	black	**81F6454**	2.85
776	6–0	18	.265	10	SV	black	**81F6455**	3.25
777	6–0	18	.253	10	SVT	gray	**37F2007**	2.15
787	6–0	18	.253	10	SVT	gray	**81F6457**	2.39

SJ RUBBER

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net each
788	9–0	14	.380	15	SJ	black	**81F6462**	7.51
789	15–0	14	.380	15	SJ	black	**81F6495**	12.25

3 CONDUCTOR
SJT VINYL
SJ RUBBER
SJO NEOPRENE

- Hard Service applications.
- Heavy duty appliances and non-double insulated tools.
- UL Listed; CSA Certified

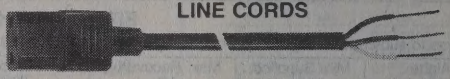
Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net each
615	6–0	18	.328	10	SJ	black	**37F1412**	3.20
780	6–0	18	.328	10	SJT	gray	**81F6448**	2.27
778	8–0	18	.328	10	SJ	black	**81F6463**	3.52
779	8–0	18	.328	10	SJT	gray	**81F6459**	2.60
781	8–0	18	.328	10	SJO	black	**81F6449**	3.36
782	12–0	18	.328	10	SJ	black	**81F6450**	4.71
783	9–0	16	.353	13	SJ	black	**81F6460**	4.57
784	12–0	16	.353	13	SJ	black	**81F6461**	5.73
785	15–0	16	.353	13	SJ	black	**81F6451**	7.59
786	20–0	16	.353	13	SJT	gray	**81F6452**	6.25

SJT VINYL

- Electronic equipment power supply.
- CEE color code—brown, blue, green/yellow.

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net each
501	6–7	18	.328	10	SJT	black	**81F6467**	2.66
502	9–10	18	.328	10	SJT	black	**81F6468**	3.32
503	6–7	16	.353	13	SJT	black	**81F6469**	3.07
504	9–10	16	.353	13	SJT	black	**81F6470**	3.92
505	6–7	14	.385	15	SJT	black	**81F6471**	3.72
506	9–10	14	.385	15	SJT	black	**81F6472**	4.76

LINE CORDS



3 CONDUCTOR
SVT AND SJT VINYL

- Electronic equipment applications.
- Grounded receptacle.
- CEE color code—blue, brown, green/yellow.
- UL Listed; CSA Certified.

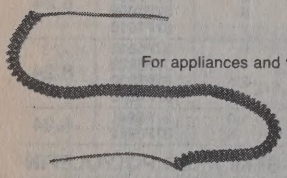
STRAIGHT RECEPTACLE

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net each
523	7–6	18	.253	10	SVT	black	**81F6464**	3.41
511	6–7	18	.328	10	SJT	black	**81F6473**	3.46
512	9–10	18	.328	10	SJT	black	**81F6474**	4.12
513	6–7	16	.353	13	SJT	black	**81F6475**	3.86
514	9–10	16	.353	13	SJT	black	**81F6476**	4.73

14

Neoprene Retractile Cords

For appliances and tools—eliminate dangerous and unsightly tangled cords while providing extended reach capability.



TYPE SVO AND SJO
2-4 CONDUCTOR

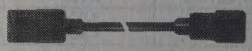
- 18 AWG (41/34) stranded conductors.
- Flexible rubber insulation.
- Tough Neoprene JKT.
- 12" straight section—each end.

Alpha No.	No. Conds.	Length(Ft.) Retracted	Length(Ft.) Extended	Coil O.D.	UL Type	Stock No.	Net Each
725	2	1	6	15/16	SVO	**81F6499**	5.47
725/2	2	2	12	15/16	SVO	**81F6442**	9.95
725/4	2	4	25	15/16	SVO	**81F6423**	15.86
726	3	2	12	15/16	SVO	**81F6500**	12.70
726/4	3	4	25	15/16	SVO	**81F6424**	22.02
727	3	1	6	1 3/8	SJO	**81F6501**	8.30
727/2	3	2	12	1 3/8	SJO	**81F6425**	12.72
727/4	3	4	25	1 3/8	SJO	**81F6426**	20.98
728	4	2	12	1 7/16	SJO	**81F6502**	14.66
728/4	4	4	25	1 7/16	SJO	**81F6427**	24.48

TYPE SJO
3 CONDUCTOR

- 16AWG (65/34) stranded conductors

Alpha No.	No. Conds.	Length(Ft.) Retracted	Length(Ft.) Extended	Coil O.D.	UL Type	Stock No.	Net Each
729	3	1	6	1 7/16	SJO	**81F6496**	8.35
729/2	3	2	12	1 7/16	SJO	**81F6497**	14.40
729/4	3	4	25	1 7/16	SJO	**81F6498**	24.48



TYPE SVO AND SJO
2 and 3 CONDUCTOR

- 18 and 16 AWG
- Molded Vinyl grounding plug on one end

Alpha No.	No. Conds.	AWG	Length(Ft.) Retracted	Length(Ft.) Extended	Coil O.D.	UL Type	Stock No.	Net Each
654	2	18	1	6	15/16	SVO	**37F3546**	3.92
656	3	18	1	6	1 3/8	SJO	**37F3547**	5.62
658	3	16	1	6	1 7/16	SJO	**37F3549**	5.99
659	3	16	2	12	1 7/16	SJO	**81F6430**	8.34

RETRACTILE TEST PRODS

- Extra flexible stranded tinned copper.
- Rubber insulation (20 KV rated).
- Test prod on one end and phone tip plug at the other end. (NP version is without fittings)
- Supplied 1 black & 1 red.

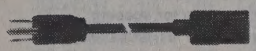
Alpha No.	AWG	Nom. O.D.	Stock No.	Net Each
650P	20	.173	**81F6431**	14.74
650NP	20	.173	**81F6432**	5.41

Cords and Cord Sets For OEM and Replacement

alpha

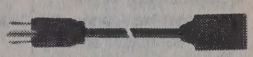
SHIELDED CORD SETS
Many Alpha cord sets shown on this page are shielded with 100% coverage foil accompanied by drain wires used for termination. This technique suppresses electrical radiation, thereby improving the performance of sensitive electronic equipment. Use of such cords can eliminate the need for costly noise filters and internal equipment shielding.

3 CONDUCTOR DETACHABLE POWER SUPPLY CORD SETS



SVT VINYL
- Light duty applications.
- UL Listed, CSA Certified
- CEE Color Code (P/N 543)
  Std. Color Code (P/N 544)

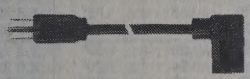
Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
543	7–6	18	.253	7	SVT	gray black	**81F6458**	3.42
544	8–0	18	.253	7	SVT	black	**81F6490**	3.77



SVT AND SJT VINYL
- Medium duty applications.
- Use for test instruments and microcomputers.
- UL Listed; CSA Certified.

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
545	7–6	18	.253	10	SVT	black	**81F6456**	3.48
546	7–6	16	.353	13	SJT	black	**81F6466**	4.41

3 CONDUCTOR ELECTRONIC DETACHABLE CORD SETS



SVT AND SJT VINYL
- UL Listed; CSA Certified.

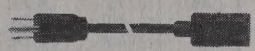
RIGHT ANGLE RECEPTACLE

SHIELDED

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
549F	6–7	18	.270	10	SVT	black	**81F6436**	6.11
550F	9–10	18	.270	10	SVT	black	**81F6437**	6.87
537F	6–7	18	.337	10	SJT	black	**81F6438**	6.37
538F	9–10	18	.337	10	SJT	black	**81F6439**	7.25
539F	6–7	16	.367	13	SJT	black	**81F6440**	6.79
540F	9–10	16	.367	13	SJT	black	**81F6441**	7.93

UNSHIELDED

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
537	6–7	18	.328	10	SJT	black	**81F6484**	4.18
538	9–10	18	.328	10	SJT	black	**81F6483**	4.83
539	6–7	16	.353	13	SJT	black	**81F6485**	4.59
540	9–10	16	.353	13	SJT	black	**81F6486**	5.44



- CEE Color code (blue, brown, green/yellow)

STRAIGHT RECEPTACLE

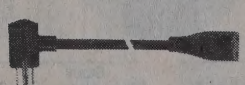
SHIELDED

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
547F	6–7	18	.270	10	SVT	black	**81F6477**	5.87
548F	9–10	18	.270	10	SVT	black	**81F6478**	6.60
531F	6–7	18	.337	10	SJT	black	**81F6479**	6.11
532F	9–10	18	.337	10	SJT	black	**81F6480**	7.01
533F	6–7	16	.367	13	SJT	black	**81F6481**	6.53
534F	9–10	16	.367	13	SJT	black	**81F6433**	7.69
535F	6–7	14	.406	15	SJT	black	**81F6434**	7.39
536F	9–10	14	.406	15	SJT	black	**81F6435**	8.74

UNSHIELDED

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
531	6–7	18	.328	10	SJT	black	**81F6443**	3.92
535	7–6	18	.253	10	SVT	black	**81F6465**	3.48
532	9–10	18	.328	10	SJT	black	**81F6444**	4.59
533	6–7	16	.353	13	SJT	black	**81F6445**	4.32
534	9–10	16	.353	13	SJT	black	**81F6482**	5.20

3 CONDUCTOR EXTENSION CORDS



SJT VINYL
- Special plug adapter permits "piggy backing".
- UL Listed.

Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
631	8–0	18	.328	10	SJT	black	**81F6489**	5.90
632	15–0	18	.328	10	SJT	black	**81F6488**	7.98

SJ RUBBER
- For polarized electrical equipment.
- UL Listed.

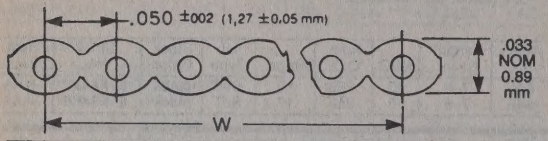
Alpha No.	Length ft.–in.	AWG	Nom. O.D.	Amps.	UL Type	Stock Color	Stock No.	Net Each
636	10–0	18	.328	10	SJ	black	**37F1122**	5.25
633	10–0	16	.353	13	SJ	black	**81F6487**	5.84

FLAT CABLE

FOR USE WITH INSULATION DISPLACEMENT CONNECTORS

GRAY FLAT CABLE
UL 2651—105°C 300 VOLTS

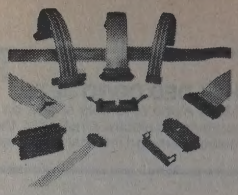
- 28AWG (7/36) Stranded tinned copper conductors
- 105°C gray PUC insulation
- Capacitance: 14 pf/FT
- Nominal impedance: 105 OHMS
- .050" conductor spacing
- Excellent tear down
- For general purpose use



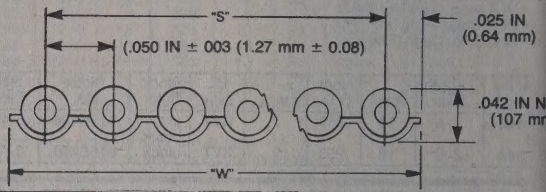
Stock No.	Type	No. Cond.	Nom. Width	Approx. Wt./Roll	NET
37F3715WA	3580/9	9	.45"	1.0 lbs.	19.93
37F3501WA	3580/10	10	.50"	1.2 lbs.	22.17
37F1111WA	3580/14	14	.70"	1.7 lbs.	31.10
37F3716WA	3580/15	15	.75"	1.9 lbs.	33.23
37F1112WA	3580/16	16	.80"	2.0 lbs.	35.44
37F1113WA	3580/20	20	1.00"	2.4 lbs.	44.35
37F3717WA	3580/24	24	1.20"	2.9 lbs.	53.13
37F3718WA	3580/25	25	1.25"	3.1 lbs.	55.32
37F1114WA	3580/26	26	1.30"	3.2 lbs.	57.54
37F1115WA	3580/34	34	1.70"	4.2 lbs.	75.19
37F3719WA	3580/37	37	1.85"	4.6 lbs.	81.80
37F1116WA	3580/40	40	2.00"	4.9 lbs.	88.52
37F1117WA	3580/50	50	2.50"	6.1 lbs.	110.70
37F3502WA	3580/60	60	3.00"	7.3 lbs.	135.05
37F3720WA	3580/64	64	3.20"	7.7 lbs.	144.28

Note: All rolls. 100 ft. put-ups

COLOR CODED FLAT CABLE
UL 2884—105°C 300 VOLTS



- 28AWG (7/36) Stranded tinned copper conductors
- .010" color coded PUC insulation laminated to a .009" clear PUC sheet
- Capacitance: 14 pf/FT
- Nominal impedance: 105 OHMS
- .050" conductor spacing
- Easy circuit identification



Stock No.	Type	No. Cond.	Nom. Width	Approx. Wt./Roll	NET
37F3721WA	3581/9	9	.45"	0.9 lbs.	26.78
37F3503WA	3581/10	10	.50"	1.1 lbs.	29.75
37F3504WA	3581/14	14	.70"	1.5 lbs.	41.63
37F3722WA	3581/15	15	.75"	1.6 lbs.	44.60
37F3505WA	3581/16	16	.80"	1.7 lbs.	47.58
37F3506WA	3581/20	20	1.00"	2.2 lbs.	59.48
37F3723WA	3581/24	24	1.20"	2.6 lbs.	71.37
37F3724WA	3581/25	25	1.25"	2.8 lbs.	74.34
37F3507WA	3581/26	26	1.30"	2.9 lbs.	77.31
37F3508WA	3581/34	34	1.70"	3.7 lbs.	101.10
37F3725WA	3581/37	37	1.85"	4.1 lbs.	110.03
37F3509WA	3581/40	40	2.00"	4.4 lbs.	118.95
37F3510WA	3581/50	50	2.50"	5.5 lbs.	148.67
37F3511WA	3581/60	60	3.00"	6.6 lbs.	178.41
37F3726WA	3581/64	64	3.20"	7.0 lbs.	190.29

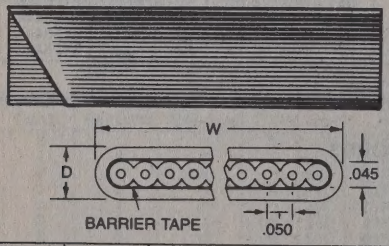
Note: All rolls. 100 ft. put-ups

JACKETED FLAT CABLES

ENVIRONMENTAL PROTECTION FOR EXTERNAL APPLICATIONS

UNSHIELDED JACKETED
UL STYLE 2912-80°C 90 VOLTS

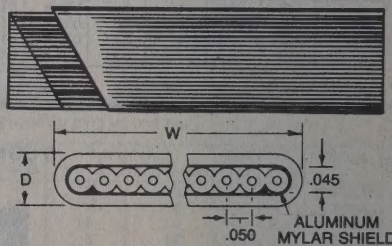
- 28 AWG (7/36) stranded tinned copper conductors
- Gray PUC insulation
- Capacitance: 18 pf/FT
- Nominal impedance: 95 OHMS
- Extruded gray PUC jacket
- .050" conductor spacing



Stock No.	Type	No. Cond.	Nom. Width	Max. Thick.	Approx. Wt./Roll	NET
37F3727WA	3589/9	9	.52"	115"	3.8 lbs.	169.69
37F3728WA	3589/10	10	.57"	115"	4.5 lbs.	188.55
37F3729WA	3589/14	14	.77"	115"	5.9 lbs.	217.75
37F3730WA	3589/15	15	.82"	115"	6.2 lbs.	224.92
37F3731WA	3589/16	16	.87"	115"	6.6 lbs.	232.08
37F3732WA	3589/20	20	1.07"	115"	8.0 lbs.	262.93
37F3733WA	3589/24	24	1.27"	115"	9.6 lbs.	295.06
37F3734WA	3589/25	25	1.32"	115"	9.7 lbs.	302.87
37F3735WA	3589/26	26	1.37"	115"	9.8 lbs.	310.66
37F3736WA	3589/34	34	1.80"	145"	16.3 lbs.	400.47
37F3737WA	3589/37	37	1.95"	145"	17.6 lbs.	426.83
37F3738WA	3589/40	40	2.10"	145"	19.0 lbs.	453.20
37F3739WA	3589/50	50	2.60"	145"	23.4 lbs.	543.74

SHIELDED JACKETED
UL STYLE 2912-80°C 90 VOLTS

- 28 AWG (7/36) stranded tinned copper conductors
- Gray PUC insulation
- Capacitance: 25 pf/FT
- Nominal impedance: 75 OHMS
- Aluminum/polyester shield with 2 28AWG drain wires
- Gray PUC jacket
- Complies with FCC docket 20780 restricted radiation standard



Stock No.	Type	No. Cond.	Nom. Width	Max. Thick.	Approx. Wt./Roll	NET
37F3740WA	3590/9	9	.52"	115"	3.9 lbs.	174.94
37F3741WA	3590/10	10	.57"	115"	4.6 lbs.	194.38
37F3742WA	3590/14	14	.77"	115"	6.0 lbs.	224.48
37F3743WA	3590/15	15	.82"	115"	6.4 lbs.	231.88
37F3744WA	3590/16	16	.87"	115"	6.7 lbs.	239.24
37F3745WA	3590/20	20	1.07"	115"	8.1 lbs.	271.06
37F3746WA	3590/24	24	1.27"	115"	9.6 lbs.	304.18
37F3747WA	3590/25	25	1.32"	115"	9.7 lbs.	312.24
37F3748WA	3590/26	26	1.37"	115"	9.8 lbs.	320.26
37F3749WA	3590/34	34	1.80"	145"	16.3 lbs.	412.84
37F3750WA	3590/37	37	1.95"	145"	17.7 lbs.	439.84
37F3751WA	3590/40	40	2.10"	145"	19.1 lbs.	467.22
37F3752WA	3590/50	50	2.60"	145"	23.5 lbs.	560.57

Note: All rolls 100 ft. put-ups

Zipper Tubing, Braid, Bus Bar, Ribbon Cable

ALPHA ZIPPER TUBING

Instant zip-on jacketing provides protection for interconnection harnesses, prototype cables, or in-line splices

- Constructed from 105° rated PVC per MIL-I-6310
- Remains closed even under severe flexing (no sealant required)
- UL listed and CSA certified

GENERAL PURPOSE .020" THICK BLACK PVC

Alpha No.	Nom. I.D.	Flat Width	Stock No.	Net 100'
ZIP-4½	½	2	81F6628	128.80
ZIP-4⅝	⅝	2⅜	81F6629	133.75
ZIP-4¾	¾	2¾	81F6630	138.84
ZIP-4⅞	⅞	3⅛	81F6631	143.74
ZIP-41-1	1	3 9/16	81F6632	149.50
ZIP-41-1⅛	1⅛	3 5/16	81F6633	154.56
ZIP-41-1¼	1¼	4⅛	81F6634	156.82
ZIP-41-1½	1½	4⅞	81F6635	166.79
ZIP-41-1¾	1¾	5⅝	81F6636	176.80
ZIP-41-2	2	6⅜	81F6637	186.61

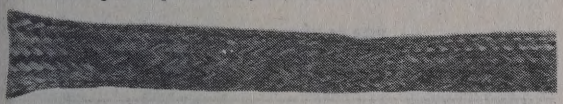
SHIELDED TYPE* PVC/FOIL/POLYESTER LAMINATE

Alpha No.	Nom. I.D.	Flat Width	Stock No.	Net 100'
ZIP-60½	½	2	81F6638	206.44
ZIP-60⅝	⅝	2⅜	81F6639	220.82
ZIP-60¾	¾	2¾	81F6640	235.20
ZIP-60⅞	⅞	3⅛	81F6641	249.60
ZIP-60-1	1	3 9/16	81F6642	266.43
ZIP-60-1⅛	1⅛	3 5/16	81F6643	280.99
ZIP-60-1¼	1¼	4⅛	81F6644	288.09
ZIP-60-1½	1½	4⅞	81F6645	316.89
ZIP-60-1¾	1¾	5⅝	81F6646	331.30
ZIP-60-2	2	6⅜	81F6647	376.46

*Supplied with Zip-clip shield termination system.

FLAT BRAID

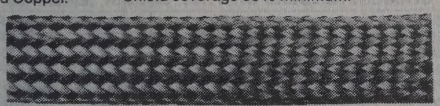
- Tinned copper
- Combines high current carrying capacity and flexibility.
- Suitable for grounding and bonding strap applications.



Alpha No.	Flat Width	Thick	Cir. MIS	Amps	Stock No.	Net 100'	Stock No.	Net 1000'
1221	.025"	.015	200	4	37F1141WA	24.75	37F1144WM	166.70
1222	1/32"	.020	400	6	37F1145WA	26.55	37F1145WM	178.31
1223	2/64"	.020	600	7	37F1146WA	28.14	37F1146WM	190.29
1224	2/32"	.020	1200	11	37F1147WA	31.25	37F1147WM	223.46
1229	1/8"	.020	1800	16	37F1148WA	35.24	37F1148WM	249.65
1230	3/16"	.020	3000	25	37F1149WA	38.37	37F1149WM	277.88
1231	1/4"	.030	4200	32	37F1150WA	52.07	37F1150WM	201.05
1232	3/5"	.030	7200	46	37F1151WA	83.36	37F1151WM	639.47
1232/2	1/2"	.030	9600	53	37F1152WA	105.65	37F1152WM	824.52
1233	5/8"	.030	9600	53	37F1153WA	109.70	37F1153WM	871.11
1234	3/4"	.040	20800	85	37F1154WA	207.35	37F1154WM	2004.30
1235	1"	.045	20800	85	37F1155WA	221.93	37F1155WM	2150.09
1239	1 5/8"	.050	33700	100	37F1547WA	251.64	37F1547WM	2447.12
1240	1 1/2"	.060	53064	150	37F1548WA	352.58	.....	.....
1241	1 3/4"	.080	125424	280	37F1549WA	705.20	.....	.....
1242	2"	.120	154368	310	37F1550WA	885.05	.....	.....
1242/4	3"	.200	225000	390	37F1554WA	1707.50	.....	.....

TUBULAR BRAID

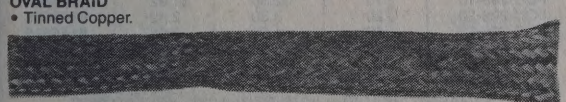
- Tinned Copper.
- Round construction per MIL-QQ-B-575
- Shield coverage 95% minimum.



Alpha No.	Stock No.	I.D.	AWG Equiv.	Cir. MIL	Amp.	Wt. 100'	Net 100'
2160	37F1156WA	1/32"	22	600	7	.3	19.43
2162	37F1157WA	1/16"	19	1200	11	.6	40.37
2164	37F1158WA	7/64"	16	2400	19	1.0	61.81
2166	37F1159WA	1/8"	15	3000	25	1.2	64.54
2168	37F1160WA	11/64"	14	4200	32	1.7	82.14
2170	37F1161WA	13/64"	11	7630	46	3.5	109.70
2171	37F3762WA	1/4"	10	9600	53	3.6	127.50
2171/1	37F3763WA	9/32"	9	12060	60	3.6	132.99
2172	37F1162WA	3/8"	10	9600	53	3.6	131.40
2173	37F3764WA	7/16"	6	24120	90	8.3	216.77
2174	37F1163WA	1/2"	9	13200	6	5.5	180.09
2175	37F3765WA	9/16"	3	48240	145	15.5	332.60
2175/1	37F3766WA	21/32"	1	77180	190	25.5	509.79
2176	37F1164WA	25/32"	7	21600	88	8.0	243.80

OVAL BRAID

- Tinned Copper.



Alpha No.	Stock No.	Nom. I.D.	AWG Equiv.	Circ. Mills	Amps	Wt. 100'	Net 100'
2132	37F2026WA	1/16	19	1192	11.0	.5	24.75
2136	37F2027WA	1/64	14	4770	32.0	1.8	62.55
2140	37F2028WA	3/16	13	5724	38.0	2.0	67.16
2142	37F2029WA	1/2	12	6678	41.0	2.4	81.28
2144	37F2030WA	3/8	11	7632	46.0	2.8	90.65

BUS BAR

- Solid tinned copper per MIL-W-3861
- Grounding wire
- Antenna wiring
- Component Leads

Alpha No.	AWG	MIL area	Nom. O.D.	Stock No.	Net 100'	Stock No.	Net 1000'
299/3	30	100.5	.010"	37F1131WA	4.26	37F1131WM	16.76
299/2	28	159.8	.013"	37F1132WA	4.26	37F1132WM	17.82
299/1	26	254.1	.016"	37F1133WA	4.37	37F1133WM	20.31
299	24	404.0	.020"	37F1134WA	4.50	37F1134WM	22.11
298	22	642.4	.025"	37F1135WA	4.71	37F1135WM	27.08
297	20	1022.0	.033"	37F1136WA	5.61	37F1136WM	37.07
296	18	1642.0	.040"	37F1137WA	7.28	37F1137WM	53.53
295	16	2583.0	.051"	37F1138WA	10.08	37F1138WM	84.07
286	14	4107.0	.065"	37F1139WA	15.23	37F1139WM	109.70
289	12	6535.0	.082"	37F1140WA	22.77	37F1140WM	152.57
292	10	10380.0	.103"	37F2031WA	47.59	37F2031WM	359.10
292/8	8	16510.0	.129"	37F2032WA	75.73	37F2032WM	557.88
292/6	6	26250.0	.162"	37F2033WA	109.70	37F2033WM	897.84

BONDED RIBBON CABLE

- Stranded tinned copper conductors
- .010" color coded PVC insulation
- 105°C 600 volt rating
- Flexible
- Easy teardown

Alpha No.	Stock No.	No. of Cond.	Conductor Size	Conductor Strand	Width × Thick.	Net 100'
3530	37F143WA	10	22	19/34	.510 × .051"	48.68
3530/7	37F3485WA	10	22	7/30	.510 × .051"	39.31
3531	37F144WA	15	22	19/34	.765 × .051"	73.03
3531/7	37F3486WA	15	22	7/30	.765 × .051"	59.05
3532	37F145WA	22	22	19/34	1.020 × .051"	97.24
3532/7	37F3487WA	20	22	7/30	1.020 × .051"	78.61
3533	37F146WA	30	22	19/34	1.530 × .051"	145.79
3533/7	37F3488WA	30	22	7/30	1.530 × .051"	117.80
3540	37F147WA	10	24	19/36	.440 × .044"	41.55
3540/7	37F3489WA	10	24	7/32	.440 × .044"	30.21
3541	37F148WA	15	24	19/36	.660 × .044"	62.37
3541/7	37F3490WA	15	24	7/32	.660 × .044"	45.34
3542	37F149WA	20	24	19/36	.880 × .044"	83.12
3542/7	37F3491WA	20	24	7/32	.880 × .044"	60.44
3543	37F150WA	30	24	19/36	1.320 × .044"	127.45
3543/7	37F3492WA	30	24	7/32	1.320 × .044"	90.66
3550	37F151WA	10	26	7/34	.392 × .039"	25.45
3550/14	37F3493WA	14	26	7/34	.546 × .039"	35.65
3551	37F152WA	15	26	7/34	.587 × .039"	38.19
3551/16	37F3494WA	16	26	7/34	.624 × .039"	44.44
3552	37F153WA	20	26	7/34	.783 × .039"	50.92
3553	37F154WA	30	26	7/34	1.19 × .039"	76.37
3560	37F155WA	10	28	7/36	.351 × .035"	31.41
3561	37F156WA	15	28	7/36	.523 × .035"	47.09
3562	37F157WA	20	28	7/36	.701 × .035"	62.84
3563	37F158WA	30	28	/36	1.06 × .035"	94.27
3570	37F200WA	10	30	7/38	.311 × .032"	32.28
3571	37F201WA	15	30	7/38	.482 × .032"	48.41
3572	37F202WA	20	30	7/38	.640 × .032"	64.56
3573	37F203WA	30	30	7/38	.965 × .032"	96.84

13

alpha Flat Cable Connectors

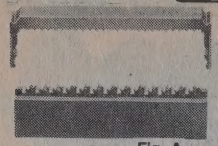


Fig. A

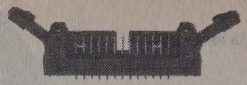


Fig. B

Fig. C

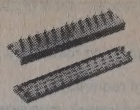


Fig. D

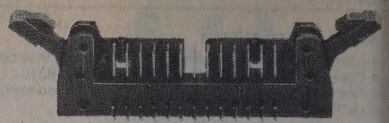


Fig. E

The Alpha Flat Cable Connector System has been designed to provide superior reliability, assembly ease, and compatibility with MIL-C-83503. Manufactured to strict tolerances, the Alpha connectors ensure precision termination and the ability to create reliable and predictable assemblies.

OFF-SET TINES
Patented off-set tines place forces on the conductor in opposite directions on two different planes, keeping the conductor under constant tension, ensuring a gas-light connection.

DUAL CANTILEVERED CONTACTS
The female socket connectors feature dual cantilevered contacts ensuring good electrical contact when inserted into a header. The design provides two surfaces for wiping action which will remove any oxides or dirt that may have built up on the contacts.

FEMALE SOCKET CONNECTORS—FIG. B

Mates with all standard headers and 0.025" wire wrap posts; recessed cover design allows cable to remain within connector profile; self-locking cover; patented off-set tine design ensures reliable gas-tight termination; terminations can be inspected before cover is put on. Also available in QPL version.

WITH STRAIN RELIEF

Stock No.	Alpha No.	No. Pins	1-99	100-499
40F6401	FCC-210-10	10	2.73	2.04
64F202	FCC-210-20	20	3.88	2.90
64F203	FCC-210-26	26	4.90	3.66
64F204	FCC-210-34	34	6.35	4.75
64F205	FCC-210-40	40	7.36	5.52
64F206	FCC-210-50	50	9.13	6.83

WITHOUT STRAIN RELIEF

40F6402	FCC-220-10	10	2.37	1.73
64F207	FCC-220-20	20	3.52	2.64
64F208	FCC-220-26	26	4.54	3.40
64F209	FCC-220-34	34	5.93	4.45
64F210	FCC-220-40	40	6.95	5.21
64F211	FCC-220-50	50	8.71	6.54

DIP CONNECTORS—FIG. A

Patented off-set tines ensure reliable gas-tight termination; mates with all standard DIP sockets; accepts 28-30 AWG stranded or solid conductors. Also available in QPL version.

Stock No.	Alpha No.	No. Pins	1-99	100-499
64F200	FCC-130-14	14	2.01	1.51
64F201	FCC-130-16	16	2.27	1.70
40F6400	FCC-130-24	24	3.64	2.74
40F6425	FCC-130-40	40	5.93	4.45

PCB CONNECTORS—FIG. E

Integral strain relief; patented tine design ensures reliable gas-tight termination; terminations can be inspected before cover is put on. Also available in QPL version.

Stock No.	Alpha No.	No. Pins	1-99	100-499
40F6403	FCC-140-10	10	1.59	1.20
64F212	FCC-140-20	20	1.85	1.40
64F213	FCC-140-26	26	2.39	1.80
64F214	FCC-140-34	34	2.90	2.17
64F215	FCC-140-40	40	3.36	2.52
64F216	FCC-140-50	50	4.12	3.10

HEAD CONNECTORS—FIG. C

Mate with female socket connectors for use as disconnect. Headers mount on printed circuit board. Contacts are phosphor bronze with nickel and gold plating. All header styles also available with locking tabs. Those units with strain relief latches have QPL qualification.

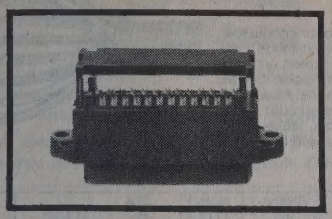
Alpha Number	No. of Pins	1-99	100-499	Stock No.
RIGHT ANGLE HEADERS WITH .090" SOLDER TERMINALS				
FCC-251-10	10	$1.93	$1.45	81F5624
FCC-251-20	20	2.51	1.89	81F5625
FCC-251-26	26	3.12	2.34	81F5626
FCC-251-34	34	4.07	3.06	81F5627
FCC-251-40	40	4.66	3.50	81F5628
FCC-251-50	50	5.65	4.23	81F5629
RIGHT ANGLE HEADERS WITH .155" SOLDER TERMINALS				
FCC-255-10	10	$2.05	$1.55	81F5630
FCC-255-20	20	2.51	1.89	81F5631
FCC-255-26	26	3.38	2.53	81F5632
FCC-255-34	34	4.34	3.26	81F5633
FCC-255-40	40	4.97	3.73	81F5634
FCC-255-50	50	6.03	4.53	81F5635
RIGHT ANGLE HEADERS WITH WIRE WRAP TERMINALS				
FCC-252-10	10	$2.70	$2.03	81F5636
FCC-252-20	20	4.99	3.75	81F5637
FCC-252-26	26	6.11	4.59	81F5638
FCC-252-34	34	7.24	5.43	81F5639
FCC-252-40	40	8.23	6.18	81F5640
FCC-252-50	50	9.65	7.24	81F5641
RIGHT ANGLE HEADERS WITH STRAIN RELIEF LATCHES AND .090" SOLDER TERMINALS				
FCC-201-10	10	$2.37	$1.78	81F5642
FCC-201-20	20	2.99	2.25	81F5643
FCC-201-26	26	3.60	2.70	81F5644
FCC-201-34	34	4.56	3.42	81F5645
FCC-201-40	40	5.17	3.87	81F5646
FCC-201-50	50	6.15	4.62	81F5647
RIGHT ANGLE HEADERS WITH STRAIN RELIEF LATCHES AND .155" SOLDER TERMINALS				
FCC-205-10	10	$2.51	$1.89	81F5648
FCC-205-20	20	3.21	2.41	81F5649
FCC-205-26	26	3.86	2.90	81F5650
FCC-205-34	34	4.80	3.61	81F5651
FCC-205-40	40	5.45	4.09	81F5652
FCC-205-50	50	6.68	5.02	81F5653
RIGHT ANGLE HEADERS WITH STRAIN RELIEF LATCHES AND WIRE WRAP TERMINALS				
FCC-202-10	10	$3.14	$2.36	81F5654
FCC-202-20	20	5.47	4.11	81F5655
FCC-202-26	26	6.59	4.95	81F5656
FCC-202-34	34	7.70	5.78	81F5657
FCC-202-40	40	8.73	6.55	81F5658
FCC-202-50	50	10.16	7.62	81F5659

Alpha Number	No. of Pins	1-99	100-499	Stock No.
STRAIGHT HEADERS WITH .090" SOLDER TERMINALS				
FCC-261-10	10	$1.97	$1.48	81F5660
FCC-261-20	20	2.56	1.92	81F5661
FCC-261-26	26	3.16	2.38	81F5662
FCC-261-34	34	4.12	3.10	81F5663
FCC-261-40	40	4.75	3.58	81F5664
FCC-261-50	50	5.79	4.34	81F5665
STRAIGHT HEADERS WITH .155" SOLDER TERMINALS				
FCC-265-10	10	$2.10	$1.58	81F5666
FCC-265-20	20	2.82	2.13	81F5667
FCC-265-26	26	3.52	2.64	81F5668
FCC-265-34	34	4.59	3.44	81F5669
FCC-265-40	40	5.27	3.95	81F5670
FCC-265-50	50	6.98	5.23	81F5671
STRAIGHT HEADERS WITH WIRE WRAP TERMINALS				
FCC-262-10	10	$2.70	$2.03	81F5672
FCC-262-20	20	4.99	3.75	81F5673
FCC-262-26	26	6.11	4.59	81F5674
FCC-262-34	34	7.24	5.43	81F5675
FCC-262-40	40	8.23	6.18	81F5676
FCC-262-50	50	9.65	7.24	81F5677
STRAIGHT HEADERS WITH STRAIN RELIEF LATCHES AND .090" SOLDER TERMINALS				
FCC-291-10	10	$2.41	$1.81	81F5678
FCC-291-20	20	3.04	2.28	81F5679
FCC-291-26	26	3.64	2.74	81F5680
FCC-291-34	34	4.61	3.47	81F5681
FCC-291-40	40	5.27	3.95	81F5682
FCC-291-50	50	6.30	4.73	81F5683
STRAIGHT HEADERS WITH STRAIN RELIEF LATCHES AND .155" SOLDER TERMINALS				
FCC-295-10	10	$2.56	$1.92	81F5684
FCC-295-20	20	3.30	2.49	81F5685
FCC-295-26	26	4.00	3.01	81F5686
FCC-295-34	34	5.05	3.78	81F5687
FCC-295-40	40	5.75	4.31	81F5688
FCC-295-50	50	6.98	5.23	81F5689
STRAIGHT HEADERS WITH STRAIN RELIEF LATCHES AND WIRE WRAP TERMINALS				
FCC-292-10	10	$3.14	$2.36	81F5690
FCC-292-20	20	5.47	4.11	81F5691
FCC-292-26	26	6.59	4.95	81F5692
FCC-292-34	34	7.70	5.78	81F5693
FCC-292-40	40	8.73	6.55	81F5694
FCC-292-50	50	10.16	7.62	81F5695

13

Flat Cable Connectors

D-SUBMINIATURE—UL, CSA



- Cover lip on primary cover
- Internal transition from .050" to .054" centers permit use of standard .050" cable.
- Phosphor bronze contacts with 30M " gold plating.
- Patented offset tines.
- UL 94 V-O plastic body.
- Offers a variety of cable entry and mounting options.

MALE—PIN TYPE

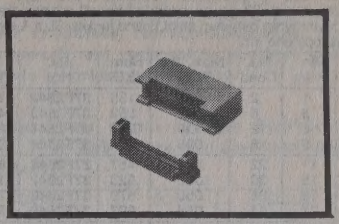
Stk. No.	Type	No. of Pins	1-99	100-499
67F888	FCC-182-9	9	5.16	3.82
67F889	FCC-182-15	15	6.69	5.02
67F890	FCC-182-25	25	9.09	6.87
67F891	FCC-182-37	37	13.20	9.91

FEMALE—SOCKET TYPE

Stk. No.	Type	No. of Pins	1-99	100-499
67F892	FCC-183-9	9	6.14	4.61
67F893	FCC-183-15	15	8.10	6.08
67F894	FCC-183-25	25	10.40	7.84
67F895	FCC-183-37	37	15.20	11.41

- Variety of mounting hardware available.

CARD EDGE—UL, CSA



- Patented offset tines.
- UL 94 V-O plastic body.
- Molded strain relief lip.
- Phosphor bronze contacts with 30M gold plating.
- Bifurcated contacts.

WITHOUT MOUNTING FLANGES

Stk. No.	Alpha No.	No. of Pins	1-99	100-499
40F6404	FCC-170-10	10	3.27	2.46
40F6405	FCC-170-20	20	5.43	4.08
40F6406	FCC-170-26	26	6.13	4.60
40F6407	FCC-170-34	34	7.58	5.68
40F6408	FCC-170-40	40	8.81	6.61
40F6409	FCC-170-50	50	9.63	7.23

WITH MOUNTING FLANGES

40F6410	FCC-171-10	10	3.27	2.46
40F6411	FCC-171-20	20	5.43	4.08
40F6412	FCC-171-26	26	6.13	4.60
40F6413	FCC-171-34	34	7.58	5.68
40F6414	FCC-171-40	40	8.81	6.61
40F6415	FCC-171-50	50	9.63	7.23

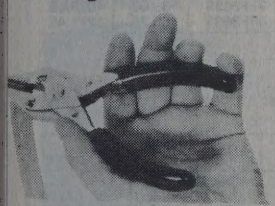
- Use FCC key 2 for polarization w/o contact loss

FCT-11A BENCH PRESS

Designed to terminate all Alpha 10C connectors. Assures quick and easy alignment of cable and connectors. Requires minimum fixture changing so that connector styles can be changed with little down times.
FCT-11A . . . Stock No. 67F900 Net each 422.35

FCT-12 BENCH PRESS

Truly universal bench press designed to accommodate most brands of IDC connectors. Manufactured from light weight and strong aluminum, this press minimizes operator fatigue through high mechanical advantages.
FCT-12 . Stock No. 81F5723 Net each 883.68



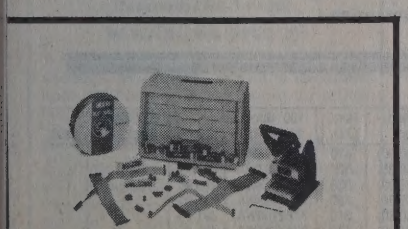
FCT-30 DIP HAND TOOL

Light weight and easy to use plier type construction is ideal for field service or light dip jumper assembly work.
FCT-30. . . Stock No. 64F219 Net each 37.13

FCT-BT—Tool used to remove system II header polarizing ribs.
Stock No. 81F5721 . . . . . 9.28

FCT34-43A Bench Press Adapter—Allows for termination of system II female socket connectors in FCT-11 Tooling.
Stock No. 81F5736 . . . . . 14.07

DESIGNER AND LAB KITS



FCT-80

FCT-80 DESIGNER KIT

Contains over 300 connectors and accessories representing the entire Alpha flat cable and connector system. Also includes the FCT-11A bench press and 100 feet of Alpha Pin 3581/50, 50 conductor color coded flat cable.

FCT-80 . . . Stock No. 67F901 Net each 1610.48

FCT-81 DIP KIT

Contains all materials needed to fashion DIP jumpers for prototypes, rewiring or repairs. Includes 14, 16 and 24 pin DIPs, strain relief clips, cables and hand tool. Packaged in sturdy clear plastic box. Ideally suited for field repairs. DIPs mate with all standard DIP sockets.

FCT-81 . . . Stock No. 67F896 Net each. 125.31

Dearborn Audio Cables

INDIVIDUALLY SHIELDED MULTIPLE PAIRS TINNED COPPER CONDUCTORS

Color coded .010" polyethylene insulation. Pairs have Mylar supported aluminum foil shield; 22 gauge stranded tinned copper drain wire; twisted. Grey PVC Mylar wrap between shields and jacket. Size & stranding: 22-7/30. *.008" polypropylene ins.

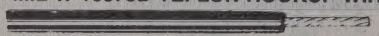
Type	No. Pairs	No. Cond	Nom. Jkt. Thick.	Nom. O.D.	Stk. No.	100′	1000′
962201*	1	2	.020	.135	**37F2542**	14.05	107.45
962203	3	6	.025	.252	**37F2543**	44.55	342.55
962206	6	12	.030	.342	**37F2544**	92.05	707.90
962209	9	18	.035	.410	**37F2545**	133.80	1028.85
962211	11	22	.040	.457	**37F2546**	159.75	1228.80
962215	15	30	.040	.523	**37F2547**	211.75	1628.80
962219	19	38	.050	.570	**37F2548**	276.25	2125.00
962227	27	54	.055	.687	**37F2549**	391.20	3018.20
961803	3	6	.035	.372	**37F3654**	.....	526.75
961806	6	12	.045	.555	**37F3655**	.....	1087.10
961809	9	18	.055	.620	**37F3656**	.....	1607.45
961812	12	24	.070	.765	**37F3657**	.....	2152.25
961815	15	30	.070	.830	**37F3658**	.....	2737.00

FOIL SHIELDED, MULTI-CONDUCTOR CABLE

Stranded tinned copper conductors, insulated with .015" thick color coded Polyethylene insulation. Shielded with aluminum foil. Mylar backed shield. Gray PVC jacket overall. −20°C +60°C. 400 V.

Type	No. Cond	AWG Size	Strand-ing	Nom. O.D.	Stk. No.	100′	1000′
972202	2	22	7/30	.167	**37F2550**	15.90	111.35
972203	3	22	7/30	.175	**37F2551**	17.55	122.25
972204	4	22	7/30	.190	**37F2552**	35.55	273.05
972002	2	20	10/30	.195	**37F2553**	15.55	119.20
972003	3	20	10/30	.200	**37F2554**	19.80	151.90
972004	4	20	10/30	.215	**37F2555**	35.95	276.10
971802	2	18	16/30	.223	**37F3659**	18.55	142.55
971803	3	18	16/30	.236	**37F3660**	25.20	191.00
971804	4	18	16/30	.250	**37F3661**	40.75	285.30
971602	2	16	26/30	.275	**37F3662**	32.05	246.00
971603	3	16	26/30	.300	**37F3663**	42.95	330.35
971402	2	14	41/30	.340	**37F3664**	56.05	391.85
971403	3	14	41/30	.400	**37F3665**	64.45	495.55

MIL-W-16878D TEFLON HOOKUP WIRE



TYPE E 600 VOLT

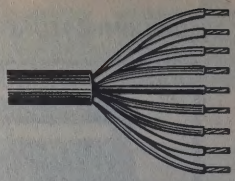
Single conductor, stranded or solid silver plated copper, extruded TFE Teflon insulation. Voltage rating: 600 volts. Temperature rating: −65°C to −200°C. Indicate color by adding code number to stock number; 0—black, 9 white.

Type	AWG Size	Strand-ing	Wall Thickness	Nom. O.D.	100′ Stk. No.	Each	1000′ Stk. No.	Each
13207	32	7/40	.010	.029	**37F3571WA**	9.05	**37F3571WM**	59.70
13007	30	7/38	.010	.032	**37F3572WA**	8.60	**37F3572WM**	57.30
12807	28	7/36	.010	.036	**37F3573WA**	8.00	**37F3573WM**	53.25
12619	26	19/38	.010	.040	**37F3574WA**	14.30	**37F3574WM**	95.30
12607	26	7/34	.010	.039	**37F3575WA**	9.10	**37F3575WM**	60.35
12419	24	19/36	.010	.045	**37F3576WA**	14.55	**37F3576WM**	96.65
12407	24	7/32	.010	.044	**37F3577WA**	10.55	**37F3577WM**	69.90
12219	22	19/34	.010	.052	**37F3578WA**	16.00	**37F3578WM**	106.20
12207	22	7/30	.010	.050	**37F3579WA**	12.35	**37F3579WM**	81.85
12019	20	19/32	.010	.060	**37F3580WA**	18.20	**37F3580WM**	120.95
12007	20	7/28	.010	.058	**37F3581WA**	21.85	**37F3581WM**	145.70
11819	18	19/30	.010	.070	**37F3582WA**	00.00	**37F3582WM**	000.00
11807	18	7/26	.010	.068	**37F3583WA**	26.45	**37F3583WM**	176.20
11619	16	19/29	.011	.077	**37F3584WA**	35.05	**37F3584WM**	233.10
11419	14	19/27	.011	.094	**37F3585WA**	46.60	**37F3585WM**	310.50
11219	12	19/25	.012	.113	**37F3586WA**	46.60	**37F3586WM**	310.50
11037	10	37/26	.012	.135	**37F3587WA**	60.20	**37F3587WM**	400.90

SOLID CONDUCTOR (NOT MIL SPEC.)

13201	32	1/32	.010	.029	**37F3588WA**	8.20	**37F3588WM**	54.25
13001	30	1/30	.010	.032	**37F3589WA**	7.75	**37F3589WM**	51.60
12801	28	1/28	.010	.035	**37F3590WA**	7.25	**37F3590WM**	47.95
12601	26	1/26	.010	.039	**37F3591WA**	8.25	**37F3591WM**	54.35
12401	24	1/24	.010	.044	**37F3592WA**	9.55	**37F3592WM**	63.00
12201	22	1/22	.010	.050	**37F3593WA**	11.30	**37F3593WM**	73.70
12001	20	1/20	.010	.058	**37F3594WA**	13.10	**37F3594WM**	87.15

MULTICONDUCTOR UNSHIELDED AUDIO CABLE



Stranded tinned copper conductors. Color coded polyvinylchloride insulation. Conductors cabled and covered with gray PVC jacket overall. Can be used outdoors. All are No. 22 conductor, U.L. style 1061; Nom. wall thick., .010; nom. jacket thick., .020. Temp. rating, −10° to +80°C.

Type	No. of Cond.	Strand-ing	Nom. O.D.	Stk. No.	100′	1000′
832202	2	7/30	.140	**37F2530**	8.50	64.30
832203	3	7/30	.145	**37F2531**	10.30	78.90
832204	4	7/30	.170	**37F2532**	14.05	107.80
832205	5	7/30	.175	**37F2533**	16.75	128.55
832206	6	7/30	.185	**37F2534**	22.45	172.15
832207	7	7/30	.190	**37F2535**	26.10	200.55
832208	8	7/30	.200	**37F2536**	29.60	227.15
832209	9	7/30	.225	**37F2537**	36.75	282.20
832210	10	7/30	.235	**37F2538**	41.65	319.95
832212	12	7/30	.255	**37F3667**	47.30	363.75
832215	15	7/30	.280	**37F3668**	72.80	559.55
832220	20	7/30	.310	**37F3669**	94.05	722.95
832224	24	7/30	.325	**37F3670**	115.70	889.95
832225	25	7/30	.330	**37F3671**	117.75	905.35
832230	30	7/30	.365	**37F3672**	135.10	1038.90
832240	40	7/30	.452	**37F3673**	178.85	1375.25
832250	50	7/30	.500	**37F3674**	223.80	1736.90
832260	60	7/30	.530	**37F3675**	330.40	2541.50

NO. 20 AWG MULTI-CONDUCTOR

Type	No. of Cond.	Strand-ing	Nom. O.D.	Stock No.	100′	1000′
832002	2	10/30	.180	**37F3676**	10.65	75.90
832003	3	10/30	.190	**37F3677**	16.15	122.75

NO. 18 AWG MULTI-CONDUCTOR

831802	2	16/30	.200	**37F3678**	17.80	121.79
841802	2	Solid	.190	**37F3679**	28.00	214.80
831803	3	16/30	.210	**37F3680**	22.95	193.40
841803	3	Solid	.220	**37F3681**	37.15	285.35
831804	4	16/30	.250	**37F3682**	26.55	203.50
841804	4	Solid	.250	**37F3683**	43.95	337.70
831805	5	16/30	.286	**37F3684**	33.75	259.10
841805	5	Solid	.286	**37F3685**	44.45	341.95
831806	6	16/30	.310	**37F3686**	45.60	332.45
841806	6	Solid	.310	**37F3687**	64.00	491.90
831807	7	16/30	.325	**37F3688**	55.25	424.85
831808	8	16/30	.350	**37F3689**	63.60	489.00
831809	9	16/30	.379	**37F3690**	73.35	563.80
831812	12	16/30	.417	**37F3691**	105.00	807.25
831815	15	16/30	.490	**37F3692**	139.60	1073.55
831819	19	16/30	.505	**37F3693**	165.35	1271.45

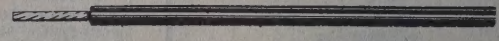
80°C TYPE MW, 1000 VOLT STRANDED CONDUCTOR

Dearborn No.	Type Designation and Size	Stranding	Nom. O.D.	Stock No.	Stock Colors	100′	1000′
302407	MW-C24(7) U	7/32	.058	**81F6663**	0-9	4.80	30.20
302207	MW-C22(7) U	7/30	.065	**81F6664**	0-9	5.35	33.60
302010	MW-C20(10) U	10/30	.072	**81F6665**	0-9	6.40	38.10
301816	MW-C18(16) U	16/30	.080	**81F6666**	0-9	7.35	50.95
301619	MW-C16(19) U	19/29	.091	**81F6667**	0-9	10.40	74.30

"TEW" UL CSA 105C°, 600V, HOOKUP WIRE FLAME RETARDANT FR-1

Stranded, tinned copper conductor in sizes AWG #18 through AWG #4/0. All sizes use polyvinylchloride insulation rated at 600 volts with a temperature rating of 105°C. Specify color by number: 0-black, 1-brown, 2-red, 3-orange, 4-yellow, 5-green, 6-blue, 7-violet, 8-gray, 9-white. "F" denotes bonded tinned copper. (*) denotes only available in red, white, black and green.

Type	No. of Cond.	Strand-ing	Nom. O.D.	100′ Spool Stock No.	Each	500′ Spool Stock No.	Each
781816F	18	(16/30)	.110	.....	.....	**37F2195WF**	8.70
781626	16	(26/30)	.124	.....	.....	**37F2197WF**	9.80
781000*	10	(105/30)	.194	**37F2203WA**	30.85	.....	....
788133*	8	(133/29)	.255	**37F2205WA**	53.65	.....	....
786133*	6	(133/27)	.335	**37F2092WA**	121.05	.....	....
784133*	4	(133/25)	.390	**37F2093WA**	152.70	.....	....
782133*	2	(133/23)	.460	**37F2094WA**	229.85	.....	....

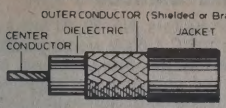


Type	No. of Cond.	Strand-ing	Nom. O.D.	100′ Spool Stock No.	Each	500′ Spool Stock No.	Each
782665*	2	(665/30)	.470	**37F2095WA**	229.85	.....	....
781259*	1	(259/25)	.525	**37F2097WA**	285.95	.....	....
781836*	1	(836/30)	.535	**37F2098WA**	285.95	.....	....
780001*	1/0	(1045/30)	.580	**37F2099WA**	315.90	.....	....
780002*	2/0	(1330/30)	.640	**37F2100WA**	391.25	.....	....
780003*	3/0	(1661/30)	.680	**37F2101WA**	490.15	.....	....
780004*	4/0	(2107/30)	.785	**37F2102WA**	618.90	.....	....

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Dearborn Cable

COAXIAL CABLE FOR INDUSTRIAL & MILITARY APPLICATIONS



- **To give peak electrical and physical characteristics only virgin compound materials are used in all polyethylene dielectrics. This assures low loss and maximum efficiency.**
- **Coaxial cables have Braided Copper Shielding preventing electrostatic interference, keeping signals clean.**
- **"Long Life" Polyvinylchloride, and Polyethylene jackets on all Industrial RG Cables assure peak performance under any weather conditions. Non-Contaminating, Non-migratory virgin compounds are resistant to sunlight and chemicals, won't degrade electrical performance.**
- **To insure maximum signal strength Dearborn's Industrial Line of R.G. Type Cables are manufactured using MIL-Spec copper conductors.**

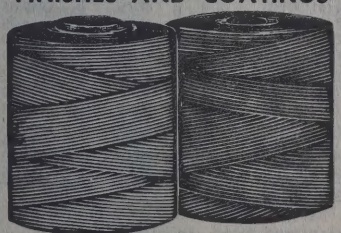
RG/U No.	Type	Jkt. O.D.	Min. Shield Coverage	Nom. Imp.	Max. Volt.	Stock No.	100	Stock No.	1000
8	6008IA	.405"	78%	52.0	5000	**37F3595WA**	52.65	**37F3595WM**	345.60
8	6008MS	.405"	90%	52.0	5000	**37F2510WA**	52.65	**37F2510WM**	345.60
8A	6008AIA	.405"	78%	52.0	5000	**37F3596WA**	69.80	**37F3596WM**	458.40
8A	6008AMS	.405"	90%	52.0	5000	**37F2511WA**	69.80	**37F2511WM**	458.40
11	6011IA	.405"	78%	75.0	5000	**37F3597WA**	57.40	**37F3597WM**	377.75
11A	6011AIA	.405"	78%	75.0	5000	**37F3598WA**	59.85	**37F3598WM**	393.40
11A	6011AMS	....	90%	....	....	**37F3614WA**	59.85	**37F3614WM**	393.40
58	6058IA	.195"	78%	53.5	1900	**37F3599WA**	16.85	**37F3599WM**	110.40
58	6058MS	.195"	90%	53.5	1900	**37F2500WA**	16.85	**37F2500WM**	110.40
58A	6058AIA	.195"	78%	52.0	1900	**37F3600WA**	19.05	**37F3600WM**	125.20
58B	6058BIA	.195"	78%	53.5	1900	**37F3601WA**	20.65	**37F36D1WM**	136.00
58C	6058CIA	.195"	78%	50.0	1900	**37F3602WA**	21.35	**37F3602WM**	140.40
58C	6058CMS	.195"	90%	50.0	1900	**37F2503WA**	21.35	**37F2503WM**	140.40
59	6059IA	.242"	78%	73.0	2300	**37F3603WA**	19.15	**37F3603WM**	125.60
59B	6059BIA	.242"	78%	75.0	2300	**37F3604WA**	22.65	**37F3604WM**	21.30
62	6062IA	.242"	78%	93.0	750	**37F3605WA**	31.92	**37F3605WM**	209.37
62	6062MS	....	90%	....	....	**37F3615WA**	31.92	**37F3615WM**	209.37
62A	6062AIA	.242"	78%	93.0	750	**37F3606WA**	22.80	**37F3606WM**	149.55
62A	6062AMS	....	90%	....	....	**37F2507WA**	22.80	**37F3607WM**	149.55
174	6174IA	.100"	78%	50.0	1500	**37F3608WA**	15.30	**37F3608WM**	100.00
174	6174MS	.100"	90%	50.0	1500	**37F2513WA**	15.30	**37F2513WM**	100.00
213	6213IA	.405"	78%	50.0	3000	**37F3609WA**	69.45	**37F3609WM**	456.25
213	6213MS	.405"	90%	50.0	3000	**37F2514WA**	69.45	**37F2514WM**	456.25

LOW LOSS COAXIAL CABLE WITH (FOAM) CELLULAR POLYETHYLENE DIELECTRIC

Compared to ordinary RG/U cable of similar size, the attenuation of cellular polyethylene (Foam Core) dielectric cable is reduced by as much as 35%. Well suited for CATV, Closed Circuit or MATV; ideal for use in amateur, commercial or citizen band installations Made to adapt to unusual terrain problems and resist damage from weather extremes.

RG/U No.	Type	Jkt. O.D.	Minimum Shield Coverage	Nom. Imp.	Max. Volt.	Stock No.	100'	Stock No.	1000'
8	6008FIA	.405"	78%	50	1500	**37F3610WA**	48.45	**37F3610WM**	318.10
11	6011FIA	.405"	78%	75	1300	**37F3611WA**	50.75	**37F3611WM**	334.30
58	6058FIA	.195"	78%	50	1000	**37F3612WA**	14.40	**37F3612WM**	91.20
59	6059FIA	.242"	78%	75	1000	**37F3613WA**	19.05	**37F3613WM**	124.60

FINISHES AND COATINGS



Nylon Lacing Tape MIL-T-43435 Type I (Supersedes MIL-T-713D)

W-WAX (MIL SPEC B)

A microcrystalline fungicidal wax which exceeds MIL specs. Provides excellent knot retention and is suitable for either lacing or spot ties.

A-SYNTHETIC RESIN (MIL SPEC E)

A synthetic rubber-like resin formulated with fungicidal ingredients. Handling characteristics are excellent, knot retention is outstanding; meets or exceeds MIL specs. requirements.

OPERATIONAL TEMPERATURE RANGES: −67°F to +250°F.

DEARBORN NYLON LACING TAPE

NYLON LACING TAPE MIL-T-43435 TYPE I

Flat braided high-tenacity nylon yarn impregnated with microcrystalline fungicidal wax or to MIL specs. *Test tensile strength (lbs.); (†) Finishes code see box.

Stock No.	Mfr's. Type	*	Width	Color	†	500-yard Spools EACH
37F2207	805032W	50 lbs.	.090"	Natural	A	13.00
37F2208	805032B	50 lbs.	.090"	Black	A	15.20
37F2209	805036W	50 lbs.	.090"	Natural	W	13.00
37F2210	805036B	50 lbs.	.090"	Black	W	15.20
37F2213	802534W	25 lbs.	.062"	Natural	W	10.25
37F2214	802534B	25 lbs.	.062"	Black	W	13.15

POLYESTER LACING TAPE MIL-T-43435 TYPE II

Flat braided polyester yarn impregnated with microcrystalline fungicidal wax or to meet MIL specs. 1½ lbs. *Test tensile strength (lbs.), (†) Finishes code see box.

37F2215	805058W	50 lbs.	.090"	Natural	A	12.00
37F2216	805058B	50 lbs.	.090"	Black	A	15.60
37F2217	805062W	50 lbs.	.090"	Natural	W	12.00
37F2218	805062B	50 lbs.	.090"	Black	W	15.50

NYLON LACING TWINE MIL-T-713D TYPE P

Round twisted nylon fiber impregnated with microcrystalline wax. Excellent knot retention, for lacing or spot ties. 32 lb. test 1100 yd. spool; 48 lb. test 750 yd. spool; 70 lb. test 550 yd. spool. *Test tensile strength (lbs.); (†) Finishes code see box.

Stock No.	Mfr's. Type	*	Nom. Diam.	Spool Length	Color	†	1 Lb. Spools EACH
37F2219	807013W	70 lbs.	.039"	550 yds.	Natural	W	17.55
37F2220	807013B	70 lbs.	.039"	550 yds.	Black	W	20.40
37F2221	804814W	48 lbs.	.029"	750 yds.	Natural	W	17.55
37F2223	803215W	32 lbs.	.025"	1100 yds.	Natural	W	17.55
37F2224	803215B	32 lbs.	.025"	1100 yds.	Black	W	20.40

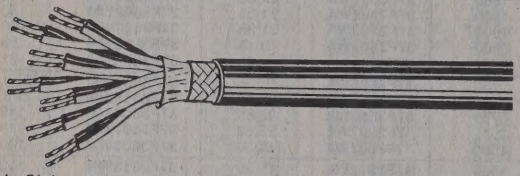
Dearborn Cable

COMPUTER TYPE MINIATURE CONTROL CABLES

For computer use. Stranded tinned copper conductors. No. 22, 24 are 7 strand, No. 20 is 19 strand. Insulated with .010" wall of PVC. Rated 105°C & 600V working voltage. Meet UL Style 1061, rated 80°C, 300V working voltage. Cabled by planetary method, laid contrahelically, Mylar tape barrier placed under shields. Tinned copper braid shielded cables overall of 85%-90% coverage. Black 105°C Vinyl jacket over shield. Self extinguishing materials. Approved under UL Style 2343 and 2344 for computer usage; +80°C, 300V. On non UL service, can be used at 40°C to 105°C, 600V.

Stock No.	Type	No. of Cond.	Cond. Size	Nom. O.D.	100' Each
37F3616WA	572405	5	24	.245	115.60
37F3617WA	572407	7	24	.275	107.65
37F3618WA	572412	12	24	.325	157.20
37F3619WA	572415	15	24	.350	197.40
37F3620WA	572419	19	24	.365	233.70
37F3621WA	572427	27	24	.415	286.65
37F3622WA	572437	37	24	.445	392.55
37F3623WA	572448	48	24	.495	493.45
37F3624WA	572460	60	24	.535	534.65
37F3624WA	572205	5	22	.285	116.45
37F3626WA	572207	7	22	.295	124.05
37F3627WA	572212	12	22	.355	160.25
37F3628WA	572215	15	22	.380	220.35
37F3629WA	572219	19	22	.395	260.45
37F3630WA	572227	27	22	.455	354.65
37F3631WA	572237	37	22	.510	428.65
37F3632WA	572248	48	22	.560	573.45
37F3633WA	572260	60	22	.600	692.15
37F3634WA	572005	5	20	.300	119.55
37F3635WA	572007	7	20	.315	131.15
37F3636WA	572012	12	20	.385	185.00
37F3637WA	572015	15	20	.415	252.65
37F3638WA	572019	19	20	.435	269.90
37F3639WA	572027	27	20	.515	368.65
37F3640WA	572037	37	20	.550	485.45
37F3641WA	572048	48	20	.610	581.35
37F3642WA	572060	60	20	.670	805.55

COMPUTER TYPE MINIATURE PAIRED CONTROL CABLES



U.L. Styles 2343 and 2344 employ an overall shield surrounding all internal cables. The individual conductors are stranded tinned copper. Conductor sizes 22 and 24 are 7 strand and size 20 is 19 strand. Conductors are rated at 105°C and 600 volts DC working voltage. Pairs are cabled by planetary method and have a Mylar tape barrier placed under the shield. Shield is tinned copper braid with 85%-90% overall coverage. Insulator jacket is black 105°C Vinyl and cable is fungus resistant and self extinguishing. Cables are U.L. approved for computer usage to +80°C and 300 volts. 100 foot put up listed, 500 foot and 1000 foot put ups available on special order.

Stk. No.	Type	# Pairs	Cond. Size	Nom. O.D.	100' Each
37F2468WA	592405	5	24	.355	135.50
37F2469WA	592407	7	24	.375	172.30
37F2470WA	592412	12	24	.460	259.85
37F2471WA	592415	15	24	.510	324.20
37F2472WA	592419	19	24	.530	365.10
37F2473WA	592427	27	24	.620	482.80
37F2474WA	592437	37	24	.690	626.05
37F2475WA	592448	48	24	.775	750.55
37F2476WA	592460*	60	24	.845	984.55
37F2477WA	592205	5	22	.390	160.25
37F2478WA	592207	7	22	.415	177.00
37F2479WA	592212	12	22	.495	292.95
37F2480WA	592215	15	22	.575	337.45
37F2481WA	592219	19	22	.580	401.80
37F2482WA	592227	27	22	.670	532.80
37F2483WA	592237	37	22	.780	679.10
37F2484WA	592248*	48	22	.880	910.95
37F2485WA	592260*	60	22	.960	1,090.25
37F2486WA	592005	5	20	.420	191.20
37F2487WA	592007	7	20	.465	232.00
37F2488WA	592012	12	20	.570	364.25
37F2489WA	592015	15	20	.630	430.20
37F2490WA	592019	19	20	.660	530.75
37F2491WA	592027	27	20	.775	670.15
37F2492WA	592037*	37	20	.850	824.35
37F2493WA	592048*	48	20	.980	1,085.45
37F2494WA	592060*	60	20	1.070	1,289.20

*Denotes U.L. style 2344; all others are style 2343.

Color-Code Nos. for Items on This Page—Specify Color Number When Ordering

0. Black 1. Brown 2. Red 3. Orange 4. Yellow
5. Green 6. Blue 7. Violet 8. Gray 9. White

CORONA RESISTANT HIGH VOLTAGE WIRE

- **Tinned, stranded copper conductors**
- **Flexible**
- **Conductors rated at 200°C**
- **Insulation rated at 150°C**

Conductors are tinned, stranded copper and are flexible. Silver plated copper, nickel plated copper, and pure nickel conductors available on special order. Conductors are rated at 200°C, pure nickel at 260°C. High voltage, high temperature silicone rubber insulation rated at 150°C and is available in dielectric strengths ranging from 10 KVDC to 40 KVDC. Insulation is easy to strip. 100 foot put ups listed, 1000 foot put ups available on special order. insulation: U.L. type 3239, Color: Natural only.

Stock No.	Type	AWG Size	Nom. O.D.	Max. D.C. Volt	100' Each
37F2103	392240	22 (7/30TC)	.111	10KV	73.45
37F2104	392245	22 (7/30TC)	.121	15KV	76.35
37F2105	392250	22 (7/30TC)	.131	20KV	79.60
37F2106	392262	22 (7/30TC)	.181	30KV	83.55
37F2107	392275	22 (7/30TC)*	.181	30KV	91.90
37F2108	392297	22 (7/30TC)	.225	40KV	116.15
37F2109	392040	20 (10/30TC)	.118	10KV	79.75
37F2110	392045	20 (10/30TC)	.128	15KV	81.85
37F2111	392050	20 (10/30TC)	.138	20KV	87.05
37F2112	392062	20 (10/30TC)	.162	25KV	90.35
37F2113	392075	20 (10/30TC)	.188	30KV	116.80
37F2114	392097	20 (10/30TC)	.232	40KV	123.80
37F2115	391845	18 (16/30TC)	.140	15KV	98.30
37F2116	391862	18 (16/30TC)	.174	25KV	107.30
37F2117	391897	18 (16/30TC)	.244	40KV	132.80
37F2118	391645	16 (26/30TC)	.152	15KV	110.35
37F2119	391662	16 (26/30TC)	.186	25KV	122.65
37F2120	391697	16 (26/30TC)	.256	40KV	148.10
37F2121	391445	14 (41/30TC)	.170	25KV	123.25
37F2122	391462	14 (41/30TC)	.204	25KV	146.65
37F3643WA	391497	14 (41/30TC)	.274	40KV	219.65
37F3644WA	391245	12 (65/30TC)	.186	15KV	144.85
37F3645WA	391297	12 (65/30TC)	.290	40KV	234.70
37F3646WA	391045	10 (105/30TC)	.220	15KV	165.10
37F2647WA	391097	10 (105/30TC)	.324	40KV	267.25
37F3648WA	390845	8 (133/29TC)	.256	15KV	270.50
37F3649WA	390897	8 (133/29TC)	.360	40KV	367.05
37F3650WA	390645	6 (133/27TC)	.300	15KV	286.05
37F3651WA	390662	6 (133/27TC)	.335	25KV	321.65
37F3652WA	390462	4 (133/25)	.381	25KV	331.60
37F3653WA	390262	2 (259/26)	.449	25KV	366.35

*Wall thickness slightly larger than type 392262

WIRE WRAP
KYNAR® COMPUTER-TYPE HOOKUP WIRE
APPROVED BY U.L. AND CSA

Kynar® insulation is flame retardant and self-extinguishing, highly resistant to ultra-violet. Its characteristics remain unchanged when exposed to 300 million roentgens. Operating temperature range is up to +125°C and is UL rated to 105°C. Conductor is solid annealed copper. Supplied on large hub reels. Available in black, red, orange, yellow, green, blue, gray, and white—**Specify color by number.**

Stock No.	Mfr's Type	AWG Size	Insul. Thk's.	Nom. O.D.	U.L. Style	Per 1000' Hub 1	2-4	5-9
37F2225WM	773001	30 (1)	.005"	.0195"	1422	23.95	22.45	20.95
37F2226WM	772801	28 (1)	.0035"	.020"	1423	32.10	30.10	28.10
37F2227WM	772601	26 (1)	.005"	.027"	1422	37.20	34.90	32.55
37F2228WM	772401	24 (1)	.010"	.042"	1327	77.95	73.05	68.20

"Kynar® is trademark of Pennwalt

CROSS-LINKED IRRADIATED HOOKUP WIRE

XLV DUAL SERVICE HOOKUP WIRE UL AND MIL-SPEC HOOKUP AND LEAD WIRE

CROSS-LINKED POLYVINYL CHLORIDE INSULATION

MIL-W-16878/2—TYPE C

XLV U.L. STYLE 1430

STOCK NO.	DEARBORN NO.	MIL TYPE	U.L. STYLE	AWG SIZE STRANDING	NOM. INSUL. THICK'S	NOM. O.D.	STOCK COLORS	STOCK PUT UP (FT)	PER 1000'
37F3564WM	272407	C-24	1430	24 (7/32)	.016	.058	0-9	1000	44.90
37F3565WM	272207	C-22	1430	22 (7/30)	.016	.064	0-9	1000	54.50
37F3566WM	272007	C-20	1430	20 (7/28)	.016	.072	0-9	1000	63.45
37F3567WM	271819	C-18	1430	18 (19/30)	.016	.082	9 only	1000	79.45
37F3568WM	271619	C-16	1430	16 (19/29)	.016	.092	9 only	1000	111.20
37F3569WM	271419	C-14		14 (19/27)	.016	.105	9 only	1000	143.95
37F3570WM	271219	C-12		12 (19/25)	.016	.124	9 only	1000	220.75

MIL-W-16878D-NYLON

XLV U.L. STYLE 1429

STOCK NO.	DEARBORN NO.	MIL TYPE	U.L. STYLE	AWG SIZE STRANDING	NOM. INSUL. THICK'S	NOM. O.D.	STOCK COLORS	STOCK PUT UP (FT)	PER 1000'
37F3550WM	252807	B-28	1429	28 (7/36)	.010	.035	0-9	1000	37.60
37F3551WM	252607	B-26	1429	26 (7/34)	.010	.039	0-9	1000	38.50
37F3552WM	252407	B-24	1429	24 (7/32)	.010	.044	0-9	1000	39.40
37F3553WM	252419	B-24	1429	24 (19/36)	.010	.045	0-9	1000	46.75
37F3554WM	252207	B-22	1429	22 (7/30)	.010	.050	0-9	1000	44.65
37F3555WM	252219	B-22	1429	22 (19/34)	.010	.051	0-9	1000	53.30
37F3556WM	252007	B-20	1429	20 (7/28)	.010	.058	0-9	1000	55.40
37F3557WM	252019	B-20	1429	20 (19/32)	.010	.059	0-9	1000	56.80
37F3558WM	251819	B-18	1429	18 (19/30)	.010	.068	9 only	1000	71.30
37F3559WM	251807	B-18	1429	18 (7/26)	.010	.068	9 only	1000	69.80
37F3560WM	251619	B-16	1429	16 (19/29)	.010	.078	9 only	1000	90.40
37F3561WM	252601		1429	26 (1)	.010	.039	0-9	1000	34.60
37F3562WM	252401		1429	24 (1)	.010	.044	0-9	1000	39.20
37F3563WM	252201		1429	22 (1)	.010	.050	0-9	1000	39.20

MIL SPEC MIL-W-16878D HOOKUP WIRE-TYPE B

SINGLE CONDUCTOR, STRANDED TINNED COPPER TYPE B—NYLON

Same as above but with clear nylon jacket (.003" wall) over PVC insulation increasing temperature rating to +115°C.

115°C TYPE B, NYLON JACKET (.003"), 600 V.

STOCK NO.	DEARBORN NO.	MIL TYPE	SIZE	STRANDING	NOM. O.D.	WALL THICKNESS	STOCK COLORS	PER 1000'
81F6648WM	183207	B-32	32	7/40	.035	.010	0-9	37.15
81F6649WM	183007	B-30	30	7/38	.039	.010	0-9	32.50
81F6650WM	182807	B-28	28	7/36	.041	.010	0-9	34.65
81F6651WM	182607	B-26	26	7/34	.044	.010	0-9	42.00
81F6652WM	182619	B-26	26	19/38	.044	.010	0-9	50.65
81F6653WM	182407	B-24	24	7/32	.050	.010	0-9	39.60
81F6654WM	182419	B-24	24	19/36	.050	.010	0-9	46.65
81F6655WM	182207	B-22	22	7/30	.057	.010	0-9	45.30
81F6656WM	182219	B-22	22	19/34	.057	.010	0-9	55.60
81F6657WM	182007	B-20	20	7/28	.064	.010	0-9	51.55
81F6658WM	182019	B-20	20	19/32	.064	.010	0-9	58.00
81F6659WM	181807	B-18	18	7/26	.074	.010	0-9	65.05
81F6660WM	181819	B-18	18	19/30	.074	.010	0-9	71.20
81F6661WM	181619	B-16	16	19/29	.085	.010	0-9	78.10
81F6662WM	181419	B-14	14	19/27	.099	.010	0-9	115.40

THERMOPLASTIC INSULATED HOOKUP WIRE

X-L POLYETHYLENE, U.L. STYLES 3173, 125°C—600 VOLT

The Polyethylene insulation used on this series of lead wire is chemically cross-linked, which increases the moisture resistance, solvent resistance and aging characteristics. When momentary high temperatures caused by overloads or shorts occur, the insulation does not deform as quickly as if not cross-linked. Typical applications include small motors, control panels, dry transformers, etc. Recommended maximum baking cycles: 300°F for 24 hrs.—325°F for 12 hrs.—350°F for 8 hours.

XL—125°C—600 VOLT U.L. STYLE 3173

STOCK NO.	DEARBORN NO.	AWG SIZE	STRAND-ING	NOM. WALL	NOM. O.D.	STANDARD PUT UP (FT.)	STOCK COLORS	PER 1000'
37F2123WM	752207	22	7/30	1/32	.094	1000	0 only	35.45
37F2124WM	752010	20	10/30	1/32	.102	1000	0 only	41.00
37F2125WM	751816	18	16/30	1/32	.112	1000	0 only	52.50
37F2126WM	751626	16	26/30	1/32	.125	1000	0 only	71.15
37F2127WM	751441	14	41/30	1/32	.143	1000	0 only	99.40
37F2128WM	751265	12	65/30	1/32	.164	1000	0 only	143.85

COLOR CODE ON HOOKUP WIRE: 0—Black • 1—Brown • 2—Red • 3—Orange • 4—Yellow • 5—Green • 6—Blue • 7—Violet • 8—Grey • 9—White

Sound, Broadcast and Instrumentation Cable

SOLID CONDUCTOR OVERALL ALUMYLAR™ **SHIELDED PAIRED CABLE**

Description—
- Conductors: Solid tinned copper.
- Insulation: Color-coded polyvinylchloride.
- Construction: Paired conductors with overall shield.
- Shield: Alumylar™ overall shield with #24 awg. stranded tinned copper drain wire.
- Jacket: Chrome polyvinylchloride.

Characteristics—
- Temperature Range: -20°C to +80°C.
- Voltage Rating: 300 Volts.
- Resistant to: Acids, alkalis, oil, moisture, solvents and fungus.

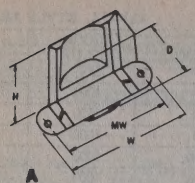
Features and Applications—
- Alumylar™ shield with drain wire offers ease of termination and high reliability.
- Designed for use in point-of-sale and instrumentation applications.

Approvals—
- Recognized under the components program of Underwriters' Laboratories, Inc.
- UL Style 2464.
- Passes VW-1 Vertical Flame Test.
- OSHA Acceptable.

Stock No.	DWC Part Number	No. of Pairs	AWG Size	No. of Strand	Dia. of Conductor in.	Dia. of Conductor MM	Insulation Thickness in.	Insulation Thickness MM	Jacket Thickness in.	Jacket Thickness MM	Nominal O.D. in.	Nominal O.D. MM	Electrical Properties PF/ft*	Electrical Properties PF/MFT.*	Per 1000' Price
81F6668WM	873902	2	22	(1)+	.025	.64	.013	.33	.032	.81	.224	5.69	35	115	131.70
81F6669WM	873905	4	22	(1)+	.025	.64	.013	.33	.032	.81	.265	6.73	35	115	222.20
81F6670WM	873906	6	22	(1)+	.025	.64	.013	.33	.035	.89	.321	8.15	35	115	288.10
81F6671WM	873909	9	22	(1)+	.025	.64	.013	.33	.037	.94	.373	9.47	35	115	415.40
81F6672WM	873915	15	22	(1)+	.025	.64	.013	.33	.040	1.02	.437	11.10	35	115	738.00
81F6673WM	873919	19	22	(1)+	.025	.64	.013	.33	.040	1.02	.475	12.07	35	115	908.10
81F6674WM	873927	27	22	(1)+	.025	.64	.013	.33	.045	1.14	.571	14.50	35	115	1236.00

• Capacitance between conductors. + Solid conductor.

ESSEX STANCOR Rectifier, Control, Filament Transformers



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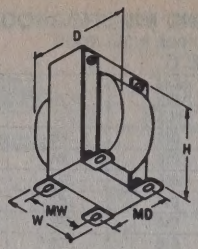

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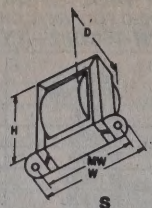

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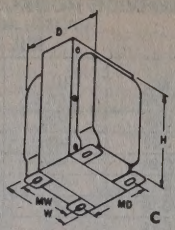

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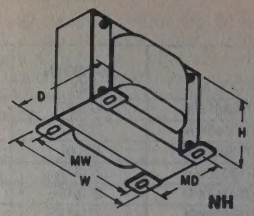


NH

ALL PRIMARIES 50/60 HZ.

Stk. No.	Type	Style	Secondary Volts	Secondary Amps.	Primary Volts 50-60 Hz	Insulation Test RMS Volts*	Case Dimension H	Case Dimension W	Case Dimension D	Mtg. Dimen MW	Mtg. Dimen MD	Wt. Lbs.	EACH BOXED 1-9	EACH BOXED 10-24	EACH BOXED 25-49	EACH BOXED 50-99	BULK PACKED 100-249	BULK PACKED 250-499
05F1409	P-8385	A	6.3C.T.	0.3	117	1500	1¼	2⅛	1⅜	1¾	—	0.3	5.78	5.47	4.86	4.61	3.93	3.78
01F375	P-6465	A	6.3C.T.	0.6	117	1500	1⅜	2⅜	1½	2	—	0.4	5.35	5.06	4.50	4.26	3.45	3.32
01F946	P-8389	A	6.3	1.0	117	1500	1⅝	2⅞	1⅝	2⅜	—	0.6	6.36	6.02	5.35	5.07	4.00	3.85
01F105	P-6134	A	6.3C.T.	1.2	117	3000	1⅝	2⅞	1⅞	2⅜	—	0.8	6.36	6.02	5.35	5.07	4.09	3.93
01F123	P-6466	A	6.3C.T.	3.0	117	2500	2	3¼	2⅛	2 13/16	—	1.4	8.92	8.44	7.50	7.11	5.71	5.50
0F501	P-8648	A	6.3C.T.	4.0	117	1500	2⅜	3¾	2⅛	3⅛	—	1.6	10.93	10.34	9.19	8.71	6.62	6.37
0F502	P-8649	A	6.3C.T.	5.0	117	1500	2⅜	3¾	2⅛	3⅛	—	1.8	11.89	11.25	10.00	9.47	7.24	6.97
01F139	P-6456	A	6.3C.T.	6.0	117/107	2000	2⅜	3¾	2⅜	3⅛	—	2.0	13.64	12.91	11.47	10.87	8.40	8.08
05F503	P-8651	A	6.3C.T.	8.0	117	1500	2⅝	4	2¼	3 9/16	—	2.4	14.95	14.14	12.57	11.91	9.58	9.22
05F1411	P-6464	C	6.3C.T.	10.0	117	2000	3½	2 13/16	3¼	2¼	2	3.5	21.07	19.94	17.72	16.79	13.27	12.77
01F109	P-6309	NV	6.3C.T.	20.0	117/107	2500	4 9/16	3¾	3⅜	2⅜	3	6.7	31.71	30.00	26.67	25.26	20.23	19.47
01F110	P-5015†	NV	7.5C.T.	4.0	117	2500	3⅛	2½	2¼	2	2⅛	2.7	15.62	14.78	13.14	12.45	9.54	9.18
01F337	P-6138†	NV	7.5C.T.	8.0	117	2500	3 13/16	3⅛	2¾	2½	2⅜	4.7	24.21	22.91	20.36	19.29	15.32	14.75
05F504	P-8652	A	10.0C.T.	1.0	117	1500	2	3¼	1⅝	2 13/16	—	0.9	7.96	7.53	6.69	6.34	4.67	4.50
01F048	P-8380	A	10.0C.T.	3.0	117	1500	2⅜	3¾	2¼	3⅛	—	1.6	11.08	10.48	9.32	8.83	7.05	6.78
05F506	P-8654	A	10.0C.T.	4.0	117	1500	2⅝	4	2⅛	3 9/16	—	2.3	13.94	13.19	11.72	11.11	8.59	8.27
05F507	P-8655	NV	10.0C.T.	6.0	117	1500	3⅛	2½	2¾	2	2 5/16	3.1	16.80	15.89	14.13	13.38	10.88	10.47
05F508	P-8656	NV	10.0C.T.	8.0	117	1500	3 7/16	2 13/16	3	2¼	2½	4.1	17.87	16.91	15.03	14.24	10.84	10.43
01F950	P-8390	A	12.0	.150	117	1500	1¼	2⅛	1¼	1¾	—	.25	5.95	5.63	5.00	4.74	3.57	3.43
01F951	P-8391	A	12.0	.350	117	1500	1⅜	2⅜	1⅜	2	—	.35	6.54	6.19	5.50	5.21	3.74	3.60
01F952	P-8392	A	12.0	.700	117	1500	1⅝	2⅞	1⅝	2⅜	—	.60	6.90	6.53	5.81	5.50	3.98	3.83
01F953	P-8393	A	12.0	1.200	117	1500	2	3¼	1⅝	2 13/16	—	.85	8.26	7.81	6.94	6.58	4.93	4.75
05F509	P-8657	A	12.0	2.0	117	1500	2	3¼	2⅛	2 13/16	—	1.3	7.43	7.03	6.25	5.92	5.23	5.03
05F510	P-8658	A	12.0	4.0	117	1500	2⅝	4	2¼	3 9/16	—	2.3	12.96	12.27	10.90	10.33	8.44	8.12
05F511	P-8659	NV	12.0	6.0	117	1500	3 7/16	2 13/16	2⅝	2¼	2⅛	3.4	18.60	17.59	15.64	14.82	11.64	11.21
05F512	P-8660	NV	12.0	8.0	117	1500	3 13/16	3⅛	2¾	2½	2⅛	4.3	18.04	17.06	15.17	14.37	10.94	10.53
05F1412	P-8384	A	12.6C.T.	1.0	117	1500	2	3¼	1¾	2 13/16	—	0.9	8.06	7.63	6.78	6.42	4.74	4.56
01F120	P-8130	A	12.6C.T.	2.0	117	1500	2	3¼	2⅛	2 13/16	—	1.4	8.09	7.66	6.81	6.45	5.38	5.18
01F882	P-8358	A	12.6C.T.	3.0	117	1500	2⅜	3¾	2¼	3⅛	—	1.6	10.83	10.25	9.11	8.63	6.55	6.31
05F1414	P-8641	A	12.6C.T.	4.0	117	1500	2⅝	4	2⅜	3 9/16	—	2.3	13.48	12.75	11.33	10.74	8.28	7.97
05F513	P-8642	C	12.6C.T.	6.0	117	1500	3½	2 13/16	3⅜	2¼	2 5/16	3.8	18.50	17.50	15.56	14.74	11.25	10.83
05F514	P-8643	C	12.6C.T.	8.0	117	1500	3⅞	3⅛	3⅝	2½	2⅜	5.0	27.94	26.44	23.50	22.26	17.76	17.10
05F515	P-8644	C	12.6C.T.	10.0	117	1500	4¼	3 7/16	3⅞	2¾	2¾	6.3	34.45	32.59	28.97	27.45	22.03	21.21
01F954	P-8394	A	24.0C.T.	.085	117	1500	1¼	2⅛	1¼	1¾	—	.25	7.02	6.64	5.90	5.59	4.46	4.30
01F955	P-8395	A	24.0C.T.	.200	117	1500	1⅜	2⅜	1⅜	2	—	.35	6.94	6.56	5.83	5.53	4.45	4.28
01F956	P-8396	A	24.0C.T.	.400	117	1500	1⅝	2⅞	1⅝	2⅜	—	.60	7.83	7.41	6.58	6.24	4.84	4.66
01F957	P-8397	A	24.0C.T.	.700	117	1500	2	3¼	1¾	2 13/16	—	.85	7.86	7.44	6.61	6.26	4.75	4.57
05F516	P-8661	A	24.0C.T.	1.0	117	1500	2	3¼	2 1/16	2 13/16	—	1.4	8.14	7.80	6.85	6.49	5.19	5.00
05F517	P-8662	A	24.0C.T.	2.0	117	1500	2⅝	4	2⅜	3 9/16	—	2.3	12.39	11.72	10.42	9.87	8.05	7.75
05F518	P-8663	NV	24.0C.T.	4.0	117	1500	3 13/16	3⅛	2 13/16	2½	2⅛	4.0	18.30	17.31	15.40	14.58	11.12	10.71
05F519	P-8664	NV	24.0C.T.	6.0	117	1500	4 3/16	3 7/16	3	2¾	2¼	5.7	27.25	25.78	22.91	21.71	17.31	16.66
05F520	P-8665	NV	24.0C.T.	8.0	117	1500	4 3/16	3 7/16	3⅜	2¾	2¾	7.3	31.54	29.84	26.53	25.13	20.12	19.37
05F521	P-8666	NV	24.0C.T.	12.0	117	1500	4 9/16	3¾	4⅝	3	3¼	11.2	41.95	39.69	35.28	33.42	27.27	26.25
01F116	P-6469	A	25.2	1.0	117	1500	2	3¼	2⅛	2 13/16	—	1.4	8.26	7.81	6.94	6.58	5.32	5.12
01F944	P-8180	A	25.2C.T.	1.0	117	1500	2	3¼	2¼	2 13/16	—	1.4	8.26	7.81	6.94	6.58	5.32	5.12
01F883	P-8357	A	25.2C.T.	2.0	117	1500	2⅝	4	2¼	3 9/16	—	2.2	10.22	9.67	8.60	8.15	7.31	7.03
01F945	P-8388	A	25.2C.T.	2.8	117	1500	2⅝	4	2¼	3 9/16	—	2.2	13.96	13.20	11.74	11.12	8.80	8.47
05F522	P-8645	C	25.2C.T.	5.0	117	1500	4¼	3 7/16	3⅞	2¾	2 1/16	6.0	30.26	28.63	25.44	24.11	19.28	18.56
05F523	P-8646	C	25.2C.T.	7.5	117	1500	4¼	3½	4¼	2¾	3⅛	7.3	36.93	34.94	31.06	29.42	23.66	22.77
05F524	P-8647	C	25.2C.T.	10.0	117	1500	4 11/16	3¾	5	3	3⅞	12.3	52.52	49.69	44.17	41.84	33.87	32.60
01F966	P-8608	A	26.5C.T.	0.6	117	2500	2	3¼	2⅛	2 13/16	—	1.3	9.21	8.72	7.75	7.34	5.61	5.40
01F967	P-8609	A	26.8C.T.	1.0	117	1500	2	3¼	2⅛	2 13/16	—	1.3	—	—	—	6.18	—	—
01F958	P-8600	A	28.0C.T.	.085	117	1500	1¼	2⅛	1¼	1¾	—	.25	6.84	6.47	5.75	5.45	3.93	3.78
01F959	P-8601	A	28.0C.T.	.175	117	1500	1⅜	2⅜	1⅜	2	—	.35	7.07	6.69	5.94	5.03	4.25	4.10
01F960	P-8602	A	28.0C.T.	.300	117	1500	1⅝	2⅞	1⅝	2⅜	—	.60	8.06	7.63	6.78	6.42	4.74	4.56
01F961	P-8603	A	28.0C.T.	.800	117	1500	2	3¼	2⅛	2 13/16	—	1.0	9.03	8.55	7.60	7.18	5.84	5.62
05F525	P-8667	A	28.0C.T.	1.0	117	1500	2	3¼	2⅛	2 13/16	—	1.4	8.92	8.44	7.50	7.11	5.75	5.53
05F526	P-8668	NV	28.0C.T.	2.0	117	1500	3⅛	2½	2½	2	2 3/16	2.9	15.52	14.65	13.06	12.37	9.80	9.43
05F527	P-8669	NV	28.0C.T.	4.0	117	1500	3 13/16	3⅛	3¼	2½	2½	5.3	21.24	20.09	17.86	16.92	13.05	12.56
05F528	P-8670	NV	28.0C.T.	6.0	117	1500	4 9/16	3 7/16	3½	2¾	2⅝	7.0	25.27	23.91	21.25	20.13	15.61	15.02
01F962	P-8610	A	36.0C.T.	.065	117	1500	1¼	2⅛	1¼	1¾	—	.25	6.77	6.41	5.69	5.40	3.89	3.75
01F963	P-8611	A	36.0C.T.	.135	117	1500	1⅜	2⅜	1⅜	2	—	.35	7.00	6.63	5.89	5.58	4.05	3.90
01F964	P-8612	A	36.0C.T.	.300	117	1500	1⅝	2⅞	1½	2⅜	—	.60	8.46	8.00	7.11	6.74	5.00	4.81
01F965	P-8613	A	36.0C.T.	.550	117	1500	2	3¼	1⅞	2 13/16	—	1.0	8.82	8.34	7.42	7.03	5.23	5.03
05F529	P-8671	A	36.0C.T.	1.0	117	1500	2⅜	3¾	2¼	3⅛	—	2.0	11.36	10.75	9.56	9.05	6.90	6.65
05F530	P-8672	NV	36.0C.T.	2.0	117	1500	3 7/16	2 13/16	2¾	2¼	2⅛	3.5	18.30	17.31	15.39	14.58	11.45	11.02
05F531	P-8673	NV	36.0C.T.	4.0	117	1500	4 3/16	3 1/16	2⅞	2¾	2⅜	6.0	27.68	26.19	23.28	22.05	17.59	16.93
05F532	P-8674	NV	36.0C.T.	6.0	117	1500	4 9/16	3¾	3½	3	2⅝	8.3	34.78	32.91	29.25	27.71	22.25	21.41
01F970	P-8605	A	48.0C.T.	1.0	117	2500	2⅝	4	2⅜	3 9/16	—	2.3	19.98	18.91	16.81	15.92	12.55	12.08

†Has electrostatic shield. *Insulation test voltage: Twice allowable RMS working voltage plus 1000 volts.

‡Primary tapped to provide secondary voltages of 45 C.T., 51 C.T. or 54 C.T. All transformers have lead terminations.

RECTIFIER, CONTROL and FILAMENT TRANSFORMERS (Cont.)

WITH DUAL C.T. SECONDARIES: All primaries 115V 50/60 Hz except (*) 60 Hz. All terminations are solder lug type. Insulation test voltage; 1500 RMS.

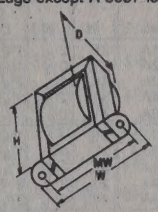
Stk. No.	Type	Style	Secondary▲ Volts	Secondary▲ Amps.	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	EACH BOXED 1-9	EACH BOXED 10-24	EACH BOXED 25-49	EACH BOXED 50-99	BULK PACKED 100-249	BULK PACKED 250-499
01F052	P-8682	S	12.0C.T.	0.5	2⅜	2⅞	1⅞	2⅜	...	1.1	15.16	14.34	12.75	12.08	9.74	12.08
01F053	P-8683	S	12.0C.T. 12.0C.T. 12.0C.T.	0.5 1.0 1.0	2¾	3⅛	2⅛	2 13/16	...	1.7	11.83	11.19	9.94	9.42	6.88	6.62
01F058	P-8679	NH	12.0C.T.	6.0	3½	4⅛	3 1/16	3 7/16	2⅜	5.8	29.53	27.94	24.83	23.53	18.80	18.10
01F059	P-8684*	NH	12.0C.T. 18.0C.T.	6.0 1.0	2½	3	2½	2½	2	2.3	17.77	16.81	14.94	14.16	11.10	10.68
01F060	P-8685*	NH	18.0C.T. 18.0C.T.	1.0 2.0	3¼	3 13/16	3⅛	3⅛	2¼	4.5	21.14	20.00	17.78	16.84	12.98	12.50
01F061	P-8686*	NH	18.0C.T. 18.0C.T.	2.0 4.0	3 9/16	4⅛	3⅛	3 7/16	2¼	5.8	33.86	32.03	28.47	26.97	21.64	20.83
79W068	P-8687*	NH	18.0C.T. 18.0C.T.	4.0 8.0	3⅞	4½	4⅛	3¾	2¾	8.9	42.44	40.16	35.69	33.82	27.27	26.25
01F96	P-8607†	A	26.0C.T.	8.0 .25	1⅝	2⅞	1¾	2⅜	...	.70	8.98	8.50	7.56	7.16	5.35	5.15

▲RMS Values †Primary tapped to provide secondary voltages of 24.5 C.T. or 27.5 C.T. or 29 C.T.

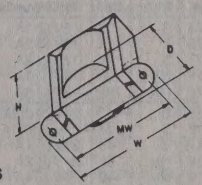
CONSTANT VOLTAGE TYPES—LINE TO VOICE COIL

25 Volt—Termination Lugs except A-8087 leads. RM test voltage, 1000

- **RM test voltage, 1000**
- **In styles S or A**
- **25 Volt—termination lugs except A-8087 & A-8071 leads.**



STYLE A

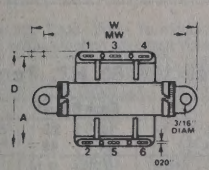


STYLE S

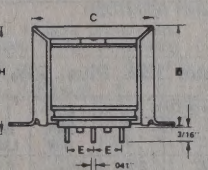
Stock No.	Type	Style	Impedance Ohms Pri.	Impedance Ohms Sec.	Power Steps In Watts	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim.	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulked Packed 100-249	Bulked Packed 250-499
5F1468	A-8097	S	39/78/156/312/625/1250	4/8/16	16/8/4/2/1/0.5	2¾	3⅛	2¼	2 13/16	1.6	15.36	14.53	12.92	12.24	9.51	9.16
01F389	A-8095	A	125/250/500/1000/2000	4/8	5/2.5/1.25/.62/.31	1⅜	2⅜	1½	2	0.4	10.21	9.66	8.58	8.13	6.14	5.91
5F1469	A-8087	A	312/625/1250	8	2/1/0.5	1⅜	2⅜	1⅜	2	0.4	7.93	7.50	6.67	6.32	4.64	4.47
01F1010	A-8055	A	625/1250	8	1/.5	1¼	2⅛	1 5/16	1¾	0.25	5.29	5.00	4.44	4.21	3.57	3.43
01F1011	A-8071	A	625/1250	8	1/.5	1¼	2⅛	1 5/16	1¾	0.25	3.47	3.28	2.92	2.76	1.72	1.66

(*) Sec.—Self leads 2" long, tinned 1".

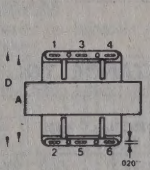
PLUG-IN PRINTED CIRCUIT POWER TRANSFORMERS



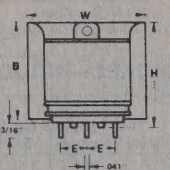
STYLE APC (BOTTOM VIEW)



STYLE APC (SIDE VIEW)



STYLE PC (BOTTOM VIEW)



STYLE PC (SIDE VIEW)

WITH SINGLE PRIMARY FOR 115 VOLTS, 50-60 HERTZ INPUT

Stk. No.	Type	Style	VA Cap.	OUTPUT FROM TWO SECONDARY WINDINGS. CASE DIMEN. Individually	Parallel	Series	H	W	D	Mtg. DIM. MW	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulked Packed 100-249	Bulked Packed 250-499
01F062	PPC-1	PC	1.5	4.0V.@.188A.	4.0V.@376A.	8.0V.@.188A.	1⅛	1 13/32	1 5/32	....	.22	8.56	8.09	7.19	6.82	5.97	5.75
01F063	PPC-2	PC	1.5	7.5V.@100A.	7.5V@200A.	15V.@100A.	1⅛	1 13/32	1 5/32	....	.22	8.53	8.08	7.18	6.80	5.96	5.73
01F064	PPC-3	PC	1.5	15V.@.050A.	15V.@.100A.	30V.@.050A.	1⅛	1 13/32	1 5/32	....	.22	9.08	8.59	7.64	7.24	6.38	6.15
01F066	PPC-5	PC	1.5	38V.@.020A.	38V.@.040A.	76V.@.020A.	1⅛	1 13/32	1 5/32	....	.22	10.27	9.72	8.64	8.18	7.27	7.00
01F068	PPC-6	PC	1.5	58V.@.013A.	58V.@.026A.	116V.@.013A.	1⅛	1 13/32	1 5/32	....	.22	11.46	10.84	9.64	9.13	8.11	7.81
01F069	PPC-7	PC	1.5	20V.@.038A.	20V.@.076A.	40V.@.038A.	1⅛	1 13/32	1 5/32	....	.22	10.41	9.84	8.75	8.29	7.36	7.08
01F070	PPC-11	APC	4.5	4.0V.@.562A.	4.0V.@1.13A.	8.0V.@.562A.	1 13/32	2⅜	1¼	2	.47	7.48	7.08	6.29	5.96	4.88	4.70
01F071	PPC-12	APC	4.5	7.5V.@.300A.	7.5V.@.600A.	15V.@.300A.	1 13/32	2⅜	1¼	2	.47	7.48	7.08	6.29	5.96	4.88	4.70
01F072	PPC-13	APC	4.5	15V.@.150A.	15V.@.300A.	30V.@.150A.	1 13/32	2⅜	1¼	2	.47	7.48	7.08	6.29	5.96	4.88	4.70
01F073	PPC-14	APC	4.5	27V.@.084A.	27V.@.168A.	54V.@.084A.	1 13/32	2⅜	1¼	2	.47	7.48	7.08	6.29	5.96	4.88	4.70
01F080	PPC-23	APC	4.5	20V.@.112A.	20V.@.224A.	40V.@.112A.	1 13/32	2⅜	1¼	2	.47	7.85	7.42	6.60	6.25	5.11	4.92
01F077	PPC-17	APC	7.5	4.0V.@.940A.	4.0V.@1.88A.	8.0V.@.940A.	1⅝	2 13/16	1 15/32	2⅜	.66	8.84	8.36	7.43	7.04	5.29	5.10
01F078	PPC-21	APC	7.5	7.5V.@.500A.	7.5V.@100A.	15V.@.500A.	1⅝	2 13/16	1 15/32	2⅜	.66	9.00	8.52	7.57	7.17	5.48	5.27
01F079	PPC-22	APC	7.5	15V.@.250A.	15V.@.500X.	30V.@.250A.	1⅝	2 13/16	1 15/32	2⅜	.66	8.84	8.36	7.43	7.04	5.29	5.10

▲RMS Values

ESSEX STANCOR Power Transformers

PLATE AND FILAMENT TYPE FOR CAPACITOR INPUT SYSTEMS

Primaries 117 Volts 60 Hz. Primary and Secondary termination: Leads. § Also has 5V rect. fil. winding.
†† Use in half-wave circuits, ** copper shorting band.

Stock No.	Type	Style	Plate ACV	Plate DCMA	Filament V	Filament A	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F026	PS-8415	S	125††	15	6.3	0.6	1 15/16	2 3/8	1 1/16	2	...	0.7	9.22	8.72	7.75	7.34	5.49	5.28
01F027	PS-8416	S	125-0-125	25	6.3	1.0	2 5/16	2 13/16	1 3/4	2 3/8	...	1.0	8.62	8.16	7.25	6.87	5.10	4.91
10F035	PA-8421	A	125††	50	6.3	2.0	2 1/4	3 11/16	2 1/8	3 1/8	...	1.5	11.59	10.97	9.75	9.24	7.05	6.78
01F525	P-8181	VE	150††	25	6.3CT	0.5	1 15/16	2 3/8	1 13/16	2	...	0.8	10.14	9.59	8.53	8.08	5.68	5.47
01F029	PC-8418	C	230-0-230	50	6.3	2.5	3 1/8	2 1/2	2 5/8	2	1 9/16	2.2	17.08	16.16	14.36	13.61	10.64	10.25
01F031	PC-8419	C	240-0-240	70	6.3	3.0	3 1/8	2 1/2	2 7/8	2	1 13/16	2.6	15.66	14.81	13.17	12.47	9.71	9.35
01F004	PC-8403	C	250-0-250	70	6.3CT§	2.5	3 1/8	2 1/2	3 1/2	2	2 1/16	3.2	19.49	18.44	16.39	15.53	12.07	11.62
01F006	PC-8404	C	260-0-260	90	6.3CT§	3.0	3 1/2	2 13/16	3 1/2	2 1/4	2 1/4	4.0	21.67	20.50	18.22	17.26	13.50	13.00
01F008	PC-8405	C	270-0-270	120	6.3CT§	3.5	3 7/8	3 1/8	3 1/2	2 1/2	2 5/16	4.9	24.24	22.94	20.39	19.32	15.02	14.46
05F1404	P-8356	C88	270-0-270	260	6.3§	8.8	3 7/8	3 1/8	3 3/8	2 1/2	2 1/4	6.5	29.17	27.59	24.53	23.24	18.02	17.35
01F018	PC-8410	C	360-0-360	120	6.3CT§	3.5	3 7/8	3 1/8	3 3/4	2 1/2	2 7/16	5.5	29.69	28.09	24.97	23.66	19.35	18.62
01F022	PC-8412	C	400-0-400	200	6.3CT§	5.0	4 11/16	3 3/4	4	3	2 13/16	8.2	36.07	34.13	30.33	28.74	22.68	21.83

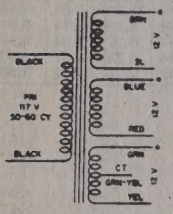
UNIVERSAL CONTROL/RECTIFIER POWER TRANSFORMERS

Primaries 115/230 V, 50/60 Hz. Solder lug termination. With dual secondary winding.

Stock No.	Type	Style	VA Cap	Output From Two Secondary Windings*▲ Individually	Parallel	Series	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. MW	Dim. MD	Wt. lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-249	Bulk Packed 25-499
01F197	P-6375	S	12	6V @ 1A	6V @ 2A	12V @ 1A	2 3/8	2 7/8	1 5/8	2 3/8	—	1.0	9.05	8.56	7.61	7.21	5.84	5.62
01F818	P-6376	S	24	6V @ 2A	6V @ 4A	12V @ 2A	2 3/4	3 1/8	1 7/8	2 13/16	—	1.5	12.52	11.84	10.53	9.97	7.66	7.37
01F819	P-6377	S	48	12V @ 2A	12V @ 4A	24V @ 2A	3 1/8	3 5/8	2 1/4	3 1/8	—	2.5	12.62	11.94	10.61	10.05	8.18	7.87
01F820	P-6378	NV	96	12V @ 4A	12V @ 8A	24V @ 4A	3 7/16	2 13/16	2 7/8	2 1/4	2 1/4	4.2	23.49	22.22	19.75	18.71	14.84	14.28
01F198	P-6379	NV	192	12V @ 8A	12V @ 16A	24V @ 8A	4 3/16	3 7/16	3 3/8	2 3/4	3	8.0	41.45	39.22	34.86	33.03	26.62	25.62
05F1434	P-8615	S	12	24V @ 0.25A	24V @ 0.5A	48V @ 0.25A	2 3/8	2 7/8	1 5/8	2 3/8	—	1.0	12.29	11.63	10.33	9.79	7.50	7.22
05F1435	P-8616	S	24	24V @ 0.5A	24V @ 1A	48V @ 0.5A	2 3/4	3 1/8	1 7/8	2 13/16	—	1.5	12.88	12.19	10.83	10.26	7.89	7.60
05F1436	P-8617	S	48	24V @ 1A	24V @ 2A	48V @ 1A	3 1/8	3 5/8	2 1/4	3 1/8	—	2.5	11.92	11.28	10.03	9.50	7.27	7.00
05F1437	P-8618	NV	96	24V @ 2A	24V @ 4A	48V @ 2A	3 7/16	2 13/16	2 15/16	2 1/4	2 1/4	4.2	22.35	21.14	18.79	17.80	14.41	13.87
05F1438	P-8619	NV	192	24V @ 4A	24V @ 8A	48V @ 4A	4 3/16	3 7/16	3 3/8	2 3/4	3	8.0	34.91	30.03	29.36	27.82	22.33	21.50

(*) By connecting primaries in series (for 230 Volts) but using only 115 V input, a series of half voltage output ratings becomes available at the full rated current from each secondary. ▲R.M.S. values

VERSATILE LOW CURRENT CONTROL TRANSFORMERS



Primaries 117 V, 50/60 Hz. Lead Wire Termination. Multiple secondaries. Three isolated 12 V secondaries (one with a center tap) provide many combinations of output voltages and current by series or parallel combinations.

Stock No.	Type	Style	Amperes Each Sec.▲	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim.	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F146	P-8361	S	.10	1 3/4	2	1 1/2	1 3/4	.36	6.57	6.22	5.53	5.24	3.76	3.62
01F147	P-8362	S	.15	2	2 3/8	1 3/4	2	.60	10.41	9.84	8.75	8.29	6.27	6.03
01F148	P-8363	S	.25	2 3/8	2 7/8	1 3/4	2 3/8	.85	10.70	10.13	9.00	8.53	6.46	6.22
01F149	P-8364	S	.50	2 3/8	2 7/8	2 1/8	2 3/8	1.25	11.92	11.28	10.03	9.50	7.27	7.00

▲R.M.S. values

14

SMOOTHING CHOKES—INDUCTANCE TOL. Minus 15% Plus 50% at 10V 60 HZ. Termination—Leads.

Stock No.	Type	Style	Ind. Henries	DC MA	DC Res. Ohms	RMS V*	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F163	C-1001	A	10.5	110	225	3000	2 5/8	4	2 1/8	3 9/16	2.3	10.87	10.28	9.14	8.66	6.25	6.02
01F897	C-2343	A	0.75	300	32	1500	1 5/8	2 7/8	1 3/8	2 3/8	0.7	5.02	4.75	4.22	4.00	2.66	2.56
01F176	C-2328	A	0.8	375	5	1500	2 3/8	3 3/4	1 7/8	3 1/8	1.5	7.86	7.44	6.61	6.26	4.28	4.12
01F896	C-2708	A	0.32	600	10	1500	2	3 1/4	1 3/4	2 13/16	1.3	7.00	6.63	5.89	5.58	4.05	3.90

(*) Insulation Test Voltage: Twice allowable RMS Working Volts plus 1000 V.

NOTE: Inductance values shown are measured at full amount of DC listed and at specified values of RMS Voltage and frequency. All items are made with Class "A" insulating materials and will withstand operation up to a limit of 105° continuously.

HIGH CURRENT CHOKES—INDUCTANCE MEASURED AT 1 VOLT 60 HZ. Termination Leads.

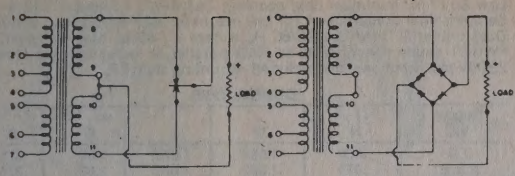
Stock No.	Type	Style	Induct. mH	DC Amps	DC Res. Ohms	RMS V*	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
05F1485	TC-1	A2	3.0	1.0	.25	1000	1 3/16	1 1/2	1 1/8	1 3/16	7/16	0.3	3.40	3.22	2.86	2.71	1.62	1.56
01F721	TC-2	2A	11.0	1.0	.75	1000	1 3/16	1 1/2	1 1/8	1 3/16	7/16	0.3	4.10	3.88	3.44	3.26	2.14	2.06
01F893	C-2685	NH	35	2.0	.75	1500	2 5/16	2 5/8	2 1/8	2 3/16	2	1.9	13.44	12.72	11.31	10.71	8.27	7.96
01F894	C-2686	NH	25	4.0	.43	1500	2 7/8	3 3/8	2 5/8	2 13/16	2 1/8	3.4	17.97	17.00	15.11	14.30	11.23	10.81
01F049	C-2687	NH	25	4.0	.43	1500	2 7/8	3 3/8	2 5/8	2 13/16	2 1/8	3.4	20.31	19.22	17.08	16.18	12.44	11.97
01F895	C-2688	NH	10	12.5	.11	1500	3 1/2	4 1/8	2 7/8	3 7/16	2 5/8	5.9	27.88	26.38	23.44	22.21	17.72	17.06

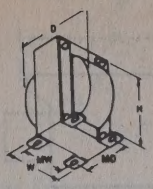
(*) Insulated Test Voltage: Twice allowable RMS Working Volts plus 1000 V.

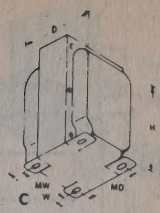
NOTE: The above listed high current chokes are normally used in low voltage, high current DC power supply filter applications, where low voltage drop across filter and good voltage regulation is required without any type of voltage regulator.

Rectifier Transformers

ESSEX STANCOR







UNIVERSAL RECTIFIER TRANSFORMERS - Primaries 117 V, 50/60 Hz. Solder Lug Termination. Style NV.

Stock No.	Type	Rect. Circuit	Range of Applied AC Volts Under Load (Approx.)	Output Resistive or Inductive Loan Max. DC Volts	Output Resistive or Inductive Loan Max. DC Amp.	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-259	Bulk Packed 250-499
01F378	RT-201	C.T.	11.7 to 29.4	11.2	2.0	3⅛	2½	2⅜	2	2⅛	2.5	20.08	19.00	16.89	16.00	12.62	12.15
		Bridge	11.1 to 28.5	23.0	1.25												
01F379	RT-202	C.T.	12.0 to 29.8	11.1	4.0	3 7/16	2 13/16	2¾	2¼	2⅜	3.8	20.61	19.50	17.33	16.42	13.44	12.93
		Bridge	12.0 to 29.8	24.3	2.0												
01F380	RT-204	C.T.	11.7 to 29.2	12.0	8.0	3 13/16	3⅛	3½	2½	2⅞	6.1	32.12	30.39	27.01	25.59	20.77	20.00
		Bridge	11.6 to 29.2	24.0	4.0												
01F381	RT-206	C.T.	12.0 to 29.7	11.5	12.0	4 3/16	3 7/16	4	2¾	3¼	9.1	43.60	41.25	36.67	34.74	28.44	27.37
		Bridge	12.0 to 29.7	24.0	6.0												
01F382	RT-208	C.T.	12.1 to 29.2	11.4	15.0	4 9/16	3¾	5	2 15/16	3¾	12.6	61.67	58.34	51.86	49.13	39.87	38.37
		Bridge	12.1 to 29.2	23.7	8.0												
01F383	RT-2012	C.T.	12.2 to 29.0	11.4	22.5	5 5/16	4⅜	5⅞	3½	4¼	20.5	88.64	83.86	74.54	70.62	57.85	55.68
		Bridge	12.2 to 29.0	23.5	12.0												
05F1444	RT-400	C.T.	23.5 to 60.0	25.0	1.0	3⅛	2½	3⅜	2	2¼	2.7	18.60	17.59	15.64	14.82	11.32	10.90
		Bridge	23.5 to 60.0	53.0	0.5												
05F1445	RT-401	C.T.	24.0 to 59.0	52.0	2.0	3 7/16	2 13/16	3 11/16	2¼	2½	4.1	26.52	25.09	22.31	21.13	16.84	16.21
		Bridge	24.0 to 59.0	52.5	1.0												
05F1446	RT-402	C.T.	23.0 to 58.0	25.0	4.0	3 13/16	3⅛	4½	2½	3 1/16	6.9	37.66	35.63	31.67	30.00	24.12	23.22
		Bridge	23.0 to 58.0	51.5	2.0												
01F384	RT-408	C.T.	25.0 to 53.5	.....	.....	5 5/16	4⅜	6¾	3½	5¼	26.5	120.83	114.31	101.61	96.26	78.20	75.27
		Bridge	23.0 to 58.0	44.0	8.0												
051447	RT-4012	C.T.	25.0 to 53.0	.....	.....	7⅛	5⅜	6½	4⅝	5½	34.0	161.55	152.84	135.86	128.71	104.90	100.97
		Bridge	25.0 to 53.0	43.5	12.0												

*Higher D.C. voltage output with capacitive load. **Rectifier not included.**

For Transistor Power Supplies - Primaries 117 V, 60 Hz
Lead Wire Termination

Stock No.	Type	Style	Secondary 1 Volts	Secondary 1 Amps	Secondary 2 Volts	Secondary 2 Amps	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
05F1460	P-8604*	A	20 C.T.	1.0 Amps. RMS	—	—	2	3¼	2⅛	2 13/16	—	1.4	9.78	9.25	8.22	7.89	5.55	5.35
05F1461	P-8614*	C	30	3.0 Amps. RMS	—	—	3½	2 13/16	3⅝	2¼	2 7/16	4.2	22.46	21.25	18.89	17.90	14.18	13.65
01F046	P-8197	C	50 C.T.	1.0 Amps. RMS	—	—	3⅛	2½	2 11/16	2	1¾	2.3	14.34	13.56	12.06	11.42	8.70	8.37
01F047	P-8198	C	54 C.T.	0.5 Amps. RMS	6.3	5 Amps. RMS	2⅝	2 5/16	2 5/16	1¾	1⅝	1.7	15.10	14.28	12.69	12.03	9.35	9.00
05F1462	P-8194	NV	36	3.0 Amps. RMS	36	3 Amps. RMS	4 9/16	3¾	3¾	3	3	10	36.24	34.28	30.47	28.87	23.05	22.18
01F828	P-8196	C	80 C.T.	1.5 Amps. RMS	—	—	3½	2 13/16	3⅝	2¼	2⅜	4.5	22.99	21.75	19.33	18.32	14.51	13.97

(*) May be operated from 117 volts 50/60 Hz at full rated load. Write Newark for Bulletin 587 for Rectifier Circuits showing DCV and allowable DC Current.

RECTIFIER TRANSFORMERS

Primaries 117 V, 60 Hz. Lead Wire Termination. Multiple primary and secondary taps offer a wide selection of output Voltages. All DC current rating are based on capacitor input Filtering. Max. DCMA for TP-1 is for each secondary.

Stock No.	Type	Style	Max. DC MA Full-Wave CT	Max. DC MA Bridge	Max. DC MA Half Wave	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F441	TP-1	C	1500	900	450	3⅛	2½	3	2	2	2.7	17.31	16.38	14.56	13.79	11.35	10.93
01F825	TP-2	A	150	100	50	1⅝	2⅞	1⅞	2⅜	—	0.7	8.97	8.48	7.54	7.15	5.86	5.64
01F826	TP-3	A	400	300	150	2⅜	3¾	2⅛	3⅛	—	1.5	11.56	10.94	9.72	9.21	7.55	7.26
01F827	TP-4	C	1500	1000	500	3⅛	2½	3⅛	2	2⅛	3.2	19.16	18.13	16.11	15.26	12.55	12.08
05F1448	TP-5	A	1100	750	375	2⅝	4	2⅜	3 9/16	—	2.3	14.52	13.73	12.21	11.57	9.48	9.13

POWER SUPPLY TRANSFORMERS FOR PERIPHERAL COMPUTER ACCESSORIES

PCA Series. Designed for use in power supplies delivering regulated positive and negative D.C. voltage for op-amps and separate 5-6 V regulated voltage for logic circuits. All transformer ratings are for continuous duty with a 105°C max. operating temp. limit. All primaries for 120 V, 50-60 Hz. With solder lug terminals.

Stock No.	Type	Style	Sec. #1 A.C. Volts	Sec. #1 A.C. Amps	Sec. #2 A.C. Volts	Sec. #2 A.C. Amps	Case Dimension H	Case Dimension W	Case Dimension D	Mtg. Dim. MW	Mtg. Dim. MD	Wt. Lbs.	Each, Boxed 1-9	Each, Boxed 10-24	Each, Boxed 25-49	Each, Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F001	PCA-1	S	35 C.T.	0.21	—	—	2⅜	2⅞	1⅝	2⅜	—	1.0	8.72	8.25	7.33	6.95	4.84	4.66
01F003	PCA-2	S	33 C.T.	0.35	—	—	2 11/16	3⅛	1⅞	2 13/16	—	1.4	9.81	9.28	8.25	7.82	5.55	5.35
01F005	PCA-3	NV	33 C.T.	0.21	18 C.T.	1.25	3⅛	2½	2⅝	2	2⅜	3.0	19.08	18.05	16.04	15.20	12.33	11.87
01F009	PCA-4	NV	34 C.T.	0.35	19 C.T.	2.50	3 7/16	2 13/16	2⅞	2¼	2⅜	3.9	23.09	21.84	19.42	18.40	14.58	14.03

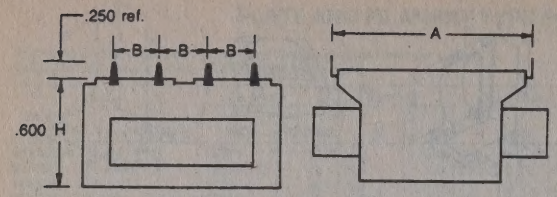
CONSTANT VOLTAGE-LINE TO VOICE COIL
70.7 Volt—Termination Lugs except 8084 leads. RMS test voltage: 1000.

Stock No.	Type	Style	Imp. Ohms Pri.	Imp. Ohms Sec.	Power Stops in Watts	Case Dim. H	Case Dim. W	Case Dim. D	Mtg. MW	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
01F373	A-8102	S	625/1250/2500/5000/10000	4/8/16	8/4/2/1/0.5	2	2⅜	1⅝	2	0.7	11.36	10.75	9.57	9.05	6.90	6.65
05F1470	A-8103	S	312/625/1250/2500/5000/10000	4/8/16	16/8/4/2/1/0.5	2¾	3⅛	2¼	2 13/16	1.5	16.19	15.31	13.61	12.90	10.06	9.68
01F126	A-8105	A	1000/2000/4000/8000/16000	4/8	5/2.5/1.25/.62/.31	1⅜	2⅜	1½	2	0.4	10.44	9.88	8.78	8.32	6.29	6.06
05F1471	A-8109	A	2500/5000/10000	4/8	2/1/0.5	1¼	2⅛	1⅜	1¾	0.3	7.55	7.14	6.35	6.01	5.19	5.00
01F344	A-8084	A	1250/2500/5000/10000/20000/40000	8	4/2/1/.5/.25/.12	1⅝	2⅞	1⅝	2⅜	0.7	12.45	11.78	10.47	9.92	7.62	7.33
01F974	A-8078	S	167/250/500/1000	4/8/16	30/20/10/5	2⅜	2⅞	1¾	2⅜	1.0	11.36	10.75	9.56	9.05	6.90	6.65

For a Complete Listing of Stancor Transistor Transformers ask NEWARK For the latest complete Stancor Catalog

Rectifier Transformers

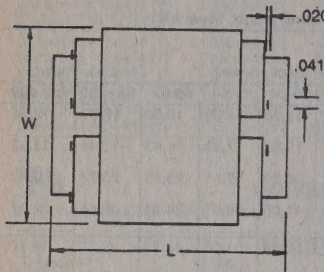
LOW PROFILE PRINTED CIRCUIT



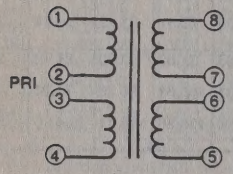
Low Boy™ for minimum card spacing, 2&3va-¾"; 4,5&6va-1"; 12va-1¼". Semi-toroidal construction for low magnetic field & balanced windings. Dual primaries 115/230v 50/60 Hz except (*) 60Hz. May use FWCT or FWBCT series secondaries or FWB parallel or individual Secondaries. 2,500V test. Rectifiers not included. Mounting style LB.

DIMENSIONS

Output VA	H	W	L	A	B
2, 3	.600	1.562	1.875	1.60	.375
4, 5, 6	.875	1.562	1.875	1.60	.375
12	1.062	2.00	2.50	2.0	.50



Circuit Diagram

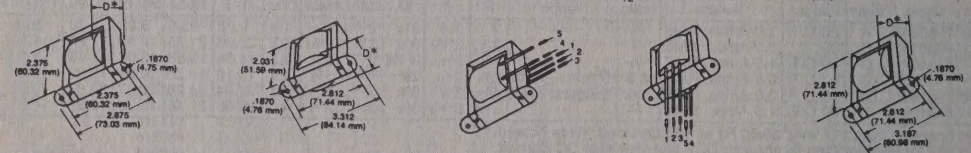


ALL PRIMARIES 115/230V, 50/60HZ DUAL PRIMARY

Stock No.	Part No.	V.A. or Watts	Secondary Series	Secondary Parallel	1-9	10-24	25-49	50-99	100-249
81F2442	LB210	*2	10V C.T. @ 200MA	5V @ 400MA	9.81	9.28	8.25	7.82	5.88
81F2443	LB310	*3	10V C.T. @ 300MA	5V @ 600MA	9.88	9.34	8.30	7.87	5.94
81F2444	LB215	*2	15V C.T. @ 150MA	7.5V @ 300MA	9.94	9.41	8.36	7.92	5.97
81F2445	LB315	*3	15V C.T. @ 200MA	7.5V @ 450MA	10.70	10.13	9.00	8.53	6.47
81F2446	LB410	4	10V C.T. @ 400MA	5V @ 800MA	10.77	10.19	9.06	8.58	6.52
81F2447	LB510	5	10V C.T. @ 500MA	5V @ 1 A	10.67	10.09	8.97	8.50	6.45
81F2448	LB412	4	12V C.T. @ 333MA	6V @ 667MA	10.67	10.09	8.97	8.50	6.45
81F2449	LB512	5	12V C.T. @ 417MA	6V @ 833MA	10.70	10.13	9.00	8.53	6.47
81F2450	LB420	4	20V C.T. @ 200MA	10V @ 400MA	10.73	10.16	9.03	8.55	6.49
81F2451	LB520	5	20V C.T. @ 250MA	10V @ 500MA	10.73	10.16	9.03	8.55	6.49
81F2452	LB424	4	24V C.T. @ 167MA	12V @ 333MA	10.70	10.13	9.00	8.53	6.47
81F2453	LB524	5	24V C.T. @ 208MA	12V @ 417MA	10.70	10.13	9.00	8.53	6.47
81F2454	LB4120	4	120V C.T. @ 30MA	60V @ 66MA	10.80	10.22	9.08	8.61	6.53
81F2455	LB5120	5	120V C.T. @ 41.7MA	60V @ 83.3MA	10.87	10.28	9.14	8.65	6.55
81F2456	LB610	6	10V C.T. @ 600MA	5V @ 1.2 A	10.00	9.50	8.75	8.30	6.30
81F2457	LB1210	12	10V C.T. @ 1200MA	5V @ 2.4 A	12.90	12.19	10.83	10.26	7.90
81F2458	LB612	6	12.6V C.T. @ 450MA	6.3V @ 900MA	10.00	9.50	8.75	8.30	6.30
81F2459	LB1212	12	12.6V C.T. @ 900MA	6.3V @ 1.8 A	12.90	12.19	10.83	10.26	7.90
81F2460	LB616	6	16V C.T. @ 350MA	8V @ 700MA	10.00	9.50	8.75	8.30	6.30
81F2461	LB1216	12	16V C.T. @ 700MA	8V @ 1.4 A	12.90	12.19	10.83	10.26	7.90
81F2462	LB620	6	20V C.T. @ 300MA	10V @ 600MA	10.00	9.50	8.75	8.30	6.30
81F2463	LB1220	12	20V C.T. @ 600MA	10V @ 1.2 A	12.90	12.19	10.83	10.26	7.90
81F2464	LB624	6	24V C.T. @ 250MA	12V @ 500MA	10.00	9.50	8.75	8.30	6.30
81F2465	LB1224	12	24V C.T. @ 500MA	12V @ 1 A	12.90	12.19	10.83	10.26	7.90
81F2466	LB634	6	34V C.T. @ 170MA	17V @ 340MA	10.00	9.50	8.75	8.30	6.30
81F2467	LB1234	12	34V C.T. @ 340MA	17V @ 680MA	12.90	12.19	10.83	10.26	7.90

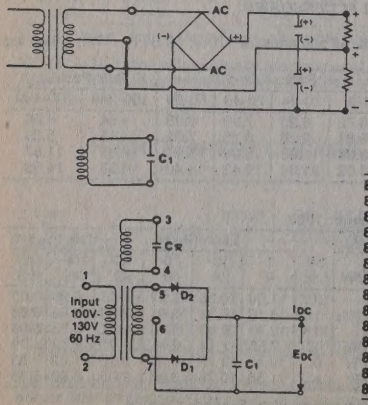
ENERGY LIMITING CONTROL/RECTIFIER TRANSFORMERS

U.L. recognized, Std. 506 & C.S.A. 22.2 #66. For A.C. control or may be used with FWB rectifier. 8½" leads.



Stk. No.	Type	Style	VA	Secondary Volts	Secondary Amps	Primary Volts 50/60 Hz	Case Dimen. H	Case Dimen. W	Case Dimen. D	Mtg. Cts.	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24	Each Boxed 25-49	Each Boxed 50-99	Bulk Packed 100-249	Bulk Packed 250-499
81F2468	P575-900	A	20	24	.83	120	2 1/32	3 5/16	2 1/8	2 13/16	1.11	7.43	7.03	6.25	5.92	4.32	4.16
81F2469	P575-901	A	20	24	.83	208/240	2 1/32	3 5/16	2 1/8	2 13/16	1.11	7.43	7.03	6.25	5.92	4.32	4.16
81F2470	P575-916	A	30	24	1.25	120	2 5/16	3 3/4	2 1/8	3 1/8	1.39	9.08	8.59	7.64	7.24	4.77	4.59
81F2471	P575-917	A	30	24	1.25	208/240	2 5/16	3 3/4	2 1/8	3 1/8	1.39	9.08	8.59	7.64	7.24	4.77	4.59
81F2472	P575-932	A	40	24	1.67	120	5 5/16	3 3/4	2 1/4	3 1/8	1.54	9.91	9.38	8.33	7.90	5.95	5.73
81F2473	P575-933	A	40	24	1.67	208/240	2 5/16	3 3/4	2 1/4	3 1/8	1.54	9.91	9.38	8.33	7.90	5.95	5.73

CONSTANT VOLTAGE STEP DOWN TRANSFORMERS

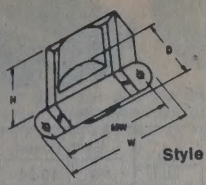


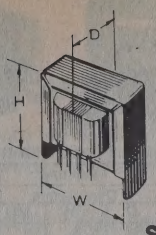
Input 100-130V, 60Hz. Output ±2% max. May be used with FWCT, FWB or FWBCT rectifier circuits. Regulating capacitor (cr) included. Rectifiers & filter capacitors not included. Dim.: L-4⅛", W-3", H-3⅝", ML-3 9/16", MW-2". Wt. 5.71 lbs. Reduces line transients & spikes. Send for bulletin S-CV for greater detail and other ratings to 480VA.

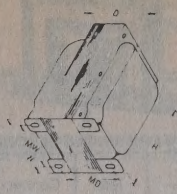
Stk. No.	Type	D.C. Output V	D.C. Output Amps	Sugg. Diodes D_1 & D_2-FWCT PIV	Sugg. Diodes D_1 & D_2-FWCT I/ Diode	Sugg. Filter Cap. C_1-FWCT KMFD	Sugg. Filter Cap. C_1-FWCT DCWV	RMS V Rpl.	1-9	10-24	25-49	50-99
81F2474	CV-560	5	12	35	20	75	10	.25	73.50	70.00	62.00	59.00
81F2475	CV-860	8	7.5	35	15	30	10	.40	73.50	70.00	62.00	59.00
81F2476	CV-1260	12	5.0	50	10	13	15	.60	73.50	70.00	62.00	59.00
81F2477	CV-1560	15	4.0	50	10	8	20	.75	73.50	70.00	62.00	59.00
81F2478	CV-1860	18	3.3	75	10	6	20	.90	73.50	70.00	62.00	59.00
81F2479	CV-2460	24	2.5	100	5	3	25	1.2	73.50	70.00	62.00	59.00
81F2480	CV-2860	28	2.2	100	5	2.5	30	1.4	73.50	70.00	62.00	59.00
81F2481	CV-5120	5	24	35	50	150	10	.25	98.00	93.00	82.00	78.00
81F2482	CV-8120	8	15	35	35	60	10	.40	98.00	93.00	82.00	78.00
81F2483	CV-12120	12	10	50	20	26	15	.60	98.00	93.00	82.00	78.00
81F2484	CV-15120	15	8	50	20	16	20	.75	98.00	93.00	82.00	78.00
81F2485	CV-18120	18	6.7	75	20	12	20	.90	98.00	93.00	82.00	78.00
81F2486	CV-24120	24	5	100	10	6	25	1.2	98.00	93.00	82.00	78.00
81F2487	CV-28120	28	4.3	100	10	5	30	1.4	98.00	93.00	82.00	78.00

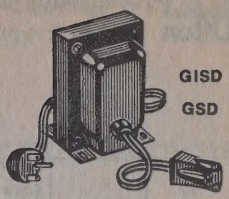
Power Transformers

ESSEX STANCOR


Style A


Style A1


Style C


GISD
GSD

STEP DOWN AUTO-TRANSFORMERS

Primaries 230 Volts 50/60 Hz. Line cord and plug secondaries 115 Volts, standard female receptacle except (†) Leads.

Stock No.	Type	Style	VA Cap	Case Dim. H	W	D	Mtg. Dim. MW	MD	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99	Bulk Packed 100-249	250-499
05F305	P-8620†	A	50	2 5/16	3 1/16	1 3/8	3 1/8	...	1.5	9.12	8.63	7.67	7.26	5.42	5.22
05F1415	P-8630	C	85	3 1/2	2 5/8	2 3/4	2	1 3/4	2.5	21.01	19.86	17.67	16.74	13.22	12.72
05F1416	P-8631	C	125	3 1/2	2 5/8	3	2	2	3.0	22.96	21.72	19.31	18.29	14.50	13.96
05F1417	P-8632	C	200	3 3/8	3 1/8	3 3/4	2 1/2	2	4.2	29.00	27.44	24.34	23.11	18.46	17.77
05F1418	P-8633	C	300	3 3/8	3 1/8	4 1/8	2 1/2	2 15/16	5.2	32.30	30.56	27.17	25.74	20.62	19.85
05F1419	P-8634	C	400	3 3/8	3 1/8	4 3/4	2 1/2	3	7.0	37.42	35.41	31.47	29.82	23.98	23.08
05F1420	P-8635	C	500	4 5/16	3 3/4	4 3/4	3	3 5/16	10.3	52.45	49.63	44.11	41.79	33.83	32.56
05F1421	P-8636	C	1000	4 5/16	3 3/4	6 3/8	3	4 7/8	17.0	71.12	67.28	59.81	56.66	46.06	44.33

STEP-UP AUTO-TRANSFORMERS

Primaries 115V, 50/60 Hz., line cord and plug. Secondaries 230V, standard female receptacles.

Stock No.	Type	Style	VA Cap	Case Dim. H	W	D	Mtg. Dim. MW	MD	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99	Bulk Packed 100-249	250-499
01F085	P-8637	C	85	3 1/2	2 5/8	2 3/4	2	1 3/4	2.5	21.70	20.53	18.25	17.29	13.67	13.16
01F092	P-8638	C	125	3 1/2	2 5/8	3	2	2	3.0	22.13	20.94	18.61	17.63	13.96	13.43
01F089	P-8639	C	300	3 3/8	3 1/8	3 3/8	2 1/2	2 3/8	5.2	32.21	30.47	27.08	25.66	20.55	19.78
01F088	P-8640	C	500	4 5/16	3 3/4	4 3/4	3	3 5/16	10.3	53.08	50.22	44.64	42.29	34.24	32.96

STEP-DOWN AUTO-TRANSFORMERS—THREE CONDUCTOR LINE CORD AND RECEPTACLE

Case and core internally connected to third conductor of NEMA standard cord and receptacle for safety.

Stock No.	Type	Voltage In-put	Out-put	Style	VA Cap	Case Dim. H	W	D	Mtg. Dim. MW	MD	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99	Bulk Packed 100-249	250-499
05F1422	GSD-75	230	115	C	75	3 1/8	3 1/16	2 3/4	2 1/2	1 1/2	3.0	24.58	23.25	20.67	19.58	15.55	14.97
05F1423	GSD-100	230	115	C	100	3 1/8	3 1/16	3	2 1/2	1 3/4	3.7	27.18	25.72	22.86	21.66	17.27	16.62
05F1424	GSD-150	230	115	C	150	3 1/8	3 1/16	3 1/4	2 1/2	2	4.4	28.04	26.53	23.58	22.34	17.83	17.16
05F1425	GSD-250	230	115	C	250	3 1/8	3 1/16	3 3/8	2 1/2	2 3/8	5.8	44.06	41.69	37.06	35.11	28.33	27.27
05F1426	GSD-350	230	115	C	350	3 1/8	3 1/16	4 5/16	2 1/2	3	7.4	38.08	36.03	32.03	30.34	24.41	23.50
05F1427	GSD-500	230	115	C	500	4 5/8	3 1 1/16	4 7/16	3	3 3/8	10.6	46.54	43.94	39.06	37.00	29.89	28.77
05F1428	GSD-750	230	115	C	750	4 5/8	3 1 1/16	5 5/16	3	4 1/8	14.4	57.87	54.75	48.67	46.11	37.37	35.97
05F1429	GSD-1000	230	115	C	1000	4 5/8	3 1 1/16	6	3	5	17.0	67.12	63.50	56.44	53.47	43.44	41.81
05F1430	GSD-1500	230	115	C	1500	5 1/2	4 5/8	6	3 1/2	4 3/8	20.1	107.68	101.88	90.56	85.79	70.02	67.40

STRAIGHT ISOLATION—ELECTROSTATIC SHIELDS GROUNDED TO CORE

Primaries 50/60 Hz. Line cord P-6410 Secondary female receptacle. P-6411, P-6412, Lead Term. P-6160, P-6161 Tap Switch. 115V out.

Stock No.	Type	In-put	Style	VA Cap	Case Dim. H	W	D	Mtg. Dim. MW	MD	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99	Bulk Packed 100-249	250-499
05F1431	P-6413	115	A	0 6	1 1/4	2 1/8	1 1/4	1 3/4	—	0.25	7.43	7.03	6.25	5.92	4.32	4.16
01F043	P-6411	115	A	15	2	3 1/4	1 7/8	2 13/16	—	1.0	7.76	7.34	6.53	6.18	4.48	4.31
05F1432	P-6412	115	A	35	2 3/8	3 3/4	2	3 1/8	—	1.7	9.12	8.63	7.67	7.26	5.77	5.56
01F317	P-6410	115	C	50	3 1/2	2 13/16	3 1/8	2 1/4	1 7/8	3.7	25.04	23.69	21.06	19.95	15.87	15.27
01F315	P-6160	105/115/125	C	100	4 1/16	3 3/4	3 3/4	3	2 5/16	7.0	49.91	47.22	41.97	39.76	31.81	30.62
01F923	P-6161	105/115/125	C	250	4 1/16	3 3/4	5 1/2	3	4 5/16	14.2	77.56	73.38	65.22	61.79	50.28	48.40

STRAIGHT ISOLATION—THREE CONDUCTOR LINE CORD AND RECEPTACLE

115/115 Volts, 50/60 Hz. Case, core, and electrostatic shield internally connected to 3rd conductor of NEMA standard cord and receptacle for safety.

Stock No.	Type	Voltage In-put	Out-put	Style	VA Cap	Case Dim. H	W	D	Mtg. Dim. MW	MD	Wt. Lbs.	EACH BOXED 1-9	10-24	25-49	50-99	BULK PACKED 100-249	250-499
01F1000	GIS-100	115	115	C	100	3 1/2	2 13/16	3 5/16	2 1/4	2 7/16	4.5	28.11	26.59	23.64	22.40	17.88	17.21
01F1001	GIS-150	115	115	C	150	3 7/8	3 5/16	4 5/16	2 1/2	2 15/16	7.0	35.94	34.00	30.22	28.63	23.01	22.15
01F1002	GIS-250	115	115	C	250	4 1/16	3 1/4	4 5/8	3	3 5/16	9.3	44.06	41.69	37.06	35.11	28.33	27.27
01F1003	GIS-500	115	115	C	500	4 1/16	3 3/4	6	3	4 13/16	16.5	68.37	64.69	57.50	54.47	44.25	42.60
01F1004	GIS-1000	115	115	C	1000	5 1/2	4 5/16	8 1/8	3 1/2	6 1/2	31.5	143.78	136.03	120.92	114.55	93.67	90.16

STEP-DOWN ISOLATION—THREE CONDUCTOR LINE CORD AND RECEPTACLE

Case, core and electrostatic shield internally connected to third conductor of NEMA std. cord and receptacle for safety. 50/60 Hz.

Stock No.	Type	Voltage In-put	Out-put	Style	VA Cap	Case Dim. H	W	D	Mtg. Dim. MW	MD	Wt. Lbs.	EACH BOXED 1-9	10-24	25-49	50-99	BULK PACKED 100-249	500-499
01F1005	GISD-100	230	115	C	100	3 1/2	2 13/16	3 5/16	2 1/4	2 7/16	4.5	28.18	26.66	23.69	22.45	17.92	17.25
01F1006	GISD-150	230	115	C	150	3 7/8	3 1/8	4 5/16	2 1/2	2 15/16	7.0	37.03	35.03	31.14	29.50	23.72	22.83
01F1007	GISD-250	230	115	C	250	4 1/16	3 1/4	4 1/4	3	3 5/16	9.0	45.02	42.59	37.86	35.87	28.96	27.87
01F1008	GISD-500	230	115	C	500	4 1/16	3 3/4	6	3	4 13/16	16.0	67.09	63.47	56.42	53.45	26.05	25.07
01F1009	GISD-1000	230	115	C	1000	5 1/2	4 5/16	8 1/8	3 1/2	6 1/2	31.0	118.05	111.69	99.28	94.05	76.81	73.93

STEP-DOWN ISOLATION—ELECTROSTATIC

Primaries 50/60 Hz, line cord secondary female receptacles. Tested at 1500V RMS. Primary Switch.

05F1433	P-6385	210/230/250	115	C	250	4 1/16	3 3/4	5 1/2	3	4 5/16	14.2	60.38	57.13	50.78	48.11	38.59	37.15

ISOLATION TESTING TRANSFORMERS—ELECTROSTATIC SHIELD GROUNDED TO CORE

Primaries 50/60 Hz. line cord secondary three female receptacles Tested at 1500V RMS.

01F316	P-6415	117	105/115/125	C	350	5 1/2	4 5/8	5 15/16	3 1/2	4 1/16	17	66.79	63.19	56.17	53.21	42.79	41.18

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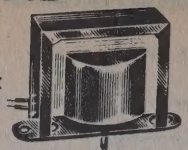
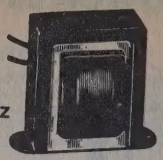
TRIAD-UTRAD Power Transformers

Litton

Distributor Services


Case X


Case Z

FS

FP

115V PRIMARY-SINGLE SECONDARY/50-60 Hz (unless noted with #)

Stk. No.	Type	Case Type	Secondary Volts	Secondary Amps	Test Voltage	Connections	Case Dimensions H	Case Dimensions W	Mounting Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Mtg. Hole Size	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24
03F720	F-1X#*	X	2.5CT	3	1500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	.68	7.79	7.01
03F997	F-6X#*	X	2.5CT	6	2500	Leads	1 15/16	3 5/16	1 3/4	2 13/16		3/16	1.0	9.22	8.30
03F722	F-3X#	X	2.5CT	10	3000	Leads	2 9/32	3 3/4	2 1/8	3 1/8		3/16	1.7	13.05	11.75
03F724	F-7X	X	5CT	3	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	10.12	9.11
03F958	F-13X*	X	6.3	.6	1500	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.37	5.79	5.21
03F959	F-14X#*	X	6.3CT	1.2	2500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	.7	7.05	6.35
03F999	F-52X	X	6.3	1.2	5000	Leads	1 15/16	3 5/16	1 3/4	2 13/16		3/16	1.0	11.12	10.01
03F960	F-16X*	X	6.3CT	3	2500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	9.40	8.46
05F1376	F-43X#	X	6.3	4	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.25	8.66	7.79
03F961	F-18X	X	6.3CT	6	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.3	13.09	11.78
03F1000	F-21A	X	6.3CT	10	1500	1-Leads	3 19/32	1 31/32	3 1/8	2 1/4	2	3/8 × 3/16	3.8	24.97	22.47
03F777	F-22A		6.3CT	20	2000	2-Leads	3 7/8	3 9/32	4 1/8	2 1/2	3	3/8 × 3/16	7.0	34.43	30.99
03F631	F-28U†		7.5CT-6.3CT	25	3000	Leads & Lugs	4 5/8	3 13/16	3 5/8	3	3 1/16	5/16 × 3/16	7.5	47.38	42.64
03F1001	F-31X	X	10CT	3	2000	Leads	2 9/32	3 3/4	2 1/8	3 1/8		3/16	1.7	12.22	11.00
02F457	F-23U		10CT	7	1500	Leads	3 1/2	2 7/8	2 15/16	2 1/4	2 7/16	5/16 × 3/16	3.9	22.41	20.17
02F479	F-113X	X	12	.15	1500	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.4	6.26	5.63
03F1008	F-114X	X	12	.7	1500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	.8	7.59	6.83
03F632	F-29U†		12CT-11CT-10CT	11	3000	Leads	4 3/8	3 1/2	3 3/8	2 3/4	2 9/16	5/16 × 3/16	6.5	33.24	29.92
03F1083	F-36A		6.3CT-6.3-6.3-6.3	3.5-3.5-3.5-3.5	1500	1-Leads	3 7/8	3 9/32	3 1/2	2 1/2	2 3/8	3/8 × 3/16	5	32.22	29.00
03F1002	F-70X	X	12.6CT	1.0	1500	Leads	1 15/16	3 5/16	1 3/4	2 13/16		3/16	1.3	8.55	7.70
03F778	F-25X*	X	12.6CT	1.5	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	8.97	8.07
05F1379	F-44X#*	X	12.6CT	2.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.25	8.84	7.96
03F996	F-26X#*	X	12.6CT	2.5	1500	Leads	2 9/32	3 11/16	2	3 1/8		3/16	1.55	10.84	9.76
02F748	F-112X*	X	14CT	.25	1500	Leads	1 3/8	2 3/8	1 3/8	2		3/16	.4	7.62	6.86
03F1009	F-115X*	X	24CT	.085	1500	Leads	1 3/16	2 1/16	1 1/4	1 3/4		3/16	.3	7.66	6.89
02F480	F-116X*	X	24CT	.2	1500	Leads	1 3/8	2 3/8	1 1/2	2		3/16	.45	7.33	6.60
03F1011	F-117X*	X	24CT	.4	1500	Leads	1 5/8	2 13/16	1 5/8	2 3/8		3/16	8.0	8.17	7.35
02F1012	F-118X*	X	24CT	.7	1500	Leads	1 15/16	3 1/4	2	2 13/16		3/16	1.3	8.55	7.70
02F532	F-45X#*	X	24CT	1.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	8.55	7.70
03F1003	F-46X#*	X	24	1.0	1500	Leads	1 15/16	3 11/16	2 1/8	2 13/16		3/16	1.4	8.86	7.97
03F1004	F-57X*	X	25.2CT	1.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.5	8.93	8.04
03F726	F-41X*	X	25.2CT	2.0	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.2	11.78	10.60
03F1005	F-56X	X	25.2CT	2.8	1500	Leads	2 21/32	4	2 1/4	3 9/16		3/16	2.5	14.71	13.24
03F779	F-40#X*	X	26.8CT	1.0	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	8.40	7.56
02F456	F-55X*	X	26.8CT	1.7	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.3	12.60	11.34
05F1378	F-54X*	X	35CT	1.5	1500	Leads	2 19/32	4	2 1/4	3 9/16		3/16	2.2	13.62	12.26
03F1007	F-59X	X	60CT	.4	1500	Leads	1 15/16	3 5/16	2	2 13/16		3/16	1.3	9.57	8.61
81F2406	F-232U‡		24CT	4	2000	Leads	3 3/4	3 1/8	2 7/8	2 1/2	2 1/4	5/16 × 3/16	4.6	21.57	19.41
81F2407	F-187U		28CT	4	1500	Leads	3 1/2	2 7/8	3 1/16	2 1/4	2 3/4	5/16 × 3/16	5.3	22.38	20.14
81F2408	F-189X	X	35CT	.5	1500	Leads	2 5/16	3 11/16	1 15/16	3 1/8		3/16	1.0	10.28	9.25

#60 Hz operation. †Tapped primary. **F TYPE MULTIPLE SECONDARY/PRIMARY 115, 60 Hz (unless noted with #)** ‘Also available 115/230 primary. ‡440 V

Stk. No.	Type.	Case Type	Secondary Volts	Secondary Amps	Secondary No. of	RMS Test Voltage	Connections	Case Dimensions H	Case Dimensions W	Case Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Wt. Lbs.	Each Boxed 1-9	Each Boxed 10-24
04F435	F-42A#		12.6CT	2.5	Dual	1500	1-Leads	3 19/32	2 21/32	3 1/8	2 1/4	2	3.7	19.84	17.86
05F1382	F-83A†		12.6CT-12.6CT	5-5	Dual	P-1500 S-2500	2-Leads	3 7/8	3 9/32	3 3/4	2 1/2	2 5/8	6.0	35.05	31.55
02F1017	F-237Z	Z	12CT	1.0	Dual	1500	Leads	2 11/16	3 1/8	2 1/16	2 13/16		1.8	14.02	12.62
02F1018	F-238U		12CT	2.0	Dual	1500	Leads	2 1/2	3	2 1/2	2 1/2	2	5.0	19.31	17.38
05F1020	F-240U		12CT	6.0	Dual	1500	Leads	3 1/2	4 1/8	3 1/16	3 7/16	2 1/4	9.5	30.95	27.86
05F1021	F-241U		18CT	1.0	Dual	1500	Leads	2 1/2	3	2 1/2	2 1/2	2	3.0	18.71	16.84
05F1022	F-242U		18CT	2.0	Dual	1500	Leads	3 1/8	3 13/16	3 1/8	3 1/8	2 1/8	6.0	22.16	19.94
05F1023	F-243U		18CT	4.0	Dual	1500	Leads	3 7/16	4 1/8	3	3 7/16	2 1/4	7.0	36.98	33.28
03F1083	F-36A		6.3	3.5	4	1500	Leads	3 7/8	3 9/32	3 1/2	2 1/2	2 3/8	5.0	32.22	29.00

Stock No.	Type	Case Type	Secondary Volts	Secondary Amps	Test Voltage	Connections	Case Dimensions H	Case Dimensions W	Case Dimensions D	Mounting MW	Mounting MD	Mtg. Hole Size	Wt. Lbs.	1-9	10-24
81F2406	F-232U‡		24 CT	4	2000	Leads	3 3/4	3 1/8	2 7/8	2 1/2	2 1/4	5/16 × 3/16	4.6	21.57	19.41
81F2407	F-187U		28 CT	4	1500	Leads	3 1/2	2 7/8	3 1/16	2 1/4	2 3/4	5/16 × 3/16	5.3	22.38	20.14
81F2408	F-189X	X	35 CT	5	1500	Leads	2 5/16	3 11/16	1 15/16	3 1/8		3/16	1.0	10.28	9.25

Stock No.	Type	Case Type	Secondary Volts	Secondary Amps	Secondary No. of	Test Voltage	Connections	Case Dimensions H	Case Dimensions W	Case Dimensions D	Mtg MW	Dim. MD	Mtg. Hole Size	Wt. Lbs.	1-9	10-24
03F1083	F-36A		6.3	3.5	4	1500	Leads	3 7/8	3 9/32	3 1/2	2 1/2	2 3/8	3/8 × 3/16	5.0	32.22	29.00

Case X except (*) case A.

TYPE F LOW VOLTAGE RECTIFIER TRANSFORMERS-50/60 Hz

Stock No.	Type	Primary Volts	Secondary AC Voltage	Secondary AC Amps	Dimensions H	Dimensions W	Dimensions D	Wt. Lbs.	1-9	20-24	25-49	50-99
03F620	F-90X	115 Tapped	10-20CT-40CT	.1	1 5/8	2 15/16	1 5/8	3/4	9.79	8.81	7.93	7.45
03F621	F-91X	115 Tapped	10-20CT-40CT	.3	2 9/32	3 11/16	1	1/2	12.52	11.27	10.14	9.53
03F622	F-92A	115 Tapped	10-20CT-40CT	.1	3 3/16	2 21/32	3	3 1/4	20.86	18.77	16.89	15.88
05F1350	F-93X	115 Tapped	10-20CT-40CT	.75	2 19/32	4	2 1/4	2.4	15.74	14.17	2.75	11.99
05F1351	F-94X	115 Tapped	10-20CT-40CT	.035	1 3/8	2 3/8	1 3/8	.5	8.00	7.20	6.48	6.09

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Power Transformers

"FS" Split Pack and "FP" Flat Pack combine best features of transformer design. Center wall bobbin allows the primaries and secondaries to be wound non-concentrically (side by side). This construction technique reduces coupling capacitance and eliminates the need for static shields. High isolation is standard in each series FS-2500V and FP-2000V.

FLAT PACK™ POWER TRANSFORERS: 115/230 Volt, 50/60 Hz Primary

Stk. No.	Type	Output	Secondary Series	Secondary Parallel	Mtg. Dimensions H x W x L	1-9	10-24	25-49	50-99
81F2413	FP10-600	6W	10VCT @ .6A	5V @ 1.2A	8.75 x 1.562 x 1.875	10.19	9.17	8.25	7.76
81F2414	FP12-475	6W	12VCT @ .475A	6V @ .95A	.875 x 1.562 x 1.875	10.19	9.17	8.25	7.76
81F2415	FP16-375	6W	16VCT @ .375A	8V @ .75A	.875 x 1.562 x 1.875	10.19	9.17	8.25	7.76
81F2416	FP20-300	6W	20VCT @ .30A	10V @ .6A	.875 x 1.562 x 1.875	10.19	9.17	8.25	7.76
81F2417	FP24-250	6W	24VCT @ .25A	12V @ .5A	.875 x 1.562 x 1.875	10.19	9.17	8.25	7.76
81F2418	FP30-200	6W	30VCT @ .2A	15V @ .4A	.875 x 1.562 x 1.875	10.19	9.17	8.25	7.76
81F2419	FP101200	12W	10VCT @ 1.2A	5V @ 2.4A	1.062 x 2.0 x 2.5	11.38	10.24	9.22	8.67
81F2420	FP12-950	12W	12VCT @ .95A	6V @ 1.9A	1.062 x 2.0 x 2.5	11.38	10.24	9.22	8.67
81F2421	FP16-750	12W	16VCT @ .75A	8V @ 1.5A	1.062 x 2.0 x 2.5	11.38	10.24	9.22	8.67
81F2422	FP20-600	12W	20VCT @ .6A	10V @ 1.2A	1.062 x 2.0 x 2.5	11.38	10.24	9.22	8.67
81F2423	FP24-500	12W	24VCT @ .5A	12V @ 1A	1.062 x 2.0 x 2.5	11.38	10.24	9.22	8.67
81F2424	FP30-400	12W	30VCT @ .4A	15V @ .8A	1.062 x 2.0 x 2.5	11.38	10.24	9.22	8.67

SPLIT PACK™ POWER TRANSFORMERS 115/280 Volt, 50/60 Hz Primary

Stk. No.	Type	Output	Secondary Series	Secondary Parallel	Dimensions H x W x L	1-9	10-24	25-49	50-99
81F2425	FS10-250	2.5W	10VCT @ .25A	5V @ .5A	1 3/16 x 1 3/8 x 1 1/8	8.74	7.87	7.08	6.66
81F2426	FS16-150	2.5W	16VCT @ .15A	8V @ .3A	1 3/16 x 1 3/8 x 1 1/8	8.74	7.87	7.08	6.66
81F2427	FS24-100	2.5W	24VCT @ .1A	12V @ .2A	1 3/16 x 1 3/8 x 1 1/8	8.74	7.87	7.09	6.66
81F2428	FS36-65	2.5W	36VCT @ .065A	18V @ .13A	1 3/16 x 1 3/8 x 1 1/8	8.74	7.87	7.09	6.66
81F2429	FS10-600	6W	10VCT @ .6A	5V @ 1.2A	1 5/16 x 1 5/8 x 1 5/16	9.09	8.18	7.36	6.92
81F2430	FS16-400	6W	16VCT @ .4A	8V @ .8A	1 5/16 x 1 5/8 x 1 5/16	9.12	8.21	7.39	6.95
81F2431	FS24-250	6W	24VCT @ .25A	12V @ .5A	1 5/16 x 1 5/8 x 1 5/16	9.09	8.18	7.36	6.92
81F2432	FS36-170	6W	36VCT @ .17A	18V @ .34A	1 5/16 x 1 5/8 x 1 5/16	9.09	8.18	7.36	6.92
81F2433	FS101200	12W	10VCT @ 1.2A	5V @ 2.4A	1 7/16 x 1 7/8 x 1 9/16	10.17	9.15	8.25	7.76
81F2434	FS16-800	12W	16VCT @ .8A	8V @ 1.6A	1 7/16 x 1 7/8 x 1 9/16	10.17	9.15	8.25	7.76
81F2435	FS24-500	12W	24VCT @ .5A	12VCT @ 1A	1 7/16 x 1 7/8 x 1 9/16	10.17	9.15	8.25	7.76
81F2436	FS36-350	12W	36VCT @ .35A	18VCT @ .7A	1 7/16 x 1 7/8 x 1 9/16	10.17	9.15	8.25	7.76

Case U

TYPE F UNIVERSAL RECTIFIER TRANSFORMERS—PRIMARY 50/60 Hz

Stk. No.	Type	Primary Volts	Secondary VAC	Secondary Amps RMS	Rectifier HW VDC	Rectifier FWB VDC	Mounting Dimension MW	Mounting Dimension MD	Wt. Lbs.	1-9	10-24	25-49	50-99
03F984	F47U*	115	17-18	3	6-7	13-14	1 5/8	2 3/8	3.2	17.21	15.49	13.94	13.10
03F963	F60U*	115	6.5-18-19.5-26	3	9	18	2 1/4	2 3/16	3.5	18.74	16.87	15.18	14.27
03F986	F61U*	115	24-27-30-33-36	3	6-7	13-14	2 1/2	2 11/16	5.5	28.74	25.87	23.28	21.88
03F987	F67U#	110/120	24-27-30-33-36	8	13	26	3	3 5/16	10.75	53.72	48.35	43.52	40.91
03F623	F79U#	115	24-26-28-30	15	11.4	22.8	3 3/4	4 9/16	18.5	86.83	78.15	70.34	66.12

(*) Also available 115-230 volt Primary (#) 60 Hz operation.

Case Z except (†) case U.

CONTROL TRANSFORMERS/6, 12, 24 Volt Secondaries

Stock No.	Type	Primary 50/60 Hz	Secondary Parallel	Secondary Series	VA Rating	Mtg. Dim.	Wt. Lbs.	1-9	10-24	25-49	50-99
03F1031	F-105Z	115/230V	6V @ 2A	12V @ 1A	12	2 3/8	1	9.47	8.52	7.67	7.21
03F1032	F-106Z	115/230V	6V @ 4A	12V @ 2A	24	2 13/16	1 1/2	12.98	11.68	10.51	9.88
03F1033	F-107Z	115/230V	12V @ 4A	24V @ 2A	48	3 1/8	2 1/2	13.38	12.04	10.84	10.19
03F1034	F-108U†	115/230V	12V @ 8A	24V @ 4A	96	2 1/4 x 2 1/4	4 1/4	24.67	22.20	19.98	18.78
03F1035	F-109U†	115/230V	12V @ 16A	24V @ 8A	192	3 x 2 3/4	8	43.45	39.11	35.20	33.09
02F1031	F-211Z	115/230V	24V @ 5A	48V @ 25A	12	2 3/8	.678	12.93	11.64	10.48	9.85
02F1032	F-212Z	115/230V	24V @ 1.0A	48V @ .50A	24	2 13/16	1.05	13.95	12.56	11.30	16.62
02F1033	F-213Z	115/230V	24V @ 2.0A	48V @ 1.0A	48	3 1/8	1.55	14.07	12.66	11.39	10.71
81F2409	F-398U†	115/230V	12V @ 6A	24V @ 3A	72	2 1/4 x 2 1/4	4.25	23.95	21.56	19.40	18.24
81F2410	F399U†	115/230V	12V @ 12A	24V @ 6A	144	2 1/2 x 2 3/8	5.9	33.53	30.18	27.16	25.53
02F1034	F214U†	115/230V	24V @ 4A	48V @ 2A	96	2 1/4 x 2 5/8	3.24	24.21	21.79	19.61	18.43
81F2411	F-400U†	115/230V	24V @ 6A	48V @ 3A	144	2 1/2 x 2 7/8	5.9	32.07	28.86	25.97	24.41
02F1035	F-215U†	115/230V	24V @ 8A	48V @ 4A	192	2 3/4 x 3	6.06	39.16	35.24	31.72	29.82

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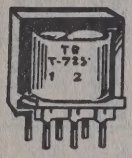
Audio Transformers

TYPE C SMOOTHING FILTER REACTORS

SP-Case

Stock No.	Type	Ind. Henries	Current mA	Res. Ohms	Test RMS Volts	Mtg. MW	Dim. MD	Wt. Lbs.	1-9	10-24	25-49	50-99
03F952	C-3X	10	50	500	1500	2⅜		.6	6.48	5.83	5.25	5.49
03F1077	C-5X	12	75	390	1000	2 13/16		1	8.88	7.99	7.19	6.76
03F1078	C-10X	9	125	250	1000	3⅛		1.6	9.24	8.32	7.49	7.04
03F1079	C-12A	6	160	165	1500	1⅜	1⅜	2	14.74	13.27	11.94	11.22
03F1080	C-15A	4	250	100	1500	2	1 1/16	2.65	16.17	14.55	13.10	12.31
04F432	C-27X	0.7	290	30	1500	2⅜	....	.75	6.12	5.51	4.96	4.66
03F1081	C-34X	.6	350	35	1500	2⅜	....	.6	6.33	5.70	5.13	4.82
03F1082	C-20A	6	400	60	3000	3	3⅜	10.5	39.09	35.18	31.66	29.76
03F765	C-40X	.32	500	16	1500	2½	....	1.3	8.16	7.34	6.61	6.21
03F734	C-47X	.8.000	1A-2A	3/.75	1500	2¼	2 1/16	4.6	22.29	20.06	18.05	16.97
05F2176	C-58U	.3.375	8.0	.15	1500	3⅛	2½	5.5	22.64	20.38	18.34	17.24
03F754	C-1X	15	20	1000	1000	1¾	....	.21	6.52	5.87	5.28	4.96
81F2412	C-80U	.024/.006	20A/40A	.1/.025	1500	2¾	4½	21.25	112.55	101.30	91.17	85.70

TYPE SP 'RED SPEC' TRANSISTOR TRANSFORMERS



A

B

Nickel alloy leads spaced on standard 1/10" grid centers to fit PC boards. Base: .310 x .410". Lead length: ¾". Meet MIL-T-27D. Input response: 230 Hz-15K Hz@ 25 mw., 100 Hz-50K Hz @ 1 mw. Output response: ± 2dB, 250 Hz-50K Hz @ 50 mw. 150 hz-50 MHz @ 1 mw. Wt. .1 oz.

Stock No.	Type	MIL-T-27B Designation	Primary Imp.	Secondary Imp.	Pwr. M.W.	1-9	10-24	25-49	50-99
05F1367	SP-4	TF5SX21ZZ	200KCT	1000CT	10	18.09	16.28	14.65	13.72
02F450	SP-29	TF5SX21ZZ	10000CT	500CT	50	17.36	15.62	14.06	13.22
03F1048	SP-33	TF5SX21ZZ	1000	50	50	13.83	12.45	11.21	10.54
83F283	SP-52	TF5SX21ZZ	1500CT	600	50	16.29	14.66	13.19	12.40
03F292	SP-66*	TF5SX21ZZ	10KCT	10KCT	50	17.59	15.83	14.25	13.40
02F452	SP-67*	TF5SX21ZZ	600CT	600CT	50	16.48	14.83	13.35	12.55
02F453	SP-69*	TF5SX21ZZ	600	600CT/150#	50	16.55	14.90	13.41	12.61
03F1050	SP-310	Magnetic Shield				1.78	1.60	1.44	1.35

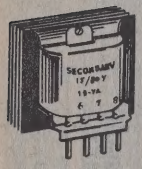
*Output isolation. #Split secondary.

PLUG-IN AUDIO TRANSFORMERS

C

Stock No.	Type	Fig.	Output	Impedance Primary	Impedance Secondary	Pri. DC Unbalance	Dimensions	1-9	10-24	25-49	50-99
02F473	TY-141P	A	100mW	10,000CT	10,000CT	4 ma	⅝ x 13/16 x 1 9/32	7.38	6.64	5.98	5.62
02F477	TY-145P	A	100mW	600CT	600CT	15 ma	⅝ x 13/16 x 1 9/32	7.38	6.64	5.98	5.62
02F1037	TY-142P	A	100mW	10,000CT	2,000CT	4 ma	⅝ x 1 9/32 x 3/16	7.12	6.41	5.77	5.42
02F1038	TY-146P	D	1 Watt	60CT/150	600CT/150	—	1⅛ x 1⅛ x 1⅜	10.97	9.87	8.88	8.35

TELEPHONE COUPLING TRANSFORMERS

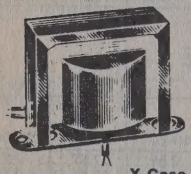


D

Stock No.	Type	Fig.	Impedance Primary	Impedance Secondary	Pin. Dim.		Dimension B	1-9	10-24	25-49	50-99
03F1066	TY-300P	C	600	600/600	13/64	.041	27/64	10.09	9.08	8.17	7.68
03F1067	TY-301P	B	600	900	13/64	.041	27/64	8.79	7.91	7.12	6.69
03F1068	TY-302P	C	600	600/600	13/64	.041	25/32	9.78	8.80	7.92	7.44
03F1069	TY-303P	B	4000	600	13/64	.041	27/64	7.81	7.03	6.33	5.95
03F1070	TY-304P	A	600CT	600CT	3/16	.041	27/64	8.00	7.20	6.48	6.09
03F1071	TY-350P	—	†	—	¼	.041	1	8.79	7.91	7.12	6.69

(†) 2.0 hy @ 60 ma, 1.3 hy @ 100 maDC, 180 ohms DCR. (*) Two required for hybrid operation.

MINIATURE AUDIO 'TRIJETS'—X CASE



X Case

Stock No.	Type	Application	Pri. Imp.	Sec. Imp.	Resp.	1-9	10-24	25-49	50-99
05F1362	T-IX	Line to Grid	600/250/50	50,000	60-15,000	14.90	13.41	12.07	11.35
0351039	T-20X	Plate to Line	15,000	600/250/50	60-15,000	12.45	11.21	10.09	9.48
03F917	T-31X	Line to Line	600/250/50	600/250/50	50-15,000	12.72	11.45	10.31	9.69
03F1040	T-25X	Plate to Line	12,000CT	600CT/150#	50-16,000	11.50	10.35	9.32	8.76
03F1041	T-32X	Trans to Line	1,500CT	600CT/150#	50-20,000	12.76	11.48	10.33	9.71
03F1042	T-33X	Isol High Imp	5,000CT	5,000CT	60-15,000	14.57	13.11	11.80	11.09
05F1365	T-34X	Line to Line	500CT	500CT/125#	50-20,000	9.53	8.58	7.72	7.26
05F1366	T-35X	Line to Trans	600CT	2,000CT/500#	50-20,000	11.38	10.24	9.22	8.67

#Split Secondary

MINIATURE AUDIO TRANSISTOR TRANSFORMERS—X CASE

Stock No.	Type	Pri. Match Imped.	Pri. Cur. mADC	Sec. Match. Imped.	Max. Level	Size	1-9	10-24	25-49	50-99
02F950	TY-31X	200CT	50	8/4	2W	13/16 x 2 1/16 x 1¼	9.05	8.15	7.34	6.90
05F2172	TY-45X	500CT	5	16/8/4	2	13/16 x 1 5/16 x 1	13.10	11.79	10.61	9.97
02F955	TY-64X	32CT	575	16/8/4	10W	1 15/16 x 3 5/16 x 1¾	11.38	10.24	9.22	8.67

J SERIES LOW LEVEL OUTPUT TRANSFORMERS

J Series Case

Stock No.	Type	Application	Freq. Resp.	Pri. Imp.	Sec. Imp.	Wt. Lbs.	1-9	10-24	25-49	50-99
03F1045	A-61J	Line to 2 Lines	60-15,000	60/150#	60/150# 600/150#	.35	37.28	33.55	30.20	28.39
03F1072	A-52J	Line or Transistor to Line or transistor	30-15,000	500CT/125 20 MA D.C.	2000CT/ 500#	.35	25.64	23.08	20.77	19.52
02F538	A-65J	Plate to Line	30-15,000	15,000CT	600CT/150#	.35	31.19	28.07	25.26	23.74
03F1046	A-57J	Line to Line	30-30,000	600/250/50	600/250/50	.35	31.41	28.27	25.44	23.91
05F1357	A-67J	Line to Line	30-15,000	600CT/150#	600CT/150#	.35	32.07	28.86	25.97	24.41

#Split Winding

For a complete list of Triad standard line items ask Newark for latest Triad industrial Catalog

Plug In, Isolation Transformers

TRIAD-UTRAD
Litton Distributor Services

PLUG-IN PC POWER TRANSFORMERS

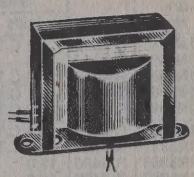
—115 Volt, 50/60 Hz. Primary

Ideal for single or dual output DC supplies, isolated control circuits, reference supplies in transistorized control, instrumentation. Provide voltage stepdown and isolation from power line at relatively low power levels of 1½, 4½, 7 watts at 4 to 58 volts when connected in parallel, and 8 to 116 volts when series connected. Precision spaced plug-in terminals with fixed mounting centers. 115v, 50/60 Hz. Primary except (*) 115/230v.

Stock No.	Type	Fig.	Out-put	Secondary Series	Secondary Parallel	Dimensions	Wt. Oz.	1-9	10-24	25-49	50-99
02F459	F-131P	B	1½W	8VCT @ .188A	4V @ .376A	1⅛x1 25/64x1 5/32	3.5	9.93	8.94	8.05	7.57
02F460	F-132P	B	1½W	15VCT @ .100	7.5V @ .200A	1⅛x1 25/64 1 5/32	3.5	10.09	9.08	8.17	7.68
02F461	F-133P	B	1½W	30VCT @ .050A	15V @ .100A	1⅛x1 25/64x1 5/32	3.5	10.53	9.48	8.53	8.02
02F462	F-134P	B	1½W	54VCT @ .028A	27V @ .056A	1⅛x1 25/64x1 5/32	3.5	11.07	9.96	8.96	8.42
02F463	F-135P	B	1½W	76VCT @ .020A	38V @ .040A	1⅛x1 25/64x1 5/32	3.5	11.79	10.61	9.55	8.98
02F1039	F-138P	B	1½W	25.2VCT @ .060A	12.6V @ .120A	1⅛x1 25/64x1 5/32	3.5	10.43	9.39	8.45	7.94
02F1021	F-141XP	A	4½W	8VCT @ .562A	.4V @ 1.124A	1 25/64x2 3/64x1¼	7.5	8.78	7.90	7.11	6.68
02F465	F-142XP	A	4½W	15VCT @ .300A	7.5V @ .600A	1 25/64x2 3/64x1¼	7.5	8.19	7.37	6.63	6.23
02F466	F-143XP	A	4½W	30VCT @ .150A	15V @ .300A	1 25/64x2 3/64x1¼	7.5	8.69	7.37	6.63	6.23
02F467	F-144XP	A	4½W	54VCT @ .084A	27V @ .168A	1 25/64x2 3/64x1¼	7.5	8.78	7.90	7.11	6.68
02F469	F-147XP	A	4½W	40VCT @ .112A	.20V @ .224A	1 25/64x2 3/64x1¼	7.5	8.78	7.90	7.11	6.68
02F1040	F-148XP	A	4½W	25.2VCT @ .178A	12.6V @ .356A	1 25/64x2 3/64x1¼	7.5	8.50	7.65	6.89	6.48
02F1041	F-149XP	A	4½W	12.6VCT @ .350A	6.3V @ .700A	1 25/64x2 3/64x1¼	7.5	8.78	7.90	7.11	6.68
81F2437	F-150P	B	1½W	17VER @ .085A	8.5V @ .170A	1⅛x1 25/64x1 5/32	3.5	10.50	9.45	8.51	8.00
03F1022	F-152XP	A	7½W	15VCT @ .500A	7.5V @ 1.00A	1 41/64x2 13/16x1 15/32		10.91	9.82	8.84	8.31
03F1023	F-153XP	A	7½W	30VCT @ .250A	15V @ .500A	1 41/64x2 13/16x1 15/32		10.91	9.82	8.84	8.31
02F471	F-154XP	A	7½W	54VCT @ .140A	27V @ .280A	1 41/64x2 13/16x1 15/32	10.5	10.91	9.82	8.84	8.31
02F1042	F-157XP	A	7½W	40VCT @ .188A	20V @ .376A	1 41/64x2 13/16x1 15/32	10.5	10.91	9.82	8.84	8.31
03F1024	F-333P	B	1½W	30VCT @ .050A	15V @ .100A	1⅛x1⅜x1⅛		8.28	7.45	6.71	6.31
03F1025	F-348XP*	A	4½W	12.6VCT @ .350A	6.3V @ .700A	1⅜x2⅜x1¼		8.45	7.61	6.85	6.44
02F1272	F-350XP*	A	4½W	24VCT @ .180A	12V @ .360A	1⅜x2⅜x1¼	6.5	9.69	8.72	7.85	7.38
03F1026	F-359XP*	A	10W	24VCT @ .450A	12V @ .900A	1⅝x2 13/16x1 7/16	11.0	11.98	10.78	9.70	9.12
02F1277	F-362XP*	A	10W	20VCT @ .500A	10V @ 1.0A	1⅝x2 13/16x1 7/16	11.0	12.29	11.06	9.95	9.35
02F1278	F-365XP*	A	10W	12.6VCT @ .800A	6.3V @ 1.6A	1⅝x2 13/16x1 7/16	11.0	12.29	11.06	9.95	9.35
02F1279	F-366XP*	A	10W	16VCT @ .640A	8V @ 1.28A	1⅝x2 13/16x1 7/16	11.0	11.98	10.78	9.70	9.12
02F1270	F-3132P*	B	1½W	15VCT @ .1A	7.5V @ .2A	1⅛x1⅜x1⅛	4.0	7.52	6.77	6.09	5.72

Fig. A

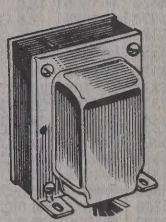
Fig. B



Case X

TRIPLE OUTPUT SECONDARIES, 115 Volt, 50/60 Hz.

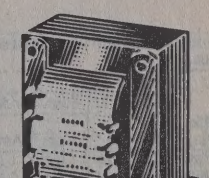
Stock No.	Type	Fig.	Out-put	Secondary Secondary #1	Secondary #2	Dimensions	Wt. Oz.	1-9	10-24	25-49	50-99
02F1280	F-165P	B	1½W	24VCT @ .025A	9VCT @ .100A	1⅛x1 25/64x1 5/32	3.5	12.69	11.42	10.28	9.66
02F1282	F-168XP	A	4½W	32VCT @ .050A	15VCT @ .195A	1 25/64x2 3/64x1¼	7.5	9.16	8.24	7.42	6.97
02F1283	F-166XP	A	7½W	24VCT @ .125A	9VCT @ .500A	1 41/64x2 13/16x1 15/32	10.5	11.31	10.18	9.16	8.61
02F1284	F-169XP	A	7½W	32VCT @ .100A	15VCT @ .287A	1 41/64x2 13/16x1 15/32	10.5	11.31	10.18	9.16	8.61



Case A

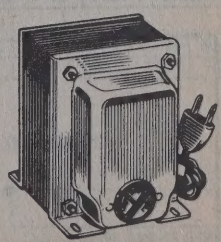
TYPE N STEPDOWN/STEPUP AUTOFORMERS, 50/60 Hz.

Stk. No.	Type	Case Type	VA Output	Primary Volts	Secondary Volts	Secondary Amps	Mt. Dimen. MW	Mt. Dimen. MD	Connec-tions	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99
03F1017	N48X	X	15	115	115	.13	2 13/16		Leads	1.35	9.00	8.10	7.29	6.85
03F1018	N49X	X	35	115	5.75-115	.3	3⅛		Leads	1.9	13.14	11.83	10.65	10.01
03F750	N51X#	X	35	115	115	.3	3⅛		Leads	1.7	11.40	10.26	9.23	8.68
03F603	N68X	X	50	115/230	115	.435	3⅛		Leads	1.7	14.67	13.20	11.88	11.17
03F751	N53M**	M	85	115	115	.74	2¼	2⅛	**	4.7	26.66	23.99	21.59	20.29
03F604	N54M**	M	150	115	115	1.3	2½	3	**	7.0	29.93	26.94	24.25	22.80
02F1045	N73A	A	150	115	115/230	.65	2½	2¾	Leads	7.0	30.78	27.70	24.93	23.43
03F786	N74A	A	150	115	5.75-115	1.3	2½	2¾	Leads	7.0	32.29	29.06	26.15	24.58
03F605	N67A	A	150	115/230	115	1.3	2½	3	Leads	7.0	30.33	27.30	24.57	23.10
02F541	N55M**	M	250	115	115	2.17	3	3⅞	**	11.0	46.02	41.42	37.28	35.04
05F1361	N66A	A	250	115/230	115	2.17	3	3⅝	Leads	11.0	49.07	44.16	39.74	37.36
02F542	N57M**	M	500	115	115	4.35	3½	5⅛	**	23.75	79.09	71.18	64.06	60.22
02F1050	N59M**	M	1000	115	115	8.7	3½	6⅛	**	34.0	145.17	130.65	117.59	110.53
03F1019	N469A#	A	50	220/440	115	.435	2	1 9/16	Leads	2.3	18.53	16.68	15.04	14.11
02F1053	N470A#	A	150	220/440	115	1.3	2½	2½	Leads	5.5	26.02	23.42	21.08	19.82
03F1020	N471A#	A	300	220/440	115	2.6	3	3⅜	Leads	10.25	41.38	37.24	33.52	31.51



Case U

Stk. No.	Type	Case Type	VA Output	Primary Volts	Secondary Volts	Secondary Amps	Mt. Dimen. MW	Mt. Dimen. MD	Connec-tions	Wt. Lbs.	Each Boxed 1-9	10-24	25-49	50-99
05F1358	N1X	X	50	230	115	.435	3⅛		Leads	1.5	9.52	8.57	7.71	7.25
02F1055	N2X	X	100	230	115	.87	3 9/16		Leads	2.3	13.07	11.76	10.58	9.95
02F1054	N6U	U	200	230	115	1.7	2 13/16	2⅛		6.5	19.71	17.74	15.97	15.01
03F1014	N3M**	M	85	230	115	.74	2¼	1⅝	**	3.0	22.31	20.08	18.07	16.99
05F1359	N4M**	M	150	230	115	1.3	2¼	2⅜	**	4.7	24.31	21.88	19.69	18.51
04F433	N5M**	M	250	230	115	2.17	2½	3	**	7.0	34.66	31.19	28.07	26.39
03F1015	N7M**	M	600	230	115	5.22	3	3⅞	**	12.0	44.29	39.86	35.87	33.72
02F1062	N11M**	M	2000	230	115	17.4	3½	6⅞	**	33.25	167.47	150.72	135.65	127.51
81F2438	N150MG	M	150	115	230	.65	2¼	2⅛	*	4.9	34.76	31.28	28.15	26.46
81F2439	N250MG	M	250	115	230	1.1	2½	2 7/16	*	6.6	39.52	35.57	32.01	30.09
81F2440	N500MG	M	500	115	230	2.2	3	3⅝	*	11.2	53.19	47.87	43.08	40.50
81F2441	N1000MG	M	1000	115	230	4.4	3½	4⅛	*	17.4	71.50	64.35	57.92	54.44



Case M

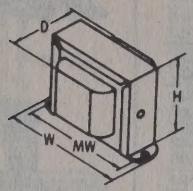
(**) Also available with 3-wire, 6-foot cord, plug, and socket.
60 Hz operation.

14

CRITERION™ brand RECTIFIER, CONTROL AND FILAMENT TRANSFORMERS

WITH SINGLE SECONDARY: ALL PRIMARIES 50/60 Hz.

ALL OF THE FOLLOWING UNITS ARE RATED IN A.C., R.M.S. ALL ARE HIGH QUALITY COMMERCIAL CONSTRUCTION



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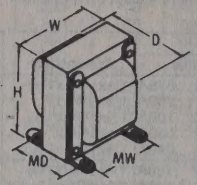

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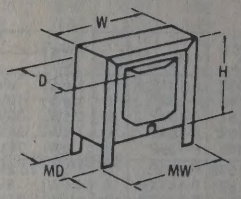


D

MOUNTING TYPE

LISTED IN ORDER OF INCREASING SECONDARY VOLTAGES

Stk. No.	Type	Secondary Volts	Secondary Amps	Primary Volts	RMS Test Volts	Mtg. Type	Terminal Type	Overall Dim. H	Overall Dim. W	Overall Dim. D	Mount. Dim. MW	Mount. Dim. MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5361	R-2090	6.3 C.T.	0.3	117	1500	X	Leads	1¼	2⅛	1⅝	1¾	—	0.3	5.78	5.47	4.86	4.61
81N5362	R-1510	6.3	0.6	117	1500	X	Leads	1⅜	2⅜	1¼	2	—	0.75	5.35	5.06	4.50	4.26
81N5363	R-1550	6.3 C.T.	1.2	117	2500	X	Leads	1⅝	2⅞	1½	2⅜	—	0.7	6.36	6.02	5.35	5.07
81N5364	R-1560	6.3 C.T.	3.0	117	2500	X	Leads	2	3¼	2⅛	2 13/16	—	1.25	8.92	8.44	7.50	7.11
81N5365	R-1595	6.3 C.T.	6.0	117	2000	X	Leads	2½	4	2½	3½	—	2.5	13.64	12.91	11.47	10.87
81N5366	R-2020	10.0 C.T.	1.0	117	1500	X	Leads	2	3¼	1⅝	2 13/16	—	0.9	7.96	7.53	6.69	6.34
81N5367	R-1600	10.0 C.T.	3.0	117	1500	X	Leads	2⅜	3¾	2¼	3⅛	—	1.6	11.08	10.48	9.32	8.83
81N5368	R-2490	12.0	0.150	117	1500	X	Leads	1¼	2⅛	1¼	1¾	—	0.25	5.95	5.63	5.00	4.74
81N5369	R-2495	12.0	0.300	117	1500	X	Leads	1⅜	2⅜	1⅜	2	—	0.35	6.54	6.19	5.50	5.21
81N5370	R-1890	12.0	0.700	117	1500	X	Leads	1⅝	2⅞	1½	2⅜	—	0.6	6.90	6.53	5.81	5.50
81N5371	R-1895	12.0	1.2	117	1500	X	Leads	2	3¼	1⅝	2 13/16	—	0.85	8.26	7.81	6.94	6.58
81N5372	R-1900	12.0	2.0	117	1500	X	Leads	2	3¼	2⅛	2 13/16	—	1.3	7.43	7.03	6.25	5.92
81N5373	R-1905	12.0	4.0	117	1500	X	Leads	2⅝	4	2¼	3 9/16	—	2.3	12.96	12.27	10.90	10.33
81N5374	R-1525	12.6 C.T.	2.0	117	1500	X	Leads	2	3¼	2	2 13/16	—	1.1	8.09	7.66	6.81	6.45
81N5375	R-1640	12.6 C.T.	3.0	117	1500	X	Leads	2 5/16	3 11/16	2¼	3⅛	—	1.2	10.83	10.25	9.11	8.63
81N5376	R-2040	12.6 C.T.	4.0	117	1500	U	Leads	3 1/16	2 9/16	2 3/16	2	2	2.5	13.48	12.75	11.33	10.74
81N5377	R-1810	24 C.T.	.085	117	1500	X	Leads	1¾	2⅛	1¼	1¾	—	0.25	37.42	35.41	31.47	29.82
81N5378	R-1795	24.0 C.T.	0.2	117	1500	X	Leads	1⅜	2⅜	1⅜	2	—	0.35	6.94	6.56	5.83	5.53
81N5379	R-1790	24.0 C.T.	0.4	117	1500	X	Leads	1⅝	2⅜	1⅜	2	—	0.6	7.83	7.41	6.58	6.24
81N5380	R-1780	24.0 C.T.	0.7	117	1500	X	Leads	2	3¼	1¾	2 13/16	—	0.85	7.86	7.44	6.61	6.26
81N5381	R-1505	24.0 C.T.	1.0	117	1500	X	Leads	2	3¼	2	2 13/16	—	1.5	8.14	7.70	6.85	6.49
81N5382	R-6865	24.0 C.T.	2.0	117	1500	X	Leads	2⅝	4	2¼	3 9/16	—	2.4	12.39	11.72	10.42	9.87
81N5384	R-1925	24.0 C.T.	4.0	117	1500	U	Leads	3 13/16	3⅛	2 13/16	2½	2⅛	4.0	18.30	17.31	15.40	14.58
81N5385	R-1930	24.0 C.T.	8.0	117	1500	U	Leads	4 3/16	3 7/16	3⅜	2¾	2¾	7.3	31.54	29.84	26.53	25.13
81N5386	R-1935	24.0 C.T.	12.0	117	1500	U	Leads	4 9/16	3¾	4⅝	3	3¼	11.5	41.95	39.69	35.28	33.42
81N5383	R-1635	25.2	1.0	117	1500	X	Leads	2	3¼	2⅛	2 13/16	—	1.5	8.26	7.81	6.94	6.58

14

POWER TRANSFORMERS

DUAL SECONDARIES—115/230V 50/60 Hz PRIMARY

All units have lug terminals. Dual secondaries may be connected in series or parallel. Uses include virtually all low voltage devices such as door openers, relays, signals, etc.

Stk. No.	Type	Secondary Outputs: Each Winding Volts	Each Winding Amps	Sec. in Series Volts	Sec. in Series Amps	Sec. in Par. Volts	Sec. in Par. Amps	Mounting Type	Overall Dimensions H	Overall Dimensions W	Overall Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5388	P-1870	6.0	1.0	12	1.0	6.0	2.0	D	2⅜	2⅞	1⅞	2⅜	—	1.0	9.05	8.56	7.61	7.21
81N5387	P-1820	6.0	2.0	12	2.0	6.0	4.0	D	2¾	3⅛	2⅛	2 13/16	—	1.5	12.52	11.84	10.53	9.97
81N5389	P-1770	12	2.0	24	2.0	12	4.0	D	3⅛	3 9/16	2⅜	3⅛	—	2.5	12.62	11.94	10.61	10.05
81N5391	P-1840	12	4.0	24	4.0	12	8.0	U	3 7/16	2⅞	3⅛	2¼	2⅜	4.3	23.49	22.22	19.75	18.71
81N5390	P-1855	12	8.0	24	8.0	12	16	U	4 3/16	3½	3½	2¾	2⅞	8.0	41.45	39.22	34.86	33.03
81N5392	P-6835	24	0.25	48	0.25	24	0.5	D	2⅜	2⅞	1⅞	2⅜	—	1.0	12.29	11.63	10.33	9.79
81N5393	P-6840	24	1.0	48	1.0	24	2.0	D	3⅛	3 9/16	2⅜	3⅛	—	2.5	11.92	11.28	10.03	9.50
81N5394	P-6845	24	2.0	48	2.0	24	4.0	U	3 7/16	2⅞	3⅛	2¼	2⅜	4.3	22.35	21.14	18.79	17.80

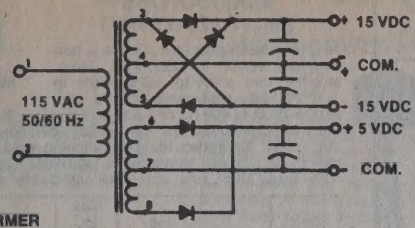
MAKE NEWARK ELECTRONICS YOUR DEPENDABLE ONE STOP SOURCE FOR ALL YOUR ELECTRICAL NEEDS

- **Phone, Write or Wire For Price Quotations on Larger Quantities**

RECTIFIER TRANSFORMERS

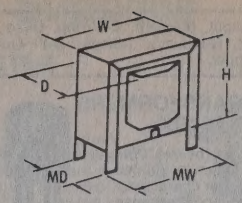
LOW CURRENT CONTROL TRANSFORMER

CRITERION™ brand



POWER TRANSFORMER FOR PRINTED CIRCUITS TYPICAL CIRCUIT SHOWN FOR UNREGULATED OUTPUTS

PRI. 115 VAC 50/60 Hz. USE PINS 1 & 2



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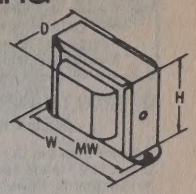

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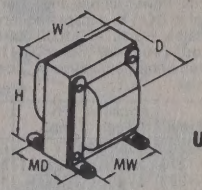


U

TRIPLE SECONDARIES—117V 50/60Hz PRIMARY—WITH LEADS

Stk. No.	Type	Each Secondary Volts	Each Secondary Amps	Secondaries In Series Volts	Secondaries In Series Amps	Secondaries In Parallel Volts	Secondaries In Parallel Amps	Mtg. Type	Overall Dimensions H	Overall Dimensions W	Overall Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5395	R-2485	12	0.50	36	0.50	12	1.50	X	2⅜	2⅞	2¼	2⅜	—	1.25	11.92	11.28	10.03	9.50

FOR TRANSISTOR POWER SUPPLIES

117V 50/60 Hz PRIMARY—TAPPED SECONDARY—WITH LEADS

Stk. No.	Type	Secondary Volts	Secondary Amps	RMS Test Volts	Mtg. Type	Overall Dim. H	Overall Dim. W	Overall Dim. D	Mounting Dim. MW	Mounting Dim. MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5404	R-6815	20.0 C.T.	1.0	1500	X	2	3¼	2⅛	$2\frac{13}{16}$	—	1.4	9.78	9.25	8.22	7.89

UNIVERSAL RECTIFIER: 117 V 50/60 Hz PRIMARY-LUG TERMINALS-MOUNTING TYPE U

Stk. No.	Type	Fullwave Rectifier Circuits	Secondary AC Volts	Res. or Ind. Load DC Volts	Res. or Ind. Load DC Amps	Capacitive Load DC Volts	Capacitive Load DC Amps	Recommended Capacitor	Overall Dim. H	Overall Dim. W	Overall Dim. D	Mounting Dim. MW	Mounting Dim. MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5398	R-1850	C.T.	12.2 to 29.7	3.7 to 11.1	4.0	4.0 to 14.7	4.0	2000 mfd	$3\frac{7}{16}$	$2\frac{13}{16}$	$3\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	3.75	20.61	19.50	17.33	16.42
		Bridge	12.2 to 29.7	8.9 to 24.3	2.0	10.8 to 33.0	2.0	1000 mfd										
81N5401	R-1865	C.T.	11.7 to 29.2	4.3 to 12.0	8.0	4.5 to 14.5	8.0	4000 mfd	$3\frac{13}{16}$	$3\frac{3}{16}$	$4\frac{1}{8}$	$2\frac{1}{2}$	$3\frac{3}{8}$	6.5	32.12	30.39	27.01	25.59
		Bridge	11.8 to 29.2	8.8 to 24.0	4.0	11.4 to 32.4	4.0	2000 mfd										
81N5403	R-2150	C.T.	12.1 to 29.2	3.5 to 11.4	15.0	3.8 to 14.8	15.0	2000 mfd	$4\frac{9}{16}$	$3\frac{3}{4}$	5	$2\frac{15}{16}$	$3\frac{3}{4}$	12.6	66.61	60.68	53.94	51.10
		Bridge	12.1 to 29.2	7.0 to 23.7	8.0	9.0 to 32.5	8.0	1500 mfd										
81N5402	R-2155	C.T.	12.2 to 29.0	3.5 to 11.4	22.5	4.1 to 14.3	22.5	1500 mfd	$5\frac{5}{16}$	$4\frac{3}{8}$	$5\frac{7}{8}$	$3\frac{1}{2}$	$4\frac{1}{4}$	20.5	95.74	87.72	77.53	73.45
		Bridge	12.2 to 29.0	11.4 to 23.5	12.0	14.2 to 33.0	12.0	600 mfd										

FILTER CHOKES

HIGH CURRENT CHOKES

Stk. No.	Type	D.C. Amps	Induct. Millihenries (Nominal)	DC Res. Ohms	RMS Test Volts	Mtg. Type	Terminal Type	Overall Dimensions H	Overall Dimensions W	Overall Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5396	C-3850	1.0	3	0.25	1000	D	Leads	1¼	1½	1	1¼	1⅛	0.2	3.40	3.22	2.86	2.71
81N5397	C-3515	2.0	35	0.75	1500	U	Leads	2⅜	2⅝	2¾	$2\frac{3}{16}$	2	1.9	13.44	12.72	11.31	10.71
81N5399	C-3650	8.0	10	0.15	1500	D	Leads	3¼	3¾	$3\frac{3}{16}$	3⅛	2½	5.3	20.31	19.22	17.08	16.18
81N5400	C-3505	12.5	10	0.11	1500	U	Leads	3½	4⅛	$3\frac{1}{16}$	$3\frac{7}{16}$	2⅜	5.9	27.88	26.38	23.44	22.21

LINE ADJUSTING TRANSFORMERS

Step-down and step-up autoformers-input 50/60 Hz with 2 conductor line cord and plug. Output 2 conductor female receptacle.

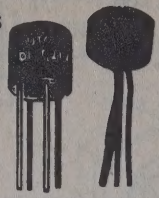
Stk. No.	Type	Output VA	Primary Voltage	Secondary Voltage	RMS Test Volts	Mtg. Type	Overall Dimensions H	Overall Dimensions W	Overall Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5405	AT-4285	50	230	115	1500	X	$2\frac{5}{16}$	$3\frac{11}{16}$	1⅞	3⅛	—	1.5	9.12	8.63	7.67	7.26

ISOLATION—50/60 Hz WIRE—IN TYPE WITH LEAD WIRES FOR PERMANENT INSTALLATION. (SHIELDED)

Stk. No.	Type	Output VA	Primary Voltage	Secondary Voltage	RMS Test Volts	Mtg. Type	Overall Dimensions H	Overall Dimensions W	Overall Dimensions D	Mounting Dimensions MW	Mounting Dimensions MD	Wt. Lbs.	Each 1-9	Each 10-24	Each 25-49	Each 50-99
81N5406	AT-4255	15	115	115	1500	X	2	3¼	1⅞	$2\frac{13}{16}$	—	1.0	7.76	7.34	6.53	6.18

APPLICATION CODE: A-Output, B-Match, C-Mixing, D-Isol., E-Interstage, F-Driver, G-Input, H-Inductor, I-Single, J-PP-Output, K-Hipermalloy Shield, L-Chopper.

DI-T200 TRANSISTOR TRANSFORMERS MEET MIL-T-27C-TF4RX



Smaller than the DO-T Deci-Ouncers (below). With uninsulated leads spaced on .1" radius for printed circuit boards. Power ratings and other characteristics identical to DO-T's, except frequency response is approximately ± 3 dB, 400-1000,000 Hz. Hermetically sealed; rated for Class R (105°C max. operating) temperature conditions. Size 5/16" dia. × 3/8". Wt., 1/15 oz.

Stock No.	Type	Application	Pri. Imp.	Sec. Imp.	1-9	10-24	25-99	100-499
02F653	DI-T250	A/C	500 CT	600 CT	14.30	12.50	11.20	10.00
02F657	DI-T270	A/F	10K/12K CT	500/500 CT	15.44	13.50	12.10	10.80
02F661	DI-T283	D/E	10/12K CT	10K/12K CT	16.67	14.58	13.06	11.66

DO-T TRANSISTOR TRANSFORMERS

Unprecedented power handling capacity, reliability; plus ultra-small size. Hermetically sealed, metal cased to MIL-T-27C. Power rating, ± 2 dB, 200-20,000 Hz. Low distortion. Anchored leads stand 10-lb. pull test; tinned and insulated copper conductors. Size 5/16" × 13/32" long. Weight 1/10 oz.

Stock No.	Type	Application	Pri. Imp.	Sec. Imp.	1-9	10-24	25-99	100-499
03F660	DO-T9	F/A	10/12K	500/600 CT	13.10	11.45	10.26	9.16
03F662	DO-T11	F	10K/12.5K	2K/2.5K CT	11.38	9.95	8.92	7.96
03F671	DO-T20	A	500 CT	600	11.90	10.40	9.32	8.32
03F255	DO-T36	E	10K/12K CT	10K/12K CT	14.93	13.05	11.69	10.44

PIP TRANSISTOR PULSE TRANSFORMER

Meets Mil. Spec. MIL-T-21038B-TP6RX Subminiature, hermetically sealed metal case. Checked in transistor test circuit to give required pulse width. Size 5/16" dia. × 3/16". Wt. 1/20 oz.

Stock No.	Type	Width μ sec.	Rise Time	Imp. Out	1-9	10-24	25-99	100-499
02F554	PIP-5	1.0	.08	100	12.30	11.02	9.50	8.48

MINIATURE WIDE APPLICATION PULSE TRANSFORMERS

Hermetically sealed to MIL-T-21038B-TP7SX by vacuum molding. Temperature, -70 to + 130°C. Wound core structure.

03F087	H51	3	.10	500	22.18	20.56	18.94	16.19

TYPE LS HYBRID AND REPEAT COILS

High efficiency, low waveform distortion. Electrostatic shielding. 3 1/8 × 2 5/8 × 3 1/14"

Stock No.	Type	Primary Impedance	Secondary Impedance	1-9	10-24	25-99	100-499
03F290	LS-141	3 sets of Ball. Wdgs.	500/600 CT	107.81	95.17	83.27	74.35

SERIES "A" AUDIO TRANSFORMERS

Ultra-compact. High shielding. For top or bottom mounting. Die cast zinc alloy case. Size: 1 1/2 × 1 1/2 × 2". ‡indicates split winding. 1/2 lb. mounts in 1 3/8" dia. hole.

Stock No.	Type	Pri. Imped.	Sec. Imped.	Resp., Hz ‡2 dB	1-9	10-24	25-99	100-499
3F341	A-11	50,200,500	50,000 CT	20-20,000	37.83	32.42	30.26	27.02
3F347	A-20	Same as A-10 Pri	Same as Pri.	10-50,000	47.24	40.49	37.79	33.74
3F348	A-21	50,200-250, 500-600	Same as Pri.	30-30,000	30.56	26.20	24.45	21.83
3F355	A-22	500 CT	500/125‡	40-20,000	27.30	23.40	21.84	19.50
3F349	A-24	15-000‡	50, 125-150 200-50 333, 500-600	20-40,000	45.68	39.16	36.55	32.63
02F740	A-43	60/150‡	60/150‡	20-30,000	47.98	41.12	38.88	34.27

UTC Transformers and Inductors

MINIDUCTORS (MIL-T-27D-TF5RX)

MS, MW

ML

Hi Q in ultracompact form. Grade 5, hermetically sealed to MIL-T-27C. Temp. stability from ± 1% to ± 3%, -55% to + 105°C. **ML.** Hipermalloy cased, with maximum Q at 800 Hz or 1.5 kHz; 7/16 × 31/64 × 9/16". **MS.** Ultraminiature toroidal, max. Q at 20 kHz; 35" dia. × .23". **MW:** Toroidal, max. Q at 10 kHz; 23/32" dia. × 13/32". **SR series.** Ideal for switching regulator and AC filter choke applications. Inductance measured at 1V, 10kHz, O DC with tolerance of + 15%, -5%. Sizes: **SRB,** 1 3/16" dia. × 9/16"; **SRC,** 1 3/8" dia. 3/4".

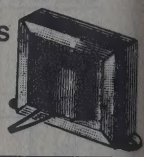
Stock No.	Type	Ind. - 0 mA	Max. DC mA	1-9	10-24	25-99	100-499
03F183	ML-1	0.25 Hy	9	17.76	16.46	15.16	12.96
04F530	ML-2	0.4 Hy	7				
04F531	ML-3	0.7 Hy	5				
03F194	ML-8	10.0 Hy	0.5				

HVC HERMETIC VARIDUCTORS

Variable inductors with higher "Q" and wider inductance ranges . . . plus hermetic sealing to MIL-T27B specs. Screw adjustment on top permits inductance changes from -70% to + 200% of mean value. DC current shown is maximum recommended. All 1 1/8 × 25/32 × 1 9/32". Weight, 2 ounces.

Stock No.	Type No.	Min. Hys.	Mean Hys.	Max. Hys.	DC Ma	1-9	10-24	25-99	100-499
03F539	HVC-6	.2	.6	2	15	22.12	18.96	17.70	15.80
03F540	HVC-7	.5	1.5	5	10	23.49	20.14	18.79	16.78
03F541	HVC-8	1.1	4.0	11	7				
03F542	HVC-9	3.0	10	30	5				

FILAMENT/TRANSISTOR TRANSFORMERS



Type FT Channel Frame. Primary: 115 volts 50/60 Hz. Test Volts RMS: 1500. All units are low temperature rise, vacuum-sealed against humidity with impregnating materials to prevent corrosion and electrolysis. Approximate weight 2 lbs. FT 13, FT14 and FT15 have taps on primary to modify nom. sec. V, ± 6% + 12%.

Stock No.	Type No.	Secondary Volts	Secondary Amps	Mfg. Ctrs.	1-9	10-24	25-99	100-499
03F295	FT2	6.3 VCT	1.2	2 3/8"	15.43	13.22	12.34	11.02
03F299	FT10	24 CTor 12	2 4	3 9/16"	27.54	23.60	22.03	19.87
02F703	FT14	26 VCT	.25	2 3/8"	21.92	18.79	17.54	15.66
02F822	FT15	48 VCT	1	3 9/16"	24.89	21.34	19.91	17.78

"OUNCER" AUDIO TRANSFORMERS

Famous one-ounce audio transformers for high fidelity use, from 30-20,000 Hz. Maximum output level -8dB at 6.3 mW. Application: Input and Mixing, interstage and Output Transformers. Fully impregnated and sealed in drawn aluminum housing. 7/8" dia. × 1 3/16". Wt. 1 oz.

Stock No.	Type	Imped. Ohms Prim.	Imped. Ohms Sec.	1-9	10-24	25-99	100-499
03F360	0-1	50, 200, 500	50K	18.07	16.75	15.43	13.19
03F361	0-2	50, 200, 500	50K CT	18.74	17.37	16.01	13.68
03F365	0-6	15K	95K CT	16.03	14.86	13.69	11.70
03F367	0-8	15K	50, 200, 500	18.26	16.93	15.60	13.33
03F369	0-10	30K CT	50, 200, 500	18.96	17.58	16.19	13.84
03F370	0-12	50, 200, 500	50, 200, 500	17.11	15.86	14.61	12.49
05F1456	0-26	10K, CT, 4 mA	10K CT	16.78	15.56	14.33	12.25
03F136	0-30	500/125 split	500/125 split	15.86	14.71	13.55	11.58
03F325	0-17	Mumetal shield, split fit		2.96	2.74	2.53	2.16
02F754	0-BR	Mounting Bracket for Ouncers		1.12	1.04	.96	.82

TYPE LL AXIAL-LEAD MINIATURE POWER INDUCTORS

Intended primarily for switching regulator and power filtering applications, LL inductors can be installed either through PC boards or to wiring posts. Their small size — .365 in. diameter by .49 in. length — makes them ideal for use with multi-layer boards.

Stock No.	Type	Inductance at 1 V, 20 kHz (μH)	Max. DCR (ohms)	Rated Curren (amps)	Mil Part No.	1-9	10-24	25-99	100-499
81F1373	LL-120	120	0.14	1.6	M27/286-01	6.64	6.20	5.61	4.88
81F1374	LL-300	300	0.35	1.0	M27/286-02	6.64	6.20	5.61	4.88
81F1375	LL-500	500	0.56	0.75	M27/286-03	6.64	6.20	5.61	4.88
81F1376	LL-1200	1200	1.40	0.50	M27/286-04	6.64	6.20	5.61	4.88
81F1377	LL-3000	3000	3.50	0.30	M27/286-05	6.64	6.20	5.61	4.88
81F1378	LL-5000	5000	5.60	0.25	M27/286-06	6.64	6.20	5.61	4.88

Stand By Power Supplies

TRIPP LITE

INSTA-POWER SYSTEM

HIGHLIGHTS:
Automatic, heavy-duty, regulated battery charger. Comes with automatic load transfer switch and rugged square wave inverter. Circuit breaker protected on DC line.* Frequency controlled ±½Hz.* Full isolation of AC line power from inverter power.
* not on SB200 or SB400

COMES COMPLETE WITH:
- **Automatic regulated battery charger**
- **Automatic load switching**
- **Frequency controlled square wave inverter**
  (SB200 and SB400 are non-frequency controlled)

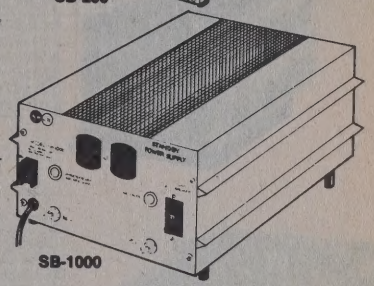
RELIABILITY:
The Inverter is the core of the stand-by power supply and Tripp Lite is one of the world's largest inverter manufacturers with over 20 years experience. Tripp Lite inverters are unsurpassed in performance and reliability. Their precision manufacture and advanced design assure that your insta*power system will operate with the highest standard of excellence.

FEATURES:
The inverter is the core of the stand-by power supply and Tripp Lite is one of the world's largest inverter manufacturers with over 20 years experience. Tripp Lite inverters are unsurpassed in performance and reliability. Their precision manufacture and advanced design assure that your insta-power system will operate with the highest standard of excellence.

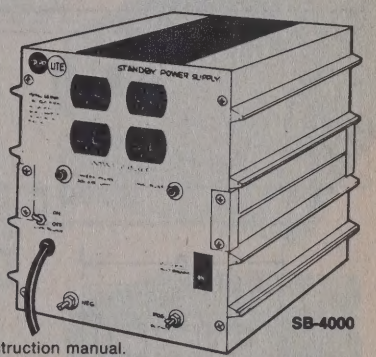
1. Automatic, heavy-duty, regulated battery charger
2. Automatic load transfer switch
3. Rugged square wave inverter
4. Circuit breaker protected on DC line*
5. Frequency controlled ±½Hz.*
6. Full isolation of AC line power from inverter power

*not on SB200 or SB400

SB-200



SB-1000



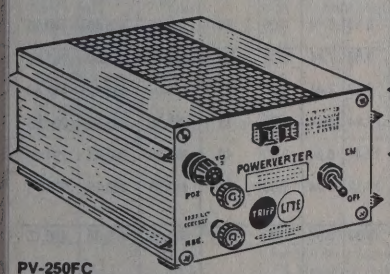
SB-4000

Stock No.	Mfr's Type	Input Volt. (DC)	Output Volt (AC)	Freq. (Hz)	AC Plug-in Recept.	H.	W.	D.	Lbs.	Ea.
81F2872	SB-200*	12	117	60Hz**	1	3⅝"	7¼"	9"	10	219.50
81F2873	SB-400*	12	117	60Hz**	1	3⅝"	7¼"	9"	16	319.00
81F2874	SB-1000*	12	117	60Hz(±½)	2	5"	10"	14"	34	594.00
81F2875	SB-2000*	24	117	60Hz(±½)	4	10"	10"	14"	64	889.50
81F2876	SB-4000*	48	117/230	60Hz(±½)	4/2	10"	14"	20"	115	1650.00
81F2877	SB-1000/230*	12	230	50Hz(±½)	2	5"	10"	14"	34	650.00

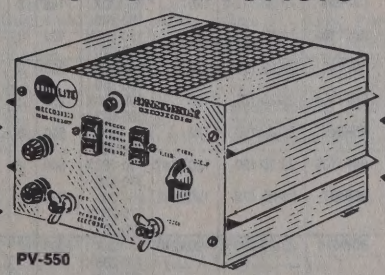
H = Height; W = Width; D = Depth
**non-frequency controlled
*Indicates VA Capacity (wattage)

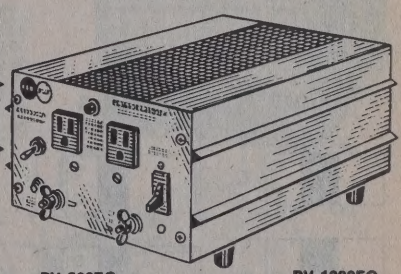
BATTERY INFORMATION: Batteries are not supplied. Battery selection criteria is included with instruction manual.

Power Inverters



PV-250FC
PV-400


PV-550


PV-500FC

PV-1000FC

PV SERIES POWER INVERTERS

Solid state electronic power inverter converts 12 volt DC-power to 117 volt AC power (except PV-1000FC/24). Operates in car, truck, camper, ambulance, boat, shop; or wherever 12 volt DC battery power is available. Inverters run electric razors, lighting, small power tools, radios and stereos. Frequency controlled models (suffix FC) should be used for tape recorders, test equipment, ambulance equipment, video tape equipment, office machines, computers, and can be incorporated into stand-by power supplies. Load wattage ratings from 250 to 1000 watts continuous; intermittent duty, plus 10%. Complete with 117 volt AC outlet and convenient on/off switch. Connects to battery with heavy gauge wire (not included). Inverters are transistorized, solid state for long life and quiet operation. Square wave output voltage varies directly with input voltage, and is inversely proportional to load.
NOTE: Not recommended for use with capacitor-start motors (as found in conventional refrigerators), split phase motors or other reactive loads (P.F. less than .8).

Stock No.	Mfr's. Type	DC Input Volts	Max. Load Watts	Max. Input Amps No Load	Frequency Control	Size, In.	Wt., Lbs.	Each
13F5000	PV-400	12	400	3.5	No	3½x6½x9	10	129.00
13F5001	PV-550	12	550	4.0	No	5x9½x9	19	169.00
13F5002	PV-250FC	12	250	1.5	Yes	3½x6½x9	13	189.00
13F5003	PV-500FC	12	500	3.5	Yes	5x9½x9	19	299.00
13F9800	PV-1000FC	12	1000	3.5	Yes	5x9½x17	32	429.00
13F9801	PV-1000FC/24	24	1000	3.5	Yes	5x9½x17	32	469.00

*Select Inverter with wattage rating greater than wattage required to power your device(s).

Sola Minicomputer Regulators

Provides voltage regulation and ultra-isolation for microprocessor-based equipment such as word processors, electronic cash registers and minicomputers, where noise and transients cause errors or voltage fluctuations and brownouts can cause memory loss. Sinusoidal output waveshape containing less than 3% harmonic distortion. Better than 60 dB noise rejection and effective capacitance less than 0.1 μF. Input line variations of ±15% regulated to ±3% on the output. Output will remain within NEMA voltage specs of +5%-10% for input voltage as low as 65% of nominal. Full load efficiency 85%.

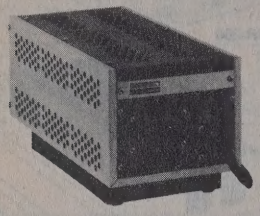


FIG. 1

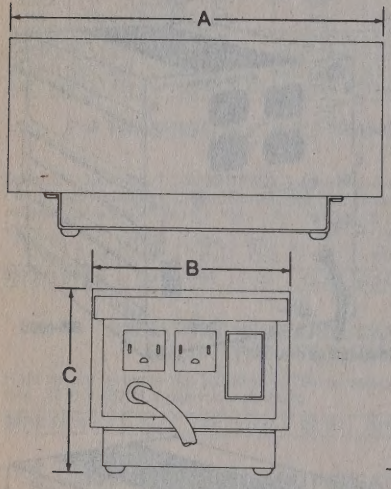


FIG. 2

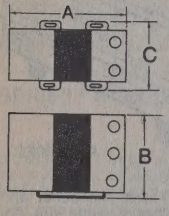


FIG. 3

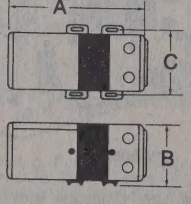
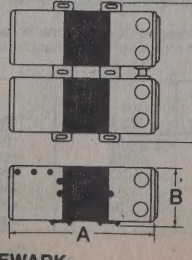


FIG. 4



PORTABLE 60Hz SINGLE PHASE

Stock No.	Type	Max. Output VA Rtg	Nom Output Volt	Input* Volt Range	Fig	Dimensions In. A	B	C	Approx Shpg Wt	1-4	5-9	10-49
81F210	63-13-070	70	120	95-130	1	11.65	5.58	5.80	10	159.00	149.50	144.70
02F1069	63-13-114	140	120	95-130	1	11.65	5.58	5.80	18	208.40	195.90	189.65
02F1070	63-13-125	250	120	95-130	1	13.25	7.70	7.05	31	248.05	233.20	225.75
79W021	63-13-150	500	120	95-130	1	16.24	8.50	8.22	47	344.00	323.40	313.05
79W022	63-13-175	750	120	95-130	1	16.24	8.50	8.22	60	438.80	412.50	399.35
79W023	63-13-210	1000	120	95-130	1	16.24	8.50	8.22	75	508.25	477.80	462.55
79W024	63-13-220	2000	120	95-130	1	16.50	10.96	10.34	108	864.35	812.50	786.60

PORTABLE 50Hz SINGLE PHASE

81F209	63-13-570	70	220	180-260	1	11.65	5.58	5.80	10	183.00	172.05	166.40
02F1071	63-13-614	140	220	180-260	1	13.25	7.70	7.05	21	238.50	224.20	217.05
02F1072	63-13-625	250	220	180-260	1	13.25	7.70	7.05	33	286.20	269.05	260.45
79W025	63-13-650	500	220	180-260	1	16.24	8.50	8.22	45	406.00	381.65	369.50
79W026	63-13-710	1000	220	180-260	1	16.24	8.50	8.22	72	588.30	553.00	535.35
79W027	63-13-720	2000	220	180-260	1	16.50	10.96	10.34	113	1003.85	943.65	913.50

*For +3% output regulation. Unit will operate at lower voltage.

HARD-WIRED 60Hz SINGLE PHASE

Stock No.	Type	Voltage Rating Reg Output	Voltage Rating Input Range	VA	Fig	Dimensions In. A	B	C	Approx Shpg Wt	1-4	5-9	10-49
79W273	63-23-112-4	120	95-130X	120	2	8.62	5.19	4.00	16	162.10	152.40	147.55
79W274	63-23-125-4		175-235X	250	2	9.88	7.44	5.38	27	212.80	200.05	193.65
79W275	63-23-150-4		190-260X	500	2	14.38	6.44	9.00	34	326.35	306.80	297.00
79W277	63-23-175-4		380-520	750	2	15.38	6.44	9.00	44	414.55	389.70	377.25
79W278	63-23-210-4			1000	2	16.25	6.44	9.00	55	496.10	466.35	451.45
79W279	63-23-215-4			1500	3	18.44	9.03	11.75	83	666.95	626.95	606.95
80W027	63-23-220-4			2000	3	19.31	9.03	11.75	98	844.45	793.80	768.45
80W028	63-25-230-3	120X 240	95-130X 175-235X 190-260	3000	3	20.69	9.03	11.75	127	1250.20	1175.20	1137.70
80W029	63-26-230	120X 240	190-260X 380-520	3000	3	20.69	9.03	11.75	127	1250.20	1175.20	1137.70
80W030	63-25-250	120X 240	95-130X 175-235X 190-260	5000	4	19.88	9.03	25.81	215	1954.60	1837.35	1778.69
80W031	63-26-250	120X	190-260X	5000	4	19.88	9.03	25.81	215	1954.60	1837.35	1778.69
80W032	63-28-275	240	380-520	7500	*	19.88	9.38	38.25	410	2404.35	2260.10	2188.00

CVS HARMONIC NEUTRALIZED TYPE TRANSFORMERS

Sola Constant Voltage Transformers contain less than 3% total rms harmonic content in the output. For all AC applications where harmonics can affect operation. Features built-in harmonic neutralizing circuits. No filters required. Regulation is ±1% for an input range of 15% of nominal voltage. NOTE: FOR MICROPROCESSOR-BASED SYSTEMS WHICH REQUIRE MORE ISOLATION, REFER TO SOLA'S LINE OF MINICOMPUTER REGULATORS LISTED ABOVE.

60Hz SINGLE PHASE

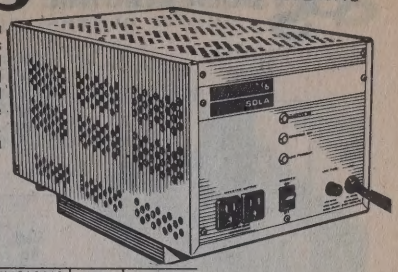
Stock No.	Type	Voltage Rating Reg Output	Voltage Rating Input Range	VA	Fig	Dimensions In. A	B	C	Approx Shpg Wt	1-4	5-9	10-49
05F1108	23-13-030-2	120	95-130	30	2	6.13	5.19	4.00	8	96.35	90.60	87.70
05F987	23-13-060-2	120	95-130	60	2	6.94	5.19	4.00	10	113.60	106.80	103.40
05F1102	23-23-060-2	120	190-260X 380-520	60	2	6.94	5.19	4.00	10	123.90	116.50	112.75
05F988	23-22-112-2	120	95-130X 190-260	120	2	8.13	5.19	4.00	14	146.85	138.05	133.65
05F1103	23-23-112-2	120	190-260X 380-520	120	2	8.13	5.19	4.00	14	154.85	145.60	140.95
05F943	23-22-125	120	95-130X 190-260	250	2	9.63	7.44	5.38	28	199.55	187.60	181.60
05F1104	23-23-125	120	190-260X 380-520	250	2	9.88	7.44	5.38	29	211.05	198.40	192.10
05F944	23-22-150	120	95-130X 190-260	500	2	12.44	6.44	9.00	45	323.35	303.95	294.25
05F1105	23-26-150	120X240	190-260X 380-520	500	2	12.44	6.44	9.00	46	323.35	303.95	294.25
05F467	23-25-175	120X240	95-130X 175-235X 190-260	750	2	16.19	6.44	9.00	54	413.95	389.15	376.70
80W014	23-25-210	120X240	95-130X 175-235X 190-260	1000	2	17.88	6.88	9.00	72	505.65	475.35	460.15
05F1160	23-26-210	120X240	190-260X 380-520	1000	2	17.88	6.88	9.00	72	505.65	475.35	460.15
80W005	23-25-215	120X240	95-130X 175-235X 190-260	1500	3	18.44	9.03	11.75	89	679.95	639.15	618.75
80W009	23-25-220	120X240	95-130X 175-235X 190-260	2000	3	19.31	9.03	11.75	98	861.05	809.40	783.60
80W011	23-26-220	120X240	190-260X 380X520	2000	3	19.31	9.03	11.75	98	861.05	809.40	783.60
80W010	23-25-230-3	120X240	95-130X 175-235X 190-260	3000	3	20.69	9.06	11.75	130	1193.60	1122.00	1086.20
80W012	23-26-230	120X240	190-260X 380-520	3000	3	20.69	9.03	11.75	130	1193.60	1122.00	1086.20
80W013	23-25-250	120X240	95-130X 175-235X 190-260	5000	4	19.88	9.03	25.81	220	1865.40	1753.50	1697.55
80W022	23-26-150	120X240	190-260X 380-520	5000	4	19.88	9.03	25.81	220	1865.40	1753.50	1697.55
80W023	23-28-275	120X240	190-260X 380-520	7500	*	19.88	9.38	38.25	330	2294.20	2156.55	2087.75

*Triplex assembly; same as Figure 4 except addition of one more transformer

Sola Mini UPS

SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

A true UPS always between the AC line and critical load providing complete protection from brownouts and blackouts as well as line noise and transients. Output waveshape is sinusoidal with less than 3% single harmonic and 5% total harmonic distortion. Regulated output is +3% when operating from either AC line or battery. Handles load surges and fault clearing providing 125% overload for 10 minutes, 150% overload for 10 cycles and 200% overload into short circuit with 2 automatic restrikes before shutdown. Maintenance free battery automatically recharges upon return of AC line. Oper. Temp. 0°C to 40°C. Especially designed for small, sensitive electronic equipment such as minicomputers, data terminals, P.O.S. systems.



Sola Minicomputer Regulator

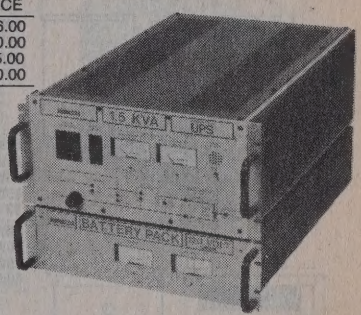
STOCK NO.	TYPE	OUTPUT VA(0.8pf)	INPUT/ OUTPUT Hz	INPUT/ OUTPUT VAC	BATTERY TIME	COOLING	DIMENSIONS (INCHES)	Wt. (LBS)	PRICE
80W024	26-00-50400-3001	400	60	120	20 min.	Convection	12x19x10.5	100	1339.00
80W025	26-00-50400-3000	400	60	120	10 min.	Convection	12x19x10.5	85	1314.00
80W026	26-00-50750-3000	750	60	120	10 min.	Fan	12x19x10.5	120	1425.00
81F2878	26-29-50300-3000	300	50	240*	12 min.	Convection	12x19x10.5	100	1445.00
81F2879	26-29-50300-3001	300	50	240*	24 min.	Convection	12x19x10.5	115	1474.00
81F2880	26-29-50600-3000	600	50	240*	12 min.	Fan	12x19x10.5	135	1568.00

***May Be Converted To 220 Volt.**

Mini UPS Auxiliary Battery Packs

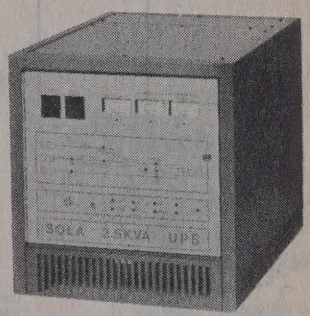
STOCK	TYPE	300 VA 12 min.*	300 VA 24 min.*	400 VA 10 min.*	400 VA 20 min.*	600 VA 12 min.*	750 VA 10 min.*	DIMENSIONS (Ins)	Wt.	PRICE
81F2881	911-01-00012-0001	—	—	80 mins.	90 mins.	—	40 mins.	10.5x12x20.5	120	846.00
81F2882	911-03-00012-0002	105 min.	125 min.	80 mins.	90 mins.	45 min.	40 mins.	8.0x12x20	80	500.00
81F2883	911-02-00012-0001	105 min.	125 min.	—	—	45 min.	—	10.5x12x20.5	120	925.00
81F2884	911-03-00028-0002	280 min.	325 min.	210 mins.	240 mins.	140 min.	110 mins.	9.5x12x25.5	145	650.00

***Battery Time Already Built Into Unit**
For replacement batteries see pg. 708



Sola 1.0, 1.5 & 2.5 kVA UPS'

Sola 1.0, 1.5 and 2.5 kVA UPS systems supply precise, conditioned power to the critical load independent of disturbances and interruptions on the AC input including brownouts, line noise and transients. Transistorized full bridge inverter design utilizing multiple pulse modulation for output voltage sinusoidal waveform synthesis. Input voltage 120VAC, 60Hz (also 208VAC, 60Hz in 2.5kVA models), 220 or 240VAC, 50Hz. Output regulation ±2%. 3% maximum single harmonic distortion, 5% maximum total RMS. Overload capability 125%, 10 minutes, 200%, 167 milliseconds. If overload capabilities are exceeded an automatic "no-break" transfer is initiated to bypass. Upon reduction of overload condition the automatic "no-break" transfer back to normal operation is accomplished. Standard control panel allows instantaneous determination of system status. 1.0 and 1.5 kVA models designed for shelf or 19" rack/cabinet mounting. 2.5 kVA model designed for floor or shelf mounting.

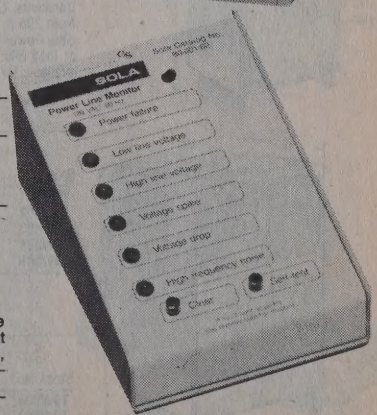


Sola 1.0, 1.5 & 2.5 kVA UPS'

Stock No.	Type	Output kVA	Input/ Output Hz	Input/ Output VAC	Max Input Amps*	Load Amps	Dims (In.)	Wt (Lbs)	Price
81F2885	056-10112-1001-00	1.0	60	120	17	8.3	8.75x17x26	160	3800.00
81F2886	056-12112-1001-00	1.0	50	220/240	9/8	4.5/4.2	8.75x17x26	175	4180.00
81F2887	056-10112-1501-00	1.5	60	120	24	12.5	8.75x17x26	185	4500.00
81F2888	056-12112-1501-00	1.5	50	220/240	14/13	6.8/6.3	8.75x17x26	200	4950.00
81F2889	056-10211-2501-00	2.5	60	120	38	20.8	28x24x25	435	5500.00
81F2890	056-11211-2501-00	2.5	60	208	22	12.0	28x24x25	435	5500.00
81F2891	056-12211-2501-00	2.5	50	220/240	21	11.3/10.4	28x24x25	465	6050.00

Sola 1.0, 1.5 and 2.5 kVA UPS Battery Packs

Stock No.	Type	Used With UPS Rating	Backup Time 1 Battery Pack	Backup Time 2 Battery Packs	Dimensions (In)	Wt. (Lbs)	Price
81F2892	911-03-00010-0102	1.0 kVA	14 Min.	30 Min.	5.25x17x26	115	400.00
81F2892	911-03-00010-0102	1.5 kVA	10 Min.	22 Min.	5.25x17x26	115	400.00
81F2893	911-03-00012-0202	2.5 kVA	15 Min.	—	18x24x25	175	550.00
81F2894	911-03-00028-0202	2.5 kVA	42 Min.	—	18x24x25	275	1000.00



Sola Power Line Monitor

The Sola Power Line Monitor identifies dangerous or disruptive power line disturbances that can cause electronic equipment to malfunction, lose memory or even crash. Six red LED's and an audible alarm pinpoint power failures, low line voltage, voltage spikes, voltage drops or high frequency noise. After the alarm sounds, flip the monitor over to find probable causes and solutions for the indicated problem. Completely portable—plugs into any standard power outlet.

Stock No.	Type	Frequency	Dimensions (In)	Wt (Lbs)	Price
81F2895	80-0001-60	60	3x5x7	2	295.00
81F2896	80-0001-50	50	3x5x7	2	295.00

SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

Solatron/Acuvolt

Line Voltage Regulators

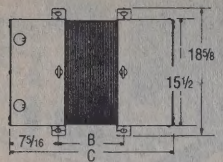
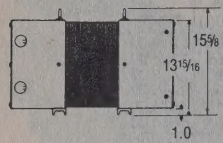


Fig. 1



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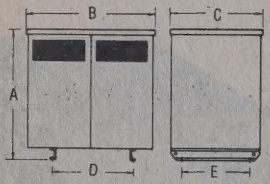


Fig. 2

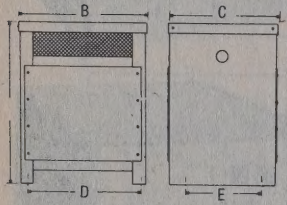


Fig. 3

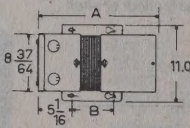
Static-magnetic unit featuring fast response, no moving parts, adjustable output, remote sensing, compactness, mounting flexibility, and high KVA capacity. Designed to fulfill the needs of modern electrical and electronic equipment while operating at (or controlling) high KVA loads. Regulation: +0.5% for line charges. Variation limits: line ±10%, or +10%/-20%. Zero load to full load. Temp. 15°C to 40°C. Current capability: withstands high inrush load currents and momentary overloads. Maintenance free.

SINGLE-PHASE (60 Hz ±3 Hz)

Stock No.	Type	Max. Output KVA Rating	Nom. Output Voltage	Output Voltage Adjustability	Input Voltage Range	Approx. Shipping Weight	Fig.	Dimensions (Inches) A	B	C	D	E	Net
80W760	33-16-150	.5	120	108-132	+10/-20%	40	5	13⅞	5⅜	3½			948.00
80W761	33-16-210	1	120	108-132	+10/-20%	58	5	16⅜	5⅜	3½			1,039.00
80W762	33-16-220-6	2	120	108-132	+10/-20%	81	4	18⅜	6¼				1,390.00
80W763	33-26-220-6	2	208/240	208-250	+10/-20%	81	4	18⅜	6¼				1,390.00
80W764	33-16-230-6	3	120	108-132	+10/-20%	95	4	19½	6¼				1,599.00
80W765	33-26-230-6	3	208/240	208-250	+10/-20%	95	4	19½	6¼				1,559.00
80W766	33-16-250-6	5	120	108-132	+10/-20%	127	4	21⅜	8¼				2,082.00
80W767	33-26-250-6	5	208/240	208-250	+10/-20%	127	4	21⅜	8¼				2,082.00
80W769	33-16-310-6	10	120	108-132	+10/-20%	193	4	23¾	10¼				2,777.00
80W771	33-16-315	15	120	108-132	+10/-20%	400	1	23⅝	9				3,554.00
80W772	33-26-325	25	120	108-32	+10/-20%	520	1	31⅝	9¾				4,433.00
80W773	33-26-325	25	240	216-264	+10/-20%	520	1	31⅝	9¾				4,433.00
80W776	31-26-337	37.5	240	216-264	±10%	525	1	24⅜	9¾				5,585.00
80W777	31-16-350-5	50	120	114-126	±10%	1050	3	42	34	28	21	20	6,601.00
80W778	31-26-350-5	50	240	228-252	±10%	1050	3	42	34	28	21	20	6,601.00
80W781	31-26-375-5	75	240	228-252	±10%	1625	3	55	37	34	21	26	8,270.00
80W784	31-26-410-5	100	240	228-252	±10%	1900	3	55	37	34	21	26	9,901.00
80W786	31-16-415-5	150	120	114-126	±10%	2200	3	65	42	38	24	30	11,856.00
80W787	31-26-415-5	150	240	228-252	±10%	2200	3	65	42	38	24	30	11,856.00

THREE-PHASE WYE (60 Hz ±3 Hz)

80W789	39-06-215	1.5	208/120	108-132	+10/-20%	210	2	24	19	16	17⅛	11	2,730.00
80W790	39-06-230-0	3	208/120	108-132	±10/-20%	265	2	24	19	16	17⅛	11	3,014.00
80W792	39-06-290-6	9	208/120	180-132	+10/-20%	370	2	43	29	19½	26¾	14½	4,250.00
80W793	39-06-315-6	15	208/120	108-132	+10/-20%	452	2	43	29	19½	26¾	14½	5,214.00
80W795	39-06-322-6	22.5	208/120	108-132	+10/-20%	558	2	43	29	19½	26¾	14½	6,332.00
80W797	39-46-330-6	30	480/277	250-304	+10/-20%	610	2	43	29	19½	26¾	14½	7,060.00
80W798	39-06-345	45	208/120	108-132	+10/-20%	1300	2	51½	26	27	33	16	8,338.00
80W799	39-06-375	75	208/120	108-132	+10/-20%	1645	2	51½	36	27	33	16	11,061.00
80W801	37-46-410-5	100	480/277	264-290	±10%	2100	3	46	52½	44½	16½	18	15,139.00



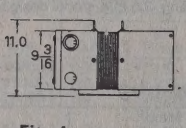
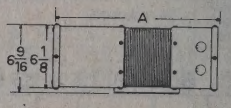


Fig. 4



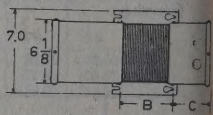


Fig. 5

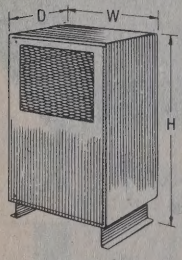


Fig. 6

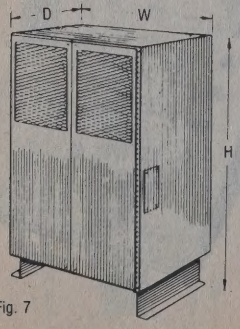


Fig. 7

Solatron/Acuvolt for Computers

Designed specifically to meet the stringent requirements of EDP equipment. Delivers clean, consistent, reliable power despite power line transients. Line regulation: ±¼%. Input Voltage: 208/230V, 3 phase, +10%/-20%. Output Voltage: 208/230 V delta or wye, adjustable from 208 to 240. Load regulation: ±¼%. Frequency: 57-63 Hz. Transient Response Time: Starts immediately; complete within 5 cycles. Power Efficiency: 95% typical. VA Efficiency: 75% typical. Maximum Harmonics: Balanced line and load 3%; unbalanced line and/or load 6%. Load Power Factor: with little derating -.75 lagging to .95 leading; without derating -.95 lagging to unity. 480V units available for computer power centers.

REGULATORS

Stock No.	Type	KVA Rating	Approx. Shpg. Wt.	Fig.	Dimensions H	W	D	Net
79W001	39-59-310	10	540	6	50″	27″	20″	6,830.00
79W002	39-59-315	15	700	6	50″	27″	20″	7,645.00
79W003	39-59-325	25	1,080	7	65″	36″	27″	8,418.00
79W004	39-59-350	50	1,510	7	65″	36″	27″	13,441.00
79W005	39-59-375	75	1,785	7	65″	36″	27″	20,044.00

THREE-CABINET REGULATORS

Stock No.	Type	KVA Rating	Approx. Shpg. Wt.	Fig.	Dimensions H	W	D	Net
79W006	39-59-410	100	1,200	7	65″	36″	27″	25,597.00
79W007	39-59-415	150	1,385	7	65″	36″	27″	37,229.00
79W008	39-59-422	225	1,585	7	65″	36″	27″	51,369.00
79W000	39-59-430	300	1,790	7	65″	36″	27″	74,459.00

Power Supplies

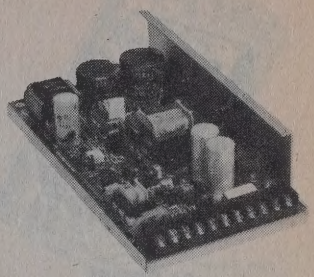
SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

SOLA SWITCHING POWER SUPPLIES

Sola 150 Watt single, triple and quad output power supplies operate at 70-75% efficiency (single output) and 65% efficiency (triple & quad output). Line and Load regulation .25% on all primaries. Line regulation .5% and load regulation 1% on auxilliaries. Input voltage 90-135/180-257 Rms, 50-400Hz. Power walk-in 500 ms maximum to full output. Ride through at full load 10ms @ 100V Rms input. Available Open Frame or Enclosed.

Single Output Series

Stock No.	Type	Output volts	Output amps	Dimensions In. H	W	D	1-4	5-9	10-49
81F211	86-05-330	5.0	30.00	2.5	5.0	9.15	225.00	211.50	198.00
81F212	86-12-312	12.0	12.50	2.5	5.0	9.15	225.00	211.50	198.00
81F213	86-15-310	15.0	10.00	2.5	5.0	9.15	225.00	211.50	198.00
81F214	86-24-262	24.0	6.25	2.5	5.0	9.15	225.00	211.50	198.00

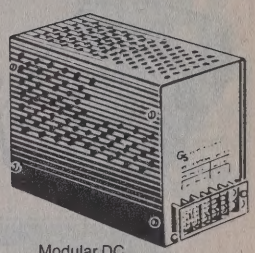


Triple Output Series

Stock No.	Type	Pri-mary	Output volts/amps AUX A	AUX B	Dimensions In. H	W	D	1-4	5-9	10-49
81F215	86-83-3320	5/20	12/2	12/2	2.5	5.0	13.5	359.00	337.50	315.90
81F216	86-85-3320	5/20	15/2	15/2	2.5	5.0	13.5	359.00	337.50	315.90
81F217	86-84-3320	5/20	12/2	5/3	2.5	5.0	13.5	359.00	337.50	315.90
81F218	86-86-3320	5/20	15/2	5/3	2.5	5.0	13.5	359.00	337.50	315.90
81F219	86-83-3310	5/10	12/4	12/4	2.5	5.0	13.5	359.00	337.50	315.90
81F220	86-85-3310	5/10	12/4	15/4	2.5	5.0	13.5	359.00	337.50	315.90

Quad Output Series

Stock No.	Type	Pri-mary	Aux A	Output/Amps Aux B	Aux C	Dimensions In. H	W	D	1-4	5-9	10-49
81F221	86-87-4320	5/20	12/1.0	-12/1.0	24/1.0	2.5	5.0	13.5	399.00	375.10	351.15
81F222	86-87-4310	5/10	12/1.0	-12/1.0	24/3.0	2.5	5.0	13.5	399.00	375.10	351.15
81F223	86-84-4320	5/20	12/1.5	-12/1.5	-5/1.5	2.5	5.0	13.5	399.00	375.10	351.15
81F224	86-88-4320	5/20	15/1.0	-15/1.0	24/1.0	2.5	5.0	13.5	399.00	375.10	351.15
81F225	86-86-4320	5/20	15/1.5	-15/1.5	-5/1.5	2.5	5.0	13.5	399.00	375.10	351.15

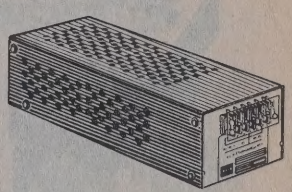


Modular DC
Power Supply

MODULAR DC POWER SUPPLIES

Will hold output voltage to ± 1% or less for input variations as great as ± 15% of the nominal input voltage. Rated input range is 100 to 130 volts, 60 Hz. The response time is 25 milliseconds. Actual variation is linear over a ± 5% Change in frequency from 60 cycles. Have long life. Highly reliable and efficient. Multiple operation to increase current and to increase voltage. Oper. temp.: 0°C to 50°C. The output voltage will change approx. 1% for every 40°C change in ambient temp. Isolation and short circuit protection. Polarity: May be used positive or negative.

Stk. No.	Type	DC Output Volts	Amps	Load Regulation Volts VA	½L-FL	¼L-FL	Height	Width	Depth	Wt.	1-4	5-9	10-49
05F1139	28-05-315	5.2	15	78	0.5	0.8	3.50	5.25	13.00	14			
05F1140	28-06-315	6.3	15	95	0.5	0.8	3.50	5.25	13.00	14			
05F1141	28-10-312	10	12	120	0.6	1.0	3.50	5.25	13.00	14			
05F1142	28-12-310	12	10	120	0.6	1.0	3.50	5.25	13.00	14	167.50	157.45	147.40
05F1143	28-15-280	15	8	120	0.8	1.3	3.50	5.25	13.00	14			
05F1145	28-24-250	24	5	120	1.0	1.7	3.50	5.25	13.00	14			
05F1146	28-28-243	28	4.3	120	1.2	2.0	3.50	5.25	13.00	14			
05F1147	28-48-225	48	2.5	120	2.0	3.4	3.50	5.25	13.00	14			
05F1148	28-04-325	4	25	100	0.5	0.8	6.90	4.94	9.75	19			
05F1150	28-06-325	6.3	25	155	0.5	0.8	6.90	4.94	9.75	19			
05F1151	28-10-318	10	18	180	0.6	1.0	6.90	4.94	9.75	19			
05F1152	28-12-315	12	15	180	0.6	1.0	6.90	4.94	9.75	19			
05F1154	28-18-310	18	10	180	0.6	1.0	6.90	4.94	9.75	19	249.10	234.15	219.25
05F1155	28-24-280	24	8	192	0.7	1.2	6.90	4.94	9.75	19			
05F1156	28-28-270	28	7	196	0.7	1.2	6.90	4.94	9.75	19			



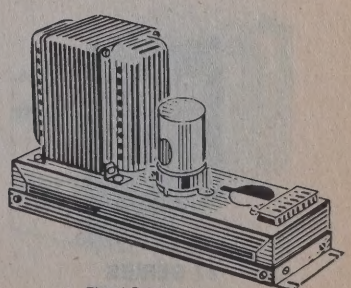
Modular DC
Power Supply

14

FIXED CONSTANT VOLTAGE DC POWER SUPPLIES

Will withstand high-transient overload without damage or output voltage drop. Output regulation ± 1% or less over 100-130V input range. Total ripple content does not exceed one percent. Load regulation less than 4% from 20% to full load. Efficiency approx. 75%. Mounted on standard 19" rack panel. Input 100-130 60 Hz. AC.

Stk. No.	Type	Volts	Amps	VA	Load Regulation 20% FL	50% FL	Panel Ht.	Weight	Depth Max.	1-4	5 - 9	10-49
05F1114	281513-2	6	10	60	15%	7%	3½	27	7⅝	293.65	276.05	258.45
05F152	282123-1	6	15	90	10%	7%	5¼	38	7¼	339.20	318.85	298.50
05F1115	281514-2	12	5	60	7%	5%	3½	18	7⅝	293.65	276.05	258.45
05F153	282124-1	12	10	120	10%	5%	5¼	31	7¼	293.65	276.05	258.45
79W071	281845-2	1	15	180	10%	7%	5¼	45	7¼	339.20	318.85	298.50
79W073	282125-1	18	10	180	7%	5%	5¼	45	7¼	339.20	318.85	298.50
05F924	281024-1	24	6	144	6%	4%	5¼	30	9¾	293.65	276.05	258.45
05F156	282126-1	24	10	240	6%	4%	5¼	48	8¾	339.20	318.85	298.50
79W074	281203-2	24	15	360	7%	5%	7	64	7¼	364.65	342.80	320.90
80W001	282127-1	24	25	600	7%	5%	8¾	72	9	474.90	446.45	417.95
05F158	282128-1	28	15	420	7%	5%	7	55	7¼	339.20	318.85	298.50
05F925	281048	48	4	192	3.5%	2.5%	5¼	32	9¾	293.65	276.05	258.45
05F1119	281561-2	48	10	480	4%	2%	5¼	48	9¾	339.20	318.85	298.50
79W076	281125-1	125	2	250	2.5%	1.5%	5¼	44	9¾	339.20	318.85	298.50
05F927	281150-1	150	2	300	2%	1.5%	5¼	48	9¾	339.20	318.85	298.50
79W077	281200	200	1	200	3%	2%	5¼	39	9¾	339.20	318.85	298.50

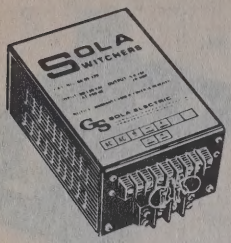


Fixed Constant
DC Power Supplies

Power Supplies

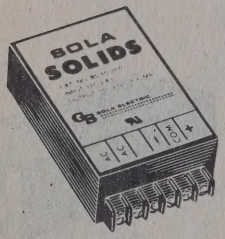
SOLA SOLIDS

Series regulated power supplies, **84 Series** for mounting on PC boards and **85 Series** for mounting on the chassis directly, for point of use regulation. Units are fully tested and burned in three times, and carry a two year warranty. Available in single output or dual tracking outputs. Input Voltage: 115V ±10V (50 to 400Hz). Output voltage accuracy: ±2%. Oper. Temp.: —25°C to 71°C (operation at elevated levels may require derating.) Input isolation: 50 megohms. Line regulation: ±.02% or 2.5 mV. Load regulation: ±.02 or 2.5 mV.

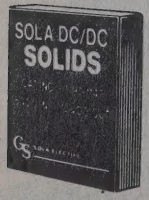


84 SERIES

85 SERIES



86 SERIES



87 SERIES

84 SERIES

Stk. No.	Type	Output Voltage	Output Current	PARD	1-4	5-9	10-49
05F533	84-05-150	5VDC	500mA	1.0mV RMS	77.70	73.05	68.40
05F534	84-05-210	5VDC	1000mA	1.0mV RMS	109.55	102.95	96.40
05F535	84-12-110	12VDC	100mA	0.5mV RMS	48.10	45.25	42.35
05F536	84-15-110	15VDC	100mA	0.5mV RMS	48.10	45.25	42.35
05F537	84-12-2112	±12VDC	120mA ea.	0.5mV RMS	73.05	68.40	59.05
05F538	84-12-2124	±12VDC	240mA ea.	0.5mV RMS	109.55	102.95	96.40
05F539	84-15-2110	±15VDC	100mA ea.	0.5mV RMS	77.70	73.05	68.40
05F540	84-15-2120	±15VDC	200mA ea.	0.5mV RMS	109.55	102.95	96.40
09F1750	84-12-2140	±12VDC	400mA ea.	0.5mV RMS	157.90	148.45	138.95
09F1751	84-15-2025	±15VDC	25mA ea.	2.0mV RMS	55.15	51.85	48.55
09F1752	84-15-2135	±15VDC	350mA ea.	0.5mV RMS	157.90	148.40	138.95
09F1753	84-10-112	10VDC	120mA	0.5mV RMS	48.10	45.25	42.35
09F1754	84-18-065	18VDC	65mA	1.0mV RMS	48.10	45.25	42.35
09F1755	84-24-050	24VDC	50mA	1.0mV RMS	48.10	45.25	42.35
85 SERIES							
05F541	85-05-210	5VDC	1000mA	2mV RMS	126.20	118.65	111.10
05F542	85-12-2124	±12VDC	240mA	1mV RMS	126.20	118.65	111.10
05F543	85-15-2110	±15VDC	100mA	1mV RMS	102.55	96.40	90.25
05F544	85-15-2135	±15VDC	350mA	1mV RMS	173.25	162.85	152.45
09F1756	85-05-220	5VDC	2000mA	2mV RMS	157.95	148.45	139.00
09F1757	85-12-2140	±12VDC	400mA	1mV RMS	173.25	162.85	152.45
09F1758	85-15-2120	±15VDC	200mA	1mV RMS	126.20	118.65	111.10
09F1759	85-15-2150	±15VDC	500mA	1mV RMS	198.10	186.20	174.30

86 SERIES SOLID SWITCHERS

75% rate of efficiency at full load with nominal input line voltage. Input Voltage: 90 to 130 VAC (115 Nominal), 180 to 260 VAC (230 Nominal). Oper. Temp. 0°C to 71°C (derate above 45°C). Input Isolation: 50 Megohms. Load Regulation: ±0.1% Max. No load to full load.

Stk. No.	Type	Output Voltage	Output Current	Line Regulation	1-4	5-9	10-49
09F1760	86-05-310	4.5-5.3VDC	10A	±0.1% Max.	319.10	303.15	287.15
09F1761	86-05-310-50	4.5-5.3VDC	10A	±0.1% Max.	319.10	303.15	287.15
09F1762	86-05-320	4.5-5.3VDC	20A	±0.1% Max.	471.00	447.45	423.90
09F1763	86-05-320-50	4.5-5.3VDC	20A	±0.1% Max.	471.00	447.45	423.90
09F1764	86-12-2215	±12-15.5VDC	1.5A	±0.02% Max.	319.10	303.15	287.15
09F1765	86-12-2215-50	±12-15.5VDC	1.5A	±0.02% Max.	319.10	303.15	287.15

87 SERIES DC/DC SOLIDS

DC/DC Solid power supplies series 87 provide line/load regulation while Pi-type input filter minimizes reflected input ripple current. Output Voltage Accuracy: ±0.5% Max. Oper. Temp. —25°C to 71°C. Line Regulation: ±0.02% full range max. Load Regulation: for single output models ±0.04% (NL-FL) max, for dual output models ±0.02% (NL-FL) max.

STk. No.	Type	Input Voltage	output Voltage	Output Current	Input Current Full Load/ No Load	Fault Mode Current	Ref. Ripple Current	1-4	5-9	10-49
09F1766	87-99-1210	5VDC	5VDC	1000mA	1540mA/25mA	2300mA	54mA P P	129.05	121.35	113.60
09F1767	87-98-1160	5VDC	9VDC	600mA	1660mA/30mA	2490mA	58mA P P	129.05	121.35	113.60
09F1768	87-97-1147	5VDC	12VDC	470mA	1735mA/30mA	2600mA	61mA P P	129.05	121.35	113.60
09F1769	87-96-1140	5VDC	15VDC	400mA	1845mA/35mA	2770mA	64mA P P	129.05	121.35	113.60
09F1770	87-97-2123	5VDC	±12VDC	±230mA	1650mA/132mA	2475mA	58mA P P	137.20	129.00	120.75
09F1771	87-96-2119	5VDC	±15VDC	±190mA	1700mA/136mA	2550mA	60mA P P	137.20	129.00	120.75
09F1772	87-79-1210	12VDC	5VDC	1000mA	640mA/14mA	960mA	22mA P P	129.05	121.35	113.60
09F1773	87-78-1160	12VDC	9VDC	600mA	690mA/15mA	1035mA	24mA P P	129.05	121.35	113.60
09F1774	87-77-1147	12VDC	12VDC	470mA	725mA/15mA	1080mA	26mA P P	129.05	121.35	113.60
09F1775	87-76-1140	12VDC	15VDC	400mA	770mA/17mA	1150mA	27mA P P	129.05	121.35	113.60
09F1776	87-77-2123	12VDC	±12VDC	±230mA	690mA/55mA	1035mA	24mA P P	137.20	129.00	120.75
09F1777	87-76-2119	12VDC	±15VDC	±190mA	710mA/57mA	1065mA	25mA P P	137.20	129.00	120.75
09F1778	87-59-1210	24VDC	5VDC	1000mA	320mA/7mA	480mA	11mA P P	129.05	121.35	113.60
09F1779	87-58-1160	24VDC	9VDC	600mA	350mA/8mA	525mA	12mA P P	129.05	121.35	113.60
09F1780	87-57-1147	24VDC	12VDC	470mA	360mA/8mA	540mA	13mA P P	129.05	121.35	113.60
09F1781	87-56-1140	24VDC	15VDC	400mA	385mA/9mA	580mA	13mA P P	129.05	121.35	113.60
09F1782	87-57-2123	24VDC	±12VDC	±230mA	340mA/27mA	510mA	12mA P P	137.20	129.00	120.75
09F1783	87-56-2119	24VDC	±15VDC	±190mA	350mA/28mA	525mA	12mA P P	137.20	129.00	120.75
09F1784	87-49-1210	28VDC	5VDC	1000mA	275mA/7mA	410mA	10mA P P	129.05	121.35	113.60
09F1785	87-48-1160	28VDC	9VDC	600mA	300mA/8mA	450mA	11mA P P	129.05	121.35	113.60
09F1786	87-47-1147	28VDC	12VDC	470mA	310mA/8mA	465mA	11mA P P	129.05	121.35	113.60
09F1787	87-46-1140	28VDC	15VDC	400mA	330mA/9mA	495mA	12mA P P	129.05	121.35	113.60
09F1788	87-47-2123	28VDC	±12VDC	±230mA	290mA/23mA	435mA	10mA P P	137.20	129.00	120.75
09F1789	87-46-2119	28VDC	±15VDC	±190mA	300mA/24mA	450mA	11mA P P	137.20	129.00	120.75
09F1790	87-39-1210	48VDC	5VDC	1000mA	160mA/7mA	240mA	22mA P P	137.20	129.00	120.75
09F1791	87-38-1160	48VDC	9VDC	600mA	170mA/8mA	260mA	24mA P P	137.20	129.00	120.75
09F1792	87-37-1147	48VDC	12VDC	470mA	180mA/8mA	270mA	25mA P P	137.20	129.00	120.75
09F1793	87-36-1740	48VDC	15VDC	400mA	190mA/9mA	285mA	27mA P P	137.20	129.00	120.75
09F1794	87-37-2123	48VDC	±12VDC	±230mA	170mA/19mA	255mA	24mA P P	145.30	136.60	127.90
09F1795	87-36-2119	48VDC	±15VDC	±190mA	180mA/20mA	270mA	25mA P P	145.30	136.60	127.90

Power Supplies

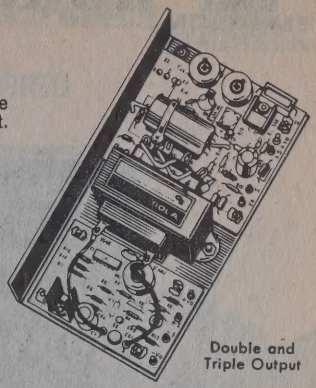
SOLA ELECTRIC
A UNIT OF GENERAL SIGNAL

MICROPROCESSOR POWER SUPPLIES

Fully isolated independent outputs. Positive or negative operation. Convection cooled. Complete serviceability. Integrated circuit regulation. Constant voltage. 120/240 VAC 50/60/400 Hz input. Full rated power 0° to +55°C. Regulation: .05% line or load. U.L. listed.

DOUBLE & TRIPLE OUTPUT

Stk. No.	Type	Output Volts	Output Amps	Height	Width	Depth	1-4	5-9	10-49
62F1205	83-81-2225	5, 9-12	2.5/.5	7.12	4.12	2.70	66.05	62.10	58.15
62F1219	83-82-2230	±5	3/.1	7.12	4.12	2.70	66.05	62.10	58.15
62F1216	83-81-2250	5, 9-12	5/.8	8.35	4.12	3.12	117.45	110.40	103.40
62F1204	83-82-2250	±5	5/.1	8.35	4.12	3.12	117.45	110.40	103.40
62F1212	83-83-3225	5, ± 9-12	2.5/.25	7.12	4.12	2.70	102.90	96.75	90.55
62F1208	83-84-3225	±5, 9-12	2.5/.25/.1	7.12	4.12	2.70	102.90	96.75	90.55
62F1214	83-83-3250	5, 9-12	5/.5	8.35	4.12	3.12	130.65	122.85	115.00
62F1202	83-84-3250	± 5, 9-12	5/.5/.1	8.35	4.12	3.12	130.65	122.85	115.00



Double and Triple Output

For Single Output see 15/30 and 60 Watt Standard Power Supplies

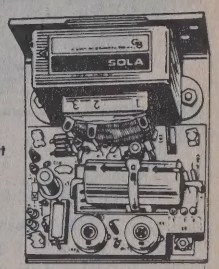
OEM LINE REGULATED DC POWER SUPPLIES

Precise integrated circuit regulator with superior drift characteristics. Convection cooled. Complete serviceability. Completely protected, short circuit proof. Isolated, floating output. Low noise and ripple. Positive or negative polarity. Oper. Temp: 0°C to 50°C. Input Freq. Range: 50-400 Hz (derate load to 75% for 400 Hz). Input Voltage Range: 15 watt (105-125 VAC, 210-250 VAC), 30/60/120 watt (115/230 ±15%). Temp. Coefficient: .03%°C. UL listed.

15 WATT

115 VOLT INPUT, 230 VOLT INPUT AVAILABLE

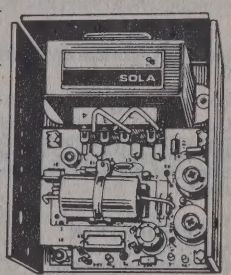
Stk. No.	Type	Output Volts Adj.	Output Amps	Height	Width	Depth	1-4	5-9	10-49
62F1200	81-05-230-1	5-6	3-2.5	4.50	4.00	2.39			
62F1206	81-12-215-1	12-5	1.5-1.2	4.50	4.00	2.39	38.45	36.15	33.85
62F1211	81-24-180-1	24	.8	4.50	4.00	2.39			



15 Watt

30 WATT

62F1201	83-05-230-2	4.8-5.5	3	4.75	4.00	2.50			
62F1215	83-12-218-2	11.5-12.5	1.8	4.75	4.00	2.50	44.10	41.45	38.85
62F1220	83-15-216-2	14.5-15.5	1.6	4.75	4.00	2.50			
62F1207	83-24-212-2	23-25	1.2	4.75	4.00	2.50			



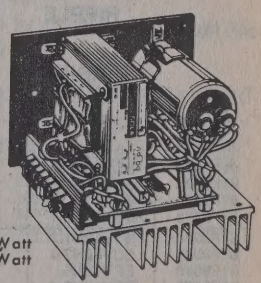
30 Watt

60 WATT

05F1129	83-05-260-2	4.8-5.5	6	4.94	6.00	4.94			
05F1130	83-12-250-2	11.5-12.5	5	4.94	6.00	4.94	90.70	85.30	79.85
05F1131	83-15-240-2	14.5-15.5	4	4.94	6.00	4.94			
05F1132	83-24-225-2	23-25	2.5	4.94	6.00	4.94			

120 WATT

05F1133	83-05-312-2	4.8-5.5	12	5.00	7.00	6.60			
05F1134	83-12-310-2	11.5-12.5	10	5.00	7.00	6.60	137.35	129.15	120.90
05F1135	83-15-280-2	14.5-15.5	8	5.00	7.00	6.60			
05F1136	83-24-260-2	23-25	6	5.00	7.00	6.60			



60 Watt
120 Watt

DUAL & TRIPLE OUTPUT

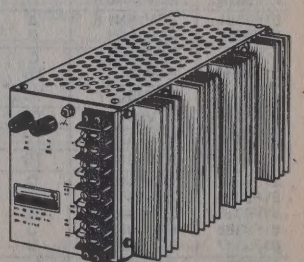
Convection cooled. Complete serviceability. Fully isolated independent outputs. Positive or negative operation. Full rated output 0° to +55°C. 120/240 VAC 50/60/400 Hz input. Regulation: 0.05% line or load. Ripple: 0.01% rms. Series or parallel operation. Constant voltage.

Stk. No.	Type	Output Volts	Output Amps	Height	Width	Depth	1-4	5-9	10-49
62F1217	83-12-2180	±12	.8	7.12	4.12	2.39	63.00	59.25	55.45
62F1203	83-15-2170	±15	.7	7.12	4.12	2.39	63.00	59.25	55.45
62F1222	83-12-2218	±12	1.8	8.35	4.12	2.94	96.50	90.75	84.95
62F1210	83-15-2216	±15	1.6	8.35	4.12	2.94	96.50	90.75	84.95
62F1221	83-12-2250	±12	5	10.06	6.30	5.50	192.95	181.40	169.80
62F1213	83-15-2240	±15	4	10.06	6.30	5.50	192.95	181.40	169.80
62F1209	83-12-3218	5, 12, 12	6, 1.8, 1.8	10.06	4.12	4.94	158.10	148.65	139.15
62F1218	83-15-3216	5, 15, 15	6, 1.6, 1.6	10.06	4.12	4.94	158.10	148.65	139.15

PREMIER REGULATED DC POWER SUPPLIES

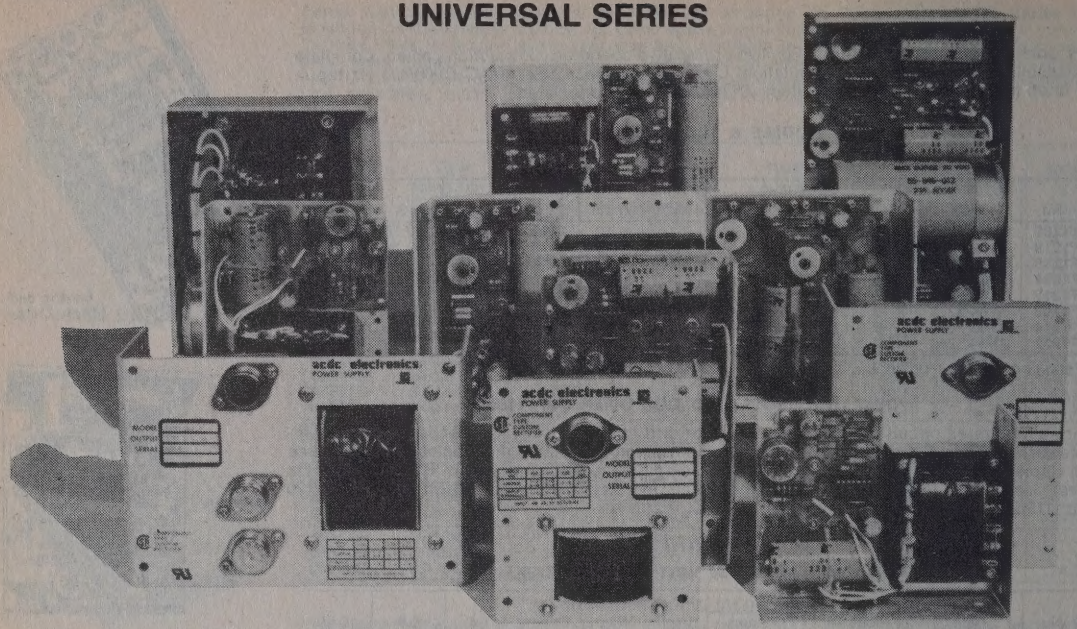
Completely protected short circuit proof; automatic current limiting. Convection cooled. Complete serviceability. Remote sensing. Regulation: ±.2% line or load. Ripple and noise: .1% Vrms. Input range: 120/240 VAC ±10%. 47-420 Hz. Temp. coefficient: .03°C. Polarity: may be used positive or negative. Oper. temp.: 0°C to +55°C. Automatic cutoff if heat sink temp. is exceeded. Storage temp: −62° to +85°C. Recovery time less than 50 μsec ½L to FL. U.L. listed.

Stk. No.	Type	Output Volts	Output Amps	Height	Width	Depth	1-4	5-9	10-49
05F1158	83-05-315-50	4.8-5.5	15	5.25	5.75	8.19	202.95	190.80	178.60
05F1159	82-12-270-50	11.5-12.5	7	5.25	5.75	8.19			
05F1162	82-05-325-50	4.8-5.5	25	6.12	6.50	11.00	281.40	264.55	247.65



Premier Regulated DC Power Supply

UNIVERSAL SERIES



INPUT
Selectable transformer input taps for 100/117/220/230/240 VAC, 47-440 Hz.

OUTPUT
See table. Output is floating; either positive or negative output terminal may be grounded. Zero to full load current ratings as in table. Adjustment range is ±15% except variable 10V to 18V output on duals and triples.

REGULATION
Line: ±0.05% for ±10% line change.
Load: ±0.05% for 50% load change.

RIPPLE
2mV RMS Max, 3mV P-P

STABILITY
Typically ±0.15% for 24 hours after initial warmup.

SPECIFICATIONS

TRANSIENT RESPONSE
Output voltage returns to within regulation limits typically with 30μ sec in response to a 50% load step.

TEMPERATURE COEFFICIENT
0.02%/°C max.

AMBIENT TEMPERATURE
Operating: 0 to 70°C. Full convection rating to 50°C.

REMOTE SENSING
Standard on most models to compensate for up to 0.25 volt drop in the load cable. Open sense lead protection is built in on all units.

OVERLOAD PROTECTION
Inherently protected against overload and short circuit by a foldback type of characteristic. Recovery is automatic.

OVERVOLTAGE PROTECTION
Standard on all +5V outputs. Preset at 6.2 ±0.4V (fixed). Overvoltage protection—optional. Universal OVP module available for any model. Adjustable 4.5—36V. Typical setting 10-20% above operating voltage. Dual Output Models: Crowbars both outputs. Typical setting 3—4V above sum of operating voltage. Triple Output Models: OVP Universal on +5V outputs. Optional on outputs 2 and 3 as above. Overvoltage modules do not add to outline dimensions.

SHOCK
Per MIL-STD-810B, Mehod 516, Procedure V.

VIBRATION
Per MIL-STD-810C, Method 514.2, Procedure X, curve AW (to 50 Hz).

UNIVERSAL SAFETY AGENCY APPROVAL
UL Recognized. File #E48765. CSA Certified, File #LR47337. Voltage isolation per VDE 0804.

Stock No.	Model	Case	CASE SIZE H	W	D	Maximum Current (Amp)	Nominal Output Voltage	1-9	10-24	25-49
81F9372	ECV5N3-1	A	4.87	4.00	2.00	3.0	5	38.50	35.00	33.25
81F9373	ECV5N6-1	B	4.87	5.62	2.95	6.0	5	69.30	63.00	59.85
81F9374	ECV5N9-1	C	4.87	7.00	3.35	9.0	5	85.80	78.00	74.10
81F9375	ECV5N12-1	D	4.87	9.00	3.35	12.0	5	107.80	98.00	93.10
81F9376	ECV12N1.7	A	4.87	4.00	2.00	1.7	12	38.50	35.00	33.25
81F9377	ECV12N3.4	B	4.87	5.62	2.95	3.4	12	64.90	59.00	56.05
81F9378	ECV12N5	C	4.87	7.00	3.35	5.0	12	81.40	74.00	70.30
81F9379	ECV12N6.8	D	4.87	9.00	3.35	6.8	12	103.40	94.00	89.30
81F9381	ECV15N1.5	A	4.87	4.00	2.00	1.5	15	38.50	35.00	33.25
81F9380	ECV15N3	B	4.87	5.62	2.95	3.0	15	64.90	59.00	56.05
81F9382	ECV15N4.5	C	4.87	7.00	3.35	4.5	15	81.40	74.00	70.30
81F9393	ETV351	TB	4.00	9.25	2.95	3.0, 1.0 / 0.8 . 0.4	+5, +12/+15, −12/−15, −5	101.20	92.00	87.40
81F9394	ETV451	TC	4.87	11.0	3.35	6.0, 1.7/1.5, 0.7	+5, +12/+15, −12/−15, −5	130.90	119.00	113.05
81F9395	ETV551	TE	4.87	11.0	3.35	8.0, 1.7/1.5, 0.7	+5, +12/+15, −12/−15, −5	148.50	135.00	128.25
81F9396	ETV751	TG	4.87	11.0	3.35	3.0, 06, 5/6	+5, −5, +24	156.20	142.00	134.90
81F9397	ETV401	TD	4.87	9.00	3.35	6.0, 1.0, 0.4	+5, +12/1.5, −12/15, −5	119.90	109.00	103.55
81F9383	ECV15N6	D	4.87	9.00	3.35	6.0	15	103.40	94.00	89.30
81F9384	ECV24N1.2	A	4.87	4.00	2.00	1.2	24	38.50	35.00	33.25
81F9385	ECV24N2.4	B	4.87	5.62	2.95	2.4	24	64.90	59.00	56.05
81F9386	ECV24N3.6	C	4.87	7.00	3.35	3.6	24	81.40	74.00	70.30
81F9387	ECV24N4.8	D	4.87	9.00	3.35	4.8	24	103.40	94.00	89.30
81F9388	ECV12D1.0	DA	4.00	6.50	2.00	1/.8, 1/.4, 0.8/.4	±12/15, +12/−5, +15/5	69.30	63.00	59.85
81F9389	ECV12D1.7	DB	4.87	7.00	2.95	1.7/1.5, 1.7/.7, 1.5/.7	±12/15, +12/−5, +15/−5	82.50	75.00	71.25
81F9390	ECV12D3.4	DC	4.87	9.38	3.35	3.4/3.0	±12/15	107.80	98.00	93.10
81F9391	ECV151	D5	4.87	6.25	3.35	2.0, 4.0	+5, +12	93.50	85.00	80.75
81F9392	ETV251	TA	4.00	6.50	2.07	2.0, 0.4	+5, +9/15, −9/15, −5	82.50	75.00	71.25
81F4891	OVPFR ECV	1-99	.....	.....	.....	.....	NET	.....	.....	10.00

Ultra Frame Switchers

acdc electronics EMERSON

QUAD OUTPUT MODELS—RM SERIES

ULTRA UNIQUE FEATURES

- **Auto Pre-load**—No external load needed except 80W unit
- **Proportional Drive**—Protects control circuit
- **Floating Independent Outputs**
- **All Outputs Fully Regulated except 24V**
- **115/230 VAC Operation**—Change with fast-on tap
- **"U" Channel Construction**—Optimizes thermal design
- **100% Computer Tested**—Unit shipped with test data
- UL478, CSA22.2

ELECTRICAL SPECIFICATIONS

Input Range: 90-132/180-264 VAC 47-63 Hz.

Output: See table—total wattage not to exceed value listed in table

Ripple & Noise: 10 MV RMS, 100 MV P/P

Transient Response: 500 microseconds for 25% load change output #1—50 microseconds for outputs 2, 3, 4 except 24V.

Holdover: 30 milliseconds from last peak of line before removal of input

Remote Sense: Main output for up to 0.25V drop with loss of sense protection.

Remote Inhibit: Available by circuit closure between two accessible terminals

Overload: 1) Foldback or constant current limit for individual outputs; 2) Total current unit control; 3) Input A.C. fuse; 4) 24V output fused

Over Voltage Protection: Standard on output #1—optional on others except 80 and 120 W units

Temperature Range: 0 to 40°C derate to 50% at 70°C with natural convection—full output with 300 CFM air

Over Temperature: Unit protected by shutdown when internal temperature exceeds safe operating limit

OUTPUTS

Stock No.	Model	Weight Lbs.	#1	#2	#3	#4	1-9	10-24	25-49	50-99	100-249
81F9398	RM84-2332	3.3	5V 10A	12V 1A	12V 1A	5V 1A	275.00	250.00	238.00	225.00	200.00
81F9399	RM124-2332	4.1	5V 15A	12V 1.5A	12V 1.5A	5V 1A	302.50	275.00	261.00	247.00	220.00
81F9400	RM164-2332	4.7	5V 20A	12V 3A	12V 2A	5V 1.5A	346.50	315.00	299.00	283.00	252.00
81F9401	RM164-2339	4.7	5V 20A	12V 3A	12V 2A	24V 2A	346.50	315.00	299.00	283.00	252.00
81F9402	RM224-2332	5.9	5V 25A	12V 4A	12V 3A	5V 1.5A	376.20	342.00	325.00	308.00	276.00
81F9403	RM224-2339	5.9	5V 25A	12V 4A	12V 3A	24V 3A	376.20	342.00	325.00	308.00	276.00

SPECIFICATIONS

Stock No.	Model	Max Watts	Size H	Size W	Size D	Outputs #1	Outputs #2*	Outputs #3*	Outputs #4*
81F9398	RM84B2332	80	4.87	10.5	2.25	5V 10A	12V 1A	12V 1A	5V 1A
81F9399	RM124B2332	120	4.87	12	2.25	5V 15A	12V 1.5A	12V 1.5A	5V 1A
81F9400	RM164B2332	160	4.87	14	2.5	5V 20A	12V 3A	12V 2A	5V 1.5A
81F9401	RM164B2339	160	4.87	14	2.5	5V 20A	12V 3A	12V 2A	24V 2A
81F9402	RM224B2332	220	4.87	14	3.2	5V 25A	12V 4A	12V 3A	5V 1.5A
81F9403	RM224B2339	220	4.87	14	3.2	5V 25A	12V 4A	12V 3A	24V 3A

*Outputs #2, #3, #4 also available at 15V on special order.
Note: Regulation output #1, 5V is ±0.2% on all models.
Regulation on outputs 2, 3, 4 is ±1% on all models except on 24V outputs ±10%.

OPTIONS

Stock No.	Model	Description	1-99	100-249
81F4892	0001-70-923-001	Power Fail—All Models	25.00	23.00
81F4893	0002-70-924-001	Crowbar All Auxiliary Models	15.00	12.00
81F4894	0064-RM 164	EMI Enclosure	20.00	17.50
81F4895	0064-RM 224	EMI Enclosure	20.00	17.50
81F4896	0064-RM 84	EMI Enclosure	18.00	15.00
81F4897	0064-RM 124	EMI Enclosure	18.00	15.00

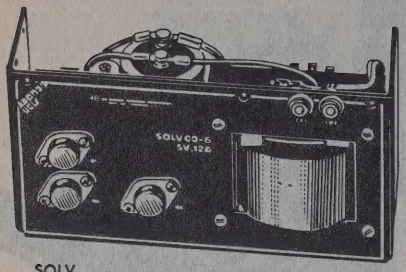
ELPAC POWER SYSTEMS
A DIVISION OF ELPAC ELECTRONICS INC

Elpac Power Systems

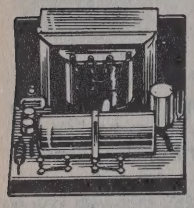
COMPUTER GRADE POWER SUPPLIES

Open Frame OLV & U.L. Recognized SOLV Series. Enclosed ELV Series

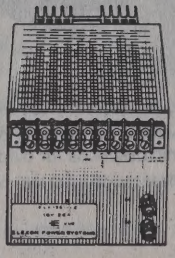
- Integrated Circuit Regulation
- Short Circuit Protected
- Remote Voltage Sensing
- Floating Output



SOLV



OLV



ELV

Computer grade, all-silicon DC power supplies include integrated circuit regulator for precision regulation. Open frame construction, black anodized chassis for increased thermo-conductivity. ELV Series enclosed ventilated anodized aluminum case with barrier strip terminals. Standard features include short circuit protection, electrostatic shielded transformer and remote voltage sensing. Floating output permits positive or negative ground operation.

Input Voltage	120/240 VAC ± 10%, single phase, 47-440 Hz (47 Hz optional for OLV-15)
Output Regulation	± 0.1% for line variations ± 10%, ± 0.1% 0 to full load.
Noise and ripple	Less than ± 0.1% peak-to-peak.
Output Voltage Adjust	± 5% at nominal line, full load.
Temperature Range	0° to + 55°C ambient operating. No additional cooling required.

OPTIONAL OVERVOLTAGE PROTECTION FOR OLV SERIES

Stock Number	Type		NET EACH 1-9	10-24	25-49
62F2847	OVP-1	For OLV 15, 30	11.00	10.00	10.00
62F2848	OVP-2	For OLV 60	14.00	14.00	13.00
62F2849	OVP-3	For OLV 90, 120	18.00	17.00	17.00
02F1215	OVP-4	For SOLV 30, 60	12.00	12.00	12.00

Stock Number	Type	Output* Volts	Amps	OVP Option	Dimensions, Inches	NET EACH 1-9	10-24	25-49
62F2899	SOLV-15-5	5	3	Standard Fixed OVP	4 × 4.88 × 2.0	39.00	38.00	37.00
62F2900	SOLV-15-12	12	1.5					
62F2855	SOLV-15-15	15	1.2					
62F2857	SOLV-15-24	24	0.75					
02F1216	SOLV-30-5	5	6	OVP 4	4.87 × 5.62 × 3	64.00	62.00	60.00
02F1217	SOLV-30-12	12	4					
02F1218	SOLV-30-15	15	3.3					
02F1220	SOLV-30-24	24	2.0					
02F1221	SOLV-60-5	5	2.0	OVP 4	4.87 × 9 × 3.35	105.00	102.00	99.00
02F1222	SOLV-60-12	12	8.0					
02F1223	SOLV-60-15	15	6.6					
02F1225	SOLV-60-24	24	4.0					
62F2890	OLV-15-5	5	3	OVP 1	4 × 4½ × 2¾	39.00	38.00	37.00
62F2891	OLV-15-12	12	1.5					
62F2863	OLV-15-15	15	1.2					
62F2893	OLV-15-24	24	0.75					
62F2864	OLV-30-5	5	6	OVP 1	4.88 × 5.75 × 3.5	64.00	62.00	60.00
62F2865	OLV-30-12	12	4					
62F2866	OLV-30-15	15	3.3					
62F2868	OLV-30-24	24	2					
62F2869	OLV-60-5	5	12	OVP 2	4¾ × 4⅜ × 7	105.00	102.00	99.00
62F2870	OLV-60-12	12	8					
62F2871	OLV-60-15	15	6.6					
62F2889	OLV-60-24	24	4					
62F2894	OLV-120-5	5	24	OVP 3	5⅛ × 6¼ × 13	223.00	216.00	210.00
62F2895	OLV-120-12	12	16					
62F2896	OLV-120-15	15	13.2					
62F2898	OLV-120-24	24	8					
ELV Series enclosed with barrier strip terminals.								
62F2873	ELV-25-5	5	5	Standard	4 × 5½ × 6½	166.00	161.00	156.00
62F2874	ELV-25-12	12	3					
62F2876	ELV-25-24	24	1.5					
62F2877	ELV-75-5	5	15	Standard	5⅛ × 5¼ × 8	210.00	204.00	198.00
62F2878	ELV-75-12	12	7					
62F2880	ELV-75-24	24	4					
62F2881	ELV-125-5	5	25	Standard	6 × 6½ × 11	256.00	249.00	242.00
62F2882	ELV-125-12	12	12					
62F2884	ELV-125-24	24	6					
62F2885	ELV-250-5	5	50	Standard	6 × 10½ × 11	438.00	426.00	413.00
62F2886	ELV-250-12	12	20					
62F2888	ELV-250-24	24	10.4					

* Additional outputs also available.

14

Elpac Power Systems

ELPAC POWER SYSTEMS
A DIVISION OF ELPAC ELECTRONICS, INC.

- High efficiency
- 300,000 hours MTBF minimum
- 300 milliwatts to 10 watts
- Single and dual outputs

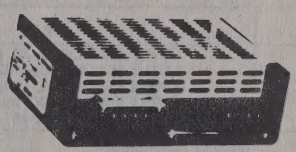
LOW COST DC-DC CONVERTERS

Stock No.	Elpac P/N	Input Voltage	Output Voltage	Output Current	H	W	L	Dimensions 1-9	Dimensions 10-24	Dimensions 25-49
NON-ISOLATED INPUT TO OUTPUT (300 MILLIWATTS)										
02F1211	CB3801	3-7 VDC	+12 VDC ±0.5V	0-25 ma	0.48	0.52	1.20	7.48	7.27	7.06
02F1212	CB3811	3-7 VDC	−12 VDC ±0.5V	0-25 ma						
02F1213	CB3802	3-7 VDC	+15 VDC ±0.6V	0-20 ma						
02F1214	CB3812	3-7 VDC	−15 VDC ±0.6V	0-20 ma						
NON-ISOLATED INPUT TO OUTPUT (1.5 WATTS)										
09F1805	CL3801	4-7 VDC	+12 VDC ±2%	0-125 ma	0.65	1.20	1.77	22.25	21.63	21.00
09F1806	CL3811	4-7 VDC	−12 VDC ±2%	0-125 ma						
09F1807	CL3802	4-7 VDC	+15 VDC ±2%	0-100 ma						
09F1808	CL3812	4-7 VDC	−15 VDC ±2%	0-100 ma						
ISOLATED INPUT TO OUTPUT (1.5 WATTS)										
81F4905	CP3601	5 VDC ±10%	5 VDC ±2%	25-250 ma	0.65	1.20	1.77	43.86	42.63	41.40
81F4906	CP3607	5 VDC ±10%	12 VDC ±2%	15-150 ma						
81F4907	CP3610	5 VDC ±10%	15 VDC ±2%	13-130 ma						
81F4908	CP4601	5 VDC ±10%	±12 VDC ±4%	6-60 ma	0.65	1.20	1.77	34.02	33.06	32.10
81F4909	CP4604	5 VDC ±10%	±15 VDC ±4%	5-50 ma						
ISOLATED INPUT TO OUTPUT (6 WATTS)										
81F4910	CG3601	5 VDC ±10%	5 VDC ±5%	0-1.1 Amp	0.75	2.36	3.07	62.14	60.39	58.65
81F4911	CG3607	5 VDC ±10%	12 VDC ±5%	0-500 ma						
81F4912	CG3610	5 VDC ±10%	15 VDC ±5%	0-400 ma						
ISOLATED INPUT TO OUTPUT (10 WATTS)										
81F4913	CH3601	5 VDC ±10%	5 VDC ±5%	0-2 Amp	1.26	2.76	3.86	105.87	102.90	99.93
81F4914	CH3607	5 VDC ±10%	12 VDC ±5%	0-800 ma						
81F4915	CH3610	5 VDC ±10%	15 VDC ±5%	0-650 ma						

SWITCH-MODE POWER SUPPLIES

SPECIFICATIONS: Efficiency: 70%, 60% on multiple output. Hold up time: 20 msec. Input: 90-130 VAC or 180-250 VAC selectable. Line regulation: ±0.2%. Load regulation: ±0.2% 1st output, ±0.5% all other outputs. Response time: 500 microseconds to 1% after 25% load change at 5A/usec. Current limit: "Fold-back" current limited. Operating temperature: 0-40°C. Storage temperature: −55°C to 85°C. Voltage adjust: ±5% 1st output, 2nd, 3rd, 4th output fixed ±5%. (ES260, 2nd and 3rd adjustable). Power fail and remote shutdown: Standard on ES150, ES200 and ES260. Output polarity: All outputs are isolated and may be polarized as desired. Remote sense: 1st output only. Reverse voltage: All outputs.

NOTE: A minimum of 15% load is required on the 5V main output to maintain regulation on 2nd, 3rd and 4th outputs. Ripple and noise: 1% p-p or 50 mv, whichever is higher. Over-voltage Protection: Standard on 1st output, optional on others. (ES 260 standard on all outputs.)



Stock No.	Elpac P/N	Outputs Volts (VDC)	Outputs Amps	Dimensions (inches) H	W	L	Net Each 1-9	Net Each 10-24	Net Each 25-49
SINGLE OUTPUT, OPEN FRAME									
81F9410	ES100-5 (OP)	5	20	2.38	5.25	7.65	185.00	177.00	167.00
81F9411	ES100-12 (OP)	12	8	2.38	5.25	7.65			
81F9412	ES100-15 (OP)	15	6.5	2.38	5.25	7.65			
81F9413	ES100-24 (OP)	24	4	2.38	5.25	7.65			
SINGLE OUTPUT, ENCLOSED									
81F9414	ES100-5 (EN)	5	20	2.38	5.25	7.65	194.00	185.00	174.00
81F9415	ES100-12 (EN)	12	8	2.38	5.25	7.65			
81F9416	ES100-15 (EN)	15	6.5	2.38	5.25	7.65			
81F9417	ES100-24 (EN)	24	4	2.38	5.25	7.65			
81F9418	ES150-5	5	30	2.60	4.87	13.50	271.00	259.00	252.00
81F9419	ES150-12	12	12.5	2.60	4.87	13.50			
81F9420	ES150-15	15	10.0	2.60	4.87	13.50			
81F9421	ES150-24	24	6	2.60	4.87	13.50			
81F9422	ES200-5	5	40	3.50	4.87	13.50	299.00	284.00	276.00
81F9423	ES200-12	12	16.5	3.50	4.87	13.50			
81F9424	ES200-15	15	13.0	3.50	4.87	13.50			
81F9425	ES200-24	24	8	3.50	4.87	13.50			
02F1201	EPS250-5	5	50	4.25	4.75	12.75	355.00	340.00	320.00
81F9427	EPS250-12	12	20	4.25	4.75	12.75			
81F9428	EPS250-24	24	10	4.25	4.75	12.75			
MULTI-OUTPUT, OPEN FRAME									
81F9429	ES130-5-12-12-5 (OP)	5, 12, 12.5	20, 1.5, 1.5, 0.5	2.38	5.25	10.75	240.00	230.00	220.00
81F9430	ES130-5-15-15-5 (OP)	5, 15, 15.5	20, 1.2, 1.2, 0.5	2.38	5.25	10.75			
MULTI-OUTPUT, ENCLOSED									
81F9431	ES130-5-12-12-5 (EN)	5, 12, 12.5	20, 1.5, 1.5, 0.5	2.38	5.25	10.75	250.00	239.00	229.00
81F9432	ES130-5-15-15-5 (EN)	5, 15, 15.5	20, 1.2, 12.2, 0.5	2.38	5.25	10.75			
81F9433	ES260-5-12-12-5	5, 12, 12.5	35, 4, 4, 1	5.75	4.87	13.50	463.00	443.00	425.00
81F9434	ES260-5-15-15-5	5, 15, 15, 5	35, 3, 3, 1	5.75	4.87	13.50			

ELPAC POWER SYSTEMS
A DIVISION OF ELPAC ELECTRONICS INC

Elpac Power Systems

COMPUTER GRADE POWER SUPPLIES

MULTIPLE OUTPUT, LINEAR OPEN FRAME POWER SUPPLIES

Stock No.	Elpac P/N	Outputs	Output Volts DC	Watts/Output	Dimensions H	W	L	Net Each 1-9	10-49	50-99
81F4918	μPS14-12-12	2	12/12	6/6	2.25	3.25	4.40	39.30	33.80	32.50
81F4919	μPS14-15-15	2	15/15	6/6						
81F4920	μPS18-12-12	2	12/12	10/10	2.25	4.00	4.75	54.40	46.80	45.00
81F4921	μPS18-15-15	2	15/15	10/10						
81F9452	μPS21-5-12	2	5/12	15/6	2.04	4.00	6.40	55.90	48.10	46.30
81F9453	μPS21-12-12	2	12/12	15/6						
81F9454	μPS30-5-12	2	5/12	15/15	7.00	4.87	3.00	71.00	61.10	58.80
81F9455	μPS30-12-12	2	12/12	15/15						
81F9456	μPS60-5-12	2	5/12	30/30	9.38	4.87	3.30	102.70	88.40	85.00
81F9457	μPS60-12-12	2	12/12	30/30						
81F9458	μPS27-5-12-12	3	5/12/12	15/6/6	8.00	4.87	2.00	72.50	62.40	60.00
81F9459	μPS27-5-15-15	3	5/15/15	15/6/6	8.00	4.87	2.00			
81F9460	μPS35-5-12-12	3	5/12/12	15/6/6	7.00	5.75	2.38			
81F9461	μPS35-5-15-15	3	5/15/15	15/6/6	7.00	5.75	2.38			
81F9462	μPS45-5-12-12	3	5/12/12	15/15/15	10.50	4.87	3.20	108.70	93.60	90.00
81F9463	μPS45-5-15-15	3	5/15/15	15/15/15						
81F9464	μPS65-5-12-12	3	5/12/12	30/15/15	11.00	4.87	3.35			
81F9406	μPS65-5-15-15	3	5/15/15	30/15/15						
81F9405	μPS90-5-12-12	3	5/12/12	60/15/15	14.25	4.87	3.50	155.50	133.90	128.80
81F9407	μPS90-5-15-15	3	5/15/15	60/15/15	14.25					
81F9408	μPS110-5-12-12	3	5/12/12	90/15/15	13.00	5.35	4.75	197.80	170.30	163.80
81F9409	μPS110-5-15-15	3	5/15/15	90/15/15						

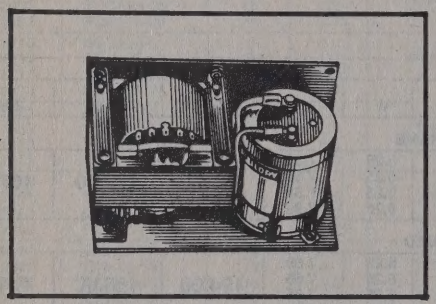
DISK POWER SUPPLIES

81F9445	FD340	2	+5, +12	0.5/0.7, 0.9/1.8*	2.07	4.00	5.50	42.30	36.40	35.00
81F9447	FD205	3	+5, −5, +24	1.0, 0.5, 1.5/1.7*	2.50	4.00	10.25	81.50	70.20	67.50
81F9448	FD384	3	+5, −5 or −12, +24	9.0, 0.8, 0.7/4.5*	3.20	4.87	11.00	120.80	104.00	100.00
81F9449	FD206	3	+5, −5, +24	2.5, 0.5, 3.0/3.4*	2.75	4.87	11.00	104.20	89.70	86.30

***Second value is surge current rating (i.e. 0.9/1.8)**

OPTIONAL OVERVOLTAGE PROTECTION FOR OLV SERIES

Stock Number	Type	Net Each 1-9	10-49	50-99
62F2847	OVP-1 For OLV 15, 30, μPS 27, 60, 65	9.10	7.80	7.50
62F2848	OVP-2 For OLV 60, μPS 90	12.10	10.40	10.00
62F2849	OVP-3 For OLV 90, 120, 240, μPS 110	15.10	13.00	12.50
02F1215	OVP-4 For SOLV 30, 60	10.60	9.10	8.80
81F4917	OVP-5 For μPS 14, 18, 21	7.60	6.50	6.30



UNREGULATED (BRUTE FORCE) POWER SUPPLIES

- **Ideal for system applications which do not require regulated DC power**
- **Electrostatically-shielded transformer**
- **Isolated outputs for positive or negative operation**
- **Full rated output from 0° to 55°C, 105, 125 VAC, 47-440 Hz**
- **Output ripple, ±3% peak-to-peak, from DC to 10 MHz**
- **Input/Output isolation, 100 megohms DC, 900 VAC**
- **Designed to meet UL requirements**

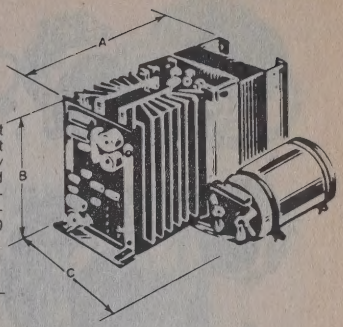
Stock No.	Elpac P/N	Output Volts	Amps	Dimensions (Inches) Height	Width	Length	Net Each 1-9	10-49	50-99
02F1203	BFS15-12	12 VDC	1.2	2.09	2.62	4.62	27.20	23.40	22.50
02F1204	BFS15-24	24 VDC	0.6	2.09	2.62	4.62			
81F4916	BFS15-48	48 VDC	0.3	2.09	2.62	4.62			
81F9435	BSF30-12	12 VDC	2.4	2.72	3.00	5.87	34.70	29.90	28.80
81F9436	BFS30-24	24 VDC	1.2	2.72	3.00	5.87			
81F9437	BFS30-48	48 VDC	0.6	2.72	3.00	5.87			
81F9438	BFS60-12	12 VDC	4.8	3.00	3.71	6.25	46.80	40.30	38.80
81F9439	BFS60-24	24 VDC	2.4	3.00	3.71	6.25			
81F9440	BFS60-48	48 VDC	1.2	3.00	3.71	6.25			
02F1209	BFS100-12	12 VDC	7.0	3.25	3.81	7.12	57.40	49.40	47.50
02F1207	BFS100-24	24 VDC	3.5	3.25	3.81	7.12			
81F9441	BFS100-48	48 VDC	1.8	3.25	3.81	7.12			
02F1209	BFS200-12	12 VDC	15.0	3.87	5.00	8.10	78.50	67.60	65.00
02F1210	BFS200-24	24 VDC	7.5	3.87	5.00	8.10			
81F9442	BFS200-48	48 VDC	4.0	3.87	5.00	8.10			
81F9443	BFS500-24	24 VDC	20.0	4.62	5.62	9.00	134.40	115.70	111.30
81F9444	BFS500-48	48 VDC	10.0	4.62	5.62	9.00			

Adtech Power Supplies

HIGH POWER—ADJUSTABLE DC POWER SUPPLY

• 0.1% Regulation • Constant Current • High efficiency, low noise

Provides regulated high current DC continuously adjustable over 2-25V or 5-50V range. Can be set for constant voltage or constant current operation. Wide voltage range suitable for many slot applications where different supplies would normally be required for each application. In constant current mode, can be used as battery charger. Adjustable damping for inductive loads for driving relays, solenoids and motors. SCR regulators used to provide precision regulation (±0.1%) with max. efficiency (75%). Series inductance and capacitor filter circuit provide low noise operation over all load and line conditions. AC input 105-130/210-260 VAC, 1 phase, 47-63 Hz. Controls include current limit adjust 0-100%; output volts adjust 10-100%; ripple adjust. Wt. 300W—20 lbs.; 600W—30 lbs.; 120W—50 lbs.



Stock No.	Type	Range Power	DC Output	1-9	10-24	25-49
99F1493	Brute I	300 Watts	5-50/2-25V 6/12A	366.30	350.65	335.05
99F1494	Brute II	600 Watts	5-50/2-25V 12/24A	449.60	430.40	411.20
99F1495	Brute III	1200 Watts	5-50/2-25V 25/50A	843.90	807.85	771.85

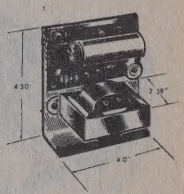
Stock No.	Type	Description	1-9	10-24	25-49
99F1532	K3	OVP-1 Overvoltage Protection	141.55	135.40	130.25

SIZE CHART

Model	A	B	C
Brute I	6.750	11.000	7.690
Brute II	6.750	12.000	7.650
Brute III	10.000	14.000	11.120

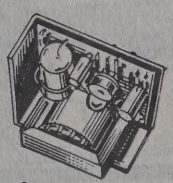
MODEL DPS — DC POWER SUPPLY

AC input 105 to 125 volts, one-phase, 57 to 63 HZ. (derate twenty percent for 400 Hz. operation). DC output voltage 5 to 6, 12 to 15, and 24 volts floating. Power 20 watts. Regulation line ± .25%; load ± .25%. Ripple is 0.3% + 10 millivolts RMS. Automatic recovery. (Derate current 2% C° over 40° C.) Weight 1.9 pounds. (*) Rated at 1 amp over 115-125 volt AC line voltage.



Stk. No.	Type	DC Output	Power Group	Fuse	1-9	10-24	25-49
99F1486	DPS-1	5/6V @ 3/2.5A	20 watts	3A	38.15	36.50	34.85
99F1487	DPS-2	12/15V @ 1.5/1.2A	20 watts	2A			
99F1488	DPS-3	24V @ 0.8AJ*	20 watts	1.5A			

All units are 115/230V input, ±10%; 47-63 Hz; single-phase; no derating at 47-63 Hz range. Each power supply is equipped with floated outputs, allowing for positive or negative grounding. Regulation is 0.1% for ±10% line voltage changes; 0.1% for no load to full load changes. 3 mV ripple peak to peak for 5 to 15V units, 5 mV for 25 to 28V, and .02% peak to peak (.01 RMS) on 150 to 250V power supplies. ±02% stability for 24 hr. period after 30 min. warmup. Screwdriver adj. for ±5% voltage adjustment. .02%/° C temp. coefficient 0.005%/° C typical. Automatic foldback circuit protects against short circuit conditions.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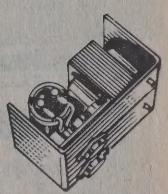
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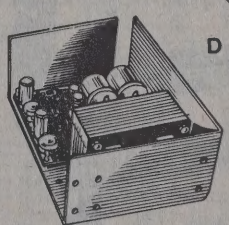
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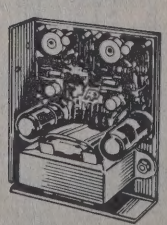
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SINGLE OUTPUT

15 TO 24 WATT "RED BARON" SERIES

Stk. No.	Type	Ratings VDC	Ratings Amps	Dimensions	Fig.	1-9	10-24	25-49
54F610	APS 5-3	5	3	4x2.75x4.87"	A	47.20	45.10	43.10
54F611	APS 12-1.6	12	1.6	4x2.75x4.87"	A			
54F612	APS 15-1.5	15	1.5	4x2.75x4.87"	A			
54F613	APS 24-1	24	1.0	4x2.75x4.87"	A			

30 TO 60 WATT "GREEN HORNET" SERIES

54F616	APS 5-6	5	6.0	5.62x3.4x4.87"	D	74.25	71.05	67.80
54F620	APS 48-1	48	1.0	5.62x3.4x4.87"	D	99.30	95.00	90.75

DUAL OUTPUT UNITS

"GOLD DUST TWINS" SERIES

54F1048	DAPS 12-.75	± 12	0.75	4x2.75x4.87"	E	70.05	67.05	64.00
54F1049	DAPS 15-.60	± 15	0.60	4x2.75x4.87"	E			

"BIG RED" HIGH CURRENT MODELS

54F1050	DAPS 12-1.5	± 12	1.5	4x2.75x4.87"	F	81.05	77.55	74.05
54F1051	DAPS 15-1.3	± 15	1.3	4x2.75x4.87"	F			

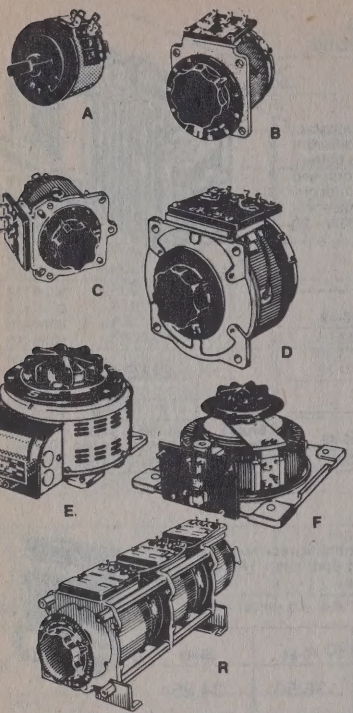
"RED MONSTER" HIGHER CURRENT MODELS

54F1052	DAPS 12-3	± 12	3.0	7x3.4x4.87"	F	124.90	119.50	114.10
54F1053	DAPS 15-3	± 15	3.0	7x3.4x4.87"	F			

STACO ENERGY PRODUCTS CO.

Transformers And Regulators

SINGLE PHASE MODELS—120 AND 240 VOLTS INPUT



Distortion Free Voltage Control up to 98% efficient. Rugged and reliable. Simple Installation - Negligible Maintenance. Will accept overload up to 10 times rated current.

SINGLE PHASE MODELS— 120 and 240 volts input. Type numbers without suffix are open styles designed for bench or panel mounting. Suffix "CT" have coils and terminals enclosed, for panel/conduit mounting. All are for 50/60 Hz. except (*) 60Hz only, or † 60 Hz on overvoltage.

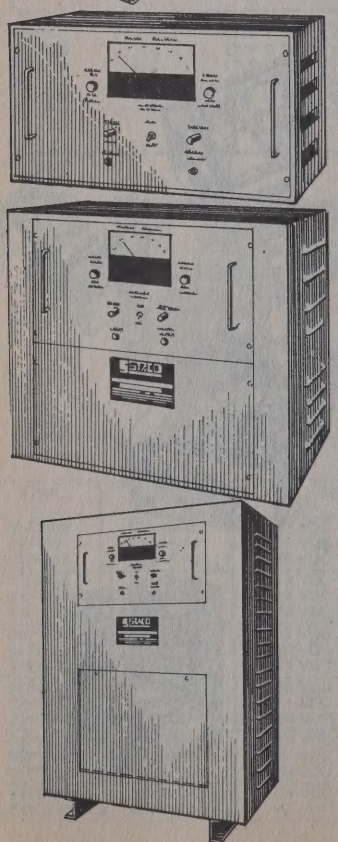
Stk. No	Type	Fig.	Input Volts	Output Volts	Output Amps	Output KVA	Size, Inches H x W x D	Wt. Lbs.	Each
05F345	221	A	120	†0-120/132	2.25	0.30	$2^{13}/_{16}$x$3^{5}/_{32}$x$2^{1}/_{8}$	3	21.00
05F301	171	A	120	†0-120/132	1.75	0.23	$2^{13}/_{16}$x$3^{5}/_{32}$x$1^{7}/_{8}$	3	20.00
79W028	201	A	120	†0-120/132	2.0	0.26	$2^{13}/_{16}$x$3^{5}/_{32}$x$1^{7}/_{8}$	3	20.50
05F302	251	A	120	†0-120/132	2.5	0.33	$2^{13}/_{16}$x$3^{5}/_{32}$x$2^{5}/_{16}$	3	25.00
79W029	291	A	120	†0-120/132	3.0	0.39	$2^{13}/_{16}$x$3^{5}/_{32}$x$2^{5}/_{16}$	3	27.00
05F304	501	B	120	0-120/140	5.0	0.70	$5^{5}/_{32}$x$3^{3}/_{4}$x$3^{5}/_{16}$	6	37.00
05F306	1010	C	120	0-120/140	10.0	1.4	$5^{29}/_{32}$x5x$4^{5}/_{32}$	11	48.00
05F1312	1010CT	E	120	0-120/140	10.0	1.4	$6^{7}/_{8}$x5x$4^{7}/_{16}$	12	75.00
79W030	SQ1010	B	120	0-120/140	10.0	1.4	$5^{3}/_{16}$x$4^{1}/_{4}$x$4^{5}/_{32}$	11	50.00
05F307	1210	C	120	*0-120	12.0	1.4	$5^{29}/_{32}$x5x$4^{5}/_{32}$	11	54.00
05F308	1510	D	120	0-120/140	15.0	2.1	$6^{13}/_{16}$x$6^{1}/_{8}$x$4^{1}/_{4}$	20	98.00
05F330	2510	D	120	0-120/140	25.0	3.5	$8^{1}/_{4}$x$7^{5}/_{8}$x$4^{1}/_{8}$	23	142.00
05F1319	2510CT	E	120	0-120/140	25.0	3.5	$10^{1}/_{16}$x$7^{5}/_{8}$x$4^{3}/_{8}$	25	176.00
05F334	5010	F	120	0-140	50.0	7.0	$15^{3}/_{8}$x$13^{7}/_{8}$x$5^{1}/_{4}$	60	336.00
79W035	6010	F	120	0-120/140	60.0	8.4	$15^{3}/_{8}$x$13^{7}/_{8}$x$5^{1}/_{4}$	70	403.00
05F309	1020	C	240	0-240/280	3.5	0.98	$5^{29}/_{32}$x5x$4^{5}/_{32}$	11	64.00
05F1314	1020CT	E	240	0-240/280	3.5	0.98	$6^{7}/_{8}$x5x$4^{7}/_{16}$	12	81.00
05F310	1520	D	240	0-240/280	9.5	2.7	$6^{13}/_{16}$x$6^{1}/_{8}$x$4^{5}/_{8}$	21	98.00
05F1318	1520CT	E	240	0-240/280	9.5	2.7	$6^{13}/_{16}$$8^{31}/_{32}x4^{7}/_{8}$	23	124.00
05F1320	2520	D	240	0-240/280	10.0	2.8	$8^{1}/_{4}$x$7^{5}/_{8}$x$4^{1}/_{8}$	23	142.00
05F336	5020	F	240	0-240/280	28.0	7.8	$15^{3}/_{8}$x$13^{7}/_{8}$x$5^{1}/_{4}$	60	330.00
79W044	6020	F	240	0-240/280	35.0	9.8	$15^{3}/_{8}$x$13^{7}/_{8}$x$5^{1}/_{4}$	70	413.00

THREE-PHASE MODELS—240VOLTS INPUT

Stock No.	Type	Fig.	Output VAC	Output Amps	Output KVA	Size, In. H x W x D	Wt. Lbs.	Each
02F1091	1010-3	R	0-240/280	10.0	4.85	$6^{1}/_{8}$x5x$14^{13}/_{32}$	36	200.00
02F1092	1510-3	R	0-240/280	15.0	6.22	$7^{1}/_{16}$x$6^{1}/_{8}$x$14^{9}/_{16}$	56	361.00
79W093	2510-3	R	0-240/280	25.0	12.1	$8^{5}/_{8}$x$7^{5}/_{8}$x$14^{5}/_{8}$	72	517.00

Variable Transformer Applications

AUTOMATION EQUIPMENT: Vibrating Parts Feeders, Vibrating Parts Finishing Controls, Heat-Sealing Machinery. TEST EQUIPMENT: Lab Test Benches, Mfg. Test Stations. SCIENTIFIC & RESEARCH INSTRUMENTATION: Medical Electronics, Lab Power Supplies, Heating Mantle Controls. INDUSTRIAL EQUIPMENT: Variable Voltage Power Supplies (AC), DC Power Supplies, Plating Power Supplies, Voltage Regulators, Industrial Ovens, Soldering Iron Controls, Electronic Discharge Machines, Conveyor Controls, AC & DC Motor Speed Control Equipment.



Automatic Voltage Regulators
AVR SERIES

No wave form distortion up to 99% efficient, accepts short term overload up to 10 times, rugged and reliable.

AVR Series provides high power at low cost in a package that is engineered for convenient installation and simple operation. Provides ±3/4% regulated output for ±15% input variation. Analog voltmeter is standard on all units.

Stk. No.	Type No. AVR-	Nom. Output Volt.	Output Volt. Adj. Range	Input Volt. Range	Max. Otpt. Amps.	Rated Otpt. KVA	Correction Rate (Seconds/V‡‡) 50Hz	Correction Rate (Seconds/V‡‡) 60Hz	Wt. (Lbs.) Shpg.	Each 1-2	Each 3-9
				50/60 Hertz, Single Phase							
81F1114	12020**	115	110 to 120	95 to 135	20	2.3	0.09	0.075	63	1,159.00	1,043.10
81F1115	12057			95 to 135	57	6.6	0.09	0.075	95	1,381.00	1,242.90
81F1116	12114*			105 to 125	114	13.0	0.18	0.15	98	1,421.00	1,278.90
81F1117	12144			95 to 135	144	16.6	0.15	0.125	280	1,800.00	1,620.00
81F1118	24036†	230	220 to 240	195 to 255	36	8.3	0.10	0.083	175	1,629.00	1,466.10
81F1119	24093†			195 to 255	93	21.4	0.10	0.083	275	2,281.00	2,052.90
81F1120	24130‡			205 to 250	13.0	29.9	0.115	0.111	275	2,120.00	1,908.00
81F1121	48045	460	440-480	400 to 520	45	20.7	0.049	0.041	285	2,466.00	2,219.40
				50/60 Hertz, Three Phase							
81F1122	24033Y†	230	220 to 240	195 to 255	33	13.1	0.10	0.083	453	3,191.00	2,871.90
81F1123	24063Y†			195 to 255	63	25.1	0.10	0.083	457	3,334.00	3,000.60
81F1124	24145Y†			195 to 255	145	57.8	0.30	0.25	969	4,457.00	4,011.30
81F1125	24188Y†			195 to 255	188	74.9	0.30	0.25	939	6,171.00	5,553.90
81F1126	24360Y††			203 to 257	360	150	—	0.28	1610	9,329.00	8,396.10
81F1127	48035Y	460	440 to 480	400 to 520	35	27.9	0.049	0.041	470	3,355.00	3,019.50
81F1128	48100Y			400 to 520	100	79.7	0.150	0.125	954	5,590.00	5,031.00
81F1129	48148Y			420 to 500	148	118	0.225	0.188	975	5,723.00	5,150.70
81F1130	48230Y			445 to 495	230	180	—	0.30	1525	9,546.00	8,591.40
81F1131	48376Y			445 to 495	376	300	—	0.30	1525	10,025.00	9,022.50

+ At Nominal output. Input voltage range shifts proportionally with output voltage setting.

* Can also be operated with an input range of 95 to 135 volts, an output rating of 57 amperes, 6.6KVA and a correction rate of 0.075 seconds/volt at 60Hz (0.090 at 50 Hz).

† Can also be operated with a nominal 208 volt output, an input range of 177 to 230 volts and an output range of 200 to 216 volts.

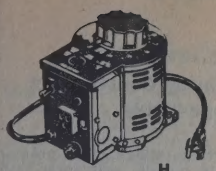
‡ Can also be operated with a nominal 208 volt ouput, an input range of 186 to 226 volts and an output range of 200 to 216 volts.

** Can also be operated with an input range of 105 to 125 volts, an output rating of 40 amperes, 4.6KVA and a correction rate of 0.15 seconds/volt at 60 Hz (0.18 at 50 Hz).

†† Can also be operated at nominal 208 volt output with proportional changes in input and output voltage ranges.

Transformers And Regulators

STACO ENERGY PRODUCTS CO.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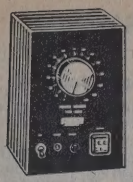
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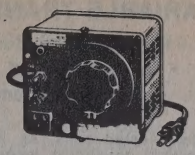
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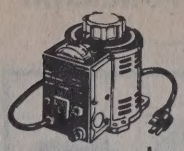
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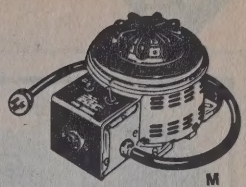
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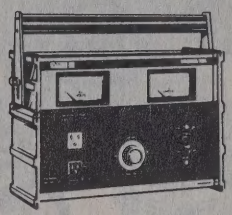
Variable Transformers

Staco Variable Transformers are available from .8KVA for all standard voltages from 120 V to 560 V, single phase or three phase. All Staco units larger than 291, are available with motor drives, permitting closed loop sensing and control of voltage, current, or processes.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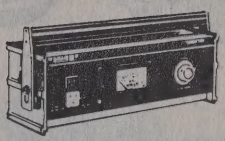
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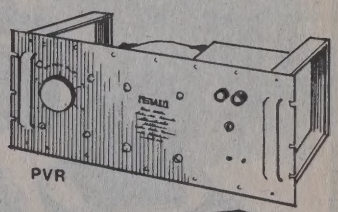
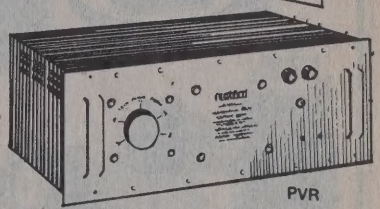

PVR


PVR

PORTABLE MODELS

Stk. No	Type	Fig.	Input Volts	Output Volts	Output Amps	Output KVA	Size, Inches H x W x D	Wt. Lbs.	Each
05F326	3PN1010	H	120	0-120/140	10.0	1.4	$7\frac{5}{8}$x5x$4\frac{7}{16}$	13	74.00
05F333	3PN171	K	120	†0-132	1.75	0.23	4x4x$3\frac{5}{16}$	$3\frac{1}{2}$	58.00
05F328	3PN501	K	120	0-120/140	5.0	0.70	$4\frac{15}{32}$x$6\frac{1}{16}$x$5\frac{3}{8}$	9	71.00
05F1303	3PN1510	M	120	0-120/140	15.0	2.1	9x$6\frac{3}{16}$x$4\frac{1}{2}$	22	146.00
05F313	3PN2210	M	120	0-140	20.0	3.5	$10\frac{3}{4}$x$7\frac{5}{8}$x$4\frac{3}{8}$	25	211.00
05F1305	3PN1020	H	240	0-240/280	3.5	0.98	$7\frac{5}{8}$x5x$4\frac{7}{16}$	13	93.00
05F1309	3PN1520	M	240	0-240/280	9.5	2.7	9x$6\frac{3}{16}$x$4\frac{7}{8}$	23	150.00

FULLY ENCLOSED PORTABLE MODELS

Meets OSHA, NEMA cord, plug. Receptacle, switch, fuse, and pilot.

Stk. No	Type	Fig.	Input Volts	Output Volts	Output Amps	Output KVA	Size, Inches H x W x D	Wt. Lbs.	Each
62F3014	L221	J	120	°0-132	1.75	0.23	$6\frac{9}{32}$x5x$4\frac{1}{4}$	$3\frac{1}{2}$	67.00
62F3015	L501	J	120	0-140	4.5	0.63	$7\frac{23}{32}$x$5\frac{3}{8}$x$5\frac{7}{8}$	$7\frac{1}{4}$	86.00
62F3016	L1010	J	120	0-140	10.0	1.4	$9\frac{13}{32}$x$6\frac{1}{2}$x$6\frac{1}{4}$	$12\frac{1}{4}$	102.00

ISOLATED PORTABLE MODELS

Output voltage isolated from power line, Suffixes V, A approp. meters.

59F415	3PNJ201V	H	120	0-140	2	.....	$5\frac{5}{8}$x5x$6\frac{7}{8}$	9	161.00
59F416	3PNJ201A	H	120	0-140	2	.....	$5\frac{5}{8}$x5x$6\frac{7}{8}$	9	168.00
59F417	3PNJ201	H	120	0-140	2	.....	$5\frac{5}{8}$x5x$6\frac{7}{8}$	9	120.00
59F418	3PNJ401V	H	120	0-140	4	.....	$5\frac{5}{8}$x$6\frac{3}{16}$x9	17	191.00
59F419	3PNJ401A	H	120	0-140	4	.....	$5\frac{5}{8}$x$6\frac{3}{16}$x9	17	242.00
59F420	3PNJ401	H	120	0-140	4	.....	$5\frac{5}{8}$x$6\frac{5}{16}$x9	17	191.00

METERED PORTABLE MODELS

120 Volt model has 0-150V voltmeter. Suffix "V" has 0-150V voltmeter. Suffix "A" has 0-10A or 0-15A ammeter.

05F858	3PN1010V	L	120	0-140	10.0	1.4	$7\frac{5}{8}$x5x$4\frac{7}{16}$	13	119.00
59F421	3PN1010A	L	120	0-140	10.0	.....	$5\frac{5}{8}$x5x$6\frac{7}{8}$	$10\frac{1}{4}$	124.00
59F422	3PN1510V	L	120	0-140	15.0	.....	$5\frac{5}{8}$x$6\frac{3}{16}$x9	18	184.00
59F423	3PN1510A	L	120	0-140	15.0	.....	$5\frac{5}{8}$x$6\frac{3}{16}$x9	18	189.00

AC POWER SUPPLIES—120V INPUT

With 3 conductor line cord, plug & matching receptacle pilot light, switch & circuit breaker. Available with voltmeter (V), ammeter (A) or a wattmeter (W) or combination.

05F322	E1010VA	N	000	0-120/140	10.0	1.4	10x$15\frac{1}{16}$x$5\frac{7}{8}$	21	422.00

ISOLATED AC/DC POWER SUPPLIES

Output voltage is isolated from the power line. Has isolated DC outputs equal to AC rating. UL listed & CSA approved. 120V input.

05F324	EJ401V	P	000	0-140	4.0	0.56	10x$15\frac{1}{32}$x$5\frac{7}{8}$	30	303.00
05F325	EJ901V	P	000	0-140	9.0	1.26	10x$16\frac{5}{32}$x$7\frac{1}{2}$	36	428.00

Staco Automatic Voltage Regulators—PVR Series

1/4% regulation, does not distort sine wave, insensitive to frequency changes.

PVR Series provides the ultimate in speed and regulation. Holds output at ±1/4% and corrects within 2.5 cycles +.6 cycles per volt changes.

RACK MOUNT

Stock Number	Model Number	Nominal Line Voltage	Output Voltage Range	Current	Power (kVA)	Output Stability (Regulation)	Input Voltage Max. Tolerance (% of output)	Correction Speed Worst Case (cycles)	Correction Speed Worst Case Time at 60 Hz)	Power Full Load	Shppg. Wt.	Each 1-2
81F1134	PVR12025	115V	103-127V	25A	2.9	±0.5%	+24 to -18%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 115W	52 lbs.	1685.50
81F1135	PVR12038			37.5A	4.3	±0.5%	+24 to -18%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 120W	71 lbs.	1860.50
81F1132	PVR12050			50A	5.8	±0.25%	±10%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 115W	52 lbs.	1685.50
81F1133	PVR12075			75A	8.6	±0.25%	±10%	2.5c + 2.4c/V	42ms + 40ms/V	≈ 120W	71 lbs.	1860.50
81F1140	PVR24010	230V	206-254V	10A	2.3	±0.5%	+24 to -18%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 115W	52 lbs.	1685.50
81F1141	PVR24019			18.8A	4.3	±0.5%	+24 to -18%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 120W	71 lbs.	1860.50
81F1138	PVR24020			20A	4.6	±0.25%	±10%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 115W	52 lbs.	1685.50
81F1136	PVR24040			40A	9.2	±0.25%	±5%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 115W	52 lbs.	1685.50
81F1139	PVR24043			42.5A	9.8	±0.25%	±10%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 120W	71 lbs.	1860.50
81F1137	PVR24085			85A	19.7	±0.25%	±5%	2.5c + 2.4c/V	42ms + 40ms/V	≈ 120W	71 lbs.	1860.50

BENCH MOUNT

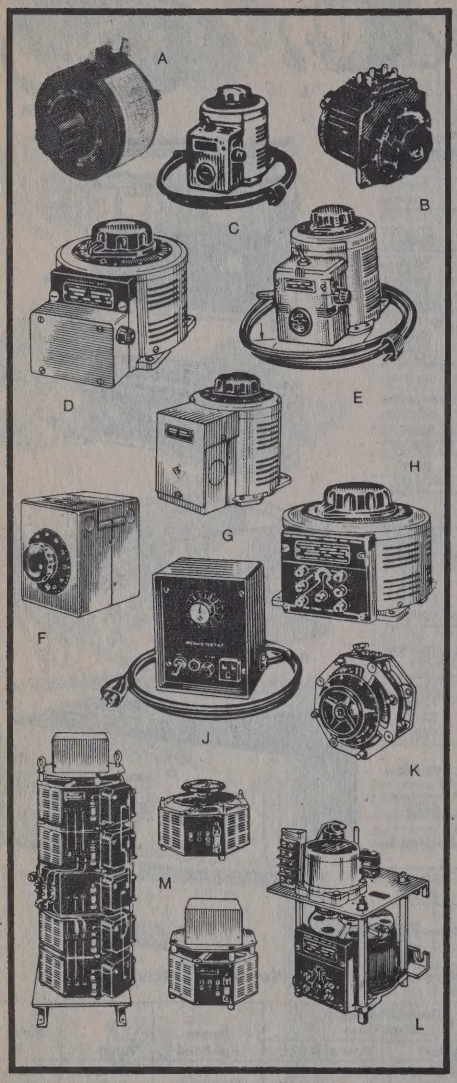
Stock Number	Model Number	Nominal Line Voltage	Output Voltage Range	Current	Power (kVA)	Output Stability (Regulation)	Input Voltage Max. Tolerance (% of output)	Correction Speed Worst Case (cycles)	Correction Speed Worst Case Time at 60 Hz)	Power Full Load	Shppg. Wt.	Each 1-2
81F1144	PVR12025B	115V	103-127V	25A	2.9	±0.5%	+24 to -18%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 115W	52 lbs.	1783.50
81F1145	PVR12038B			37.5A	4.3	±0.5%	+24 to -18%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 120W	71 lbs.	1966.00
81F1142	PVR12050B			50A	5.8	±0.25%	±10%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 115W	52 lbs.	1783.50
81F1143	PVR12075B			75A	8.6	±0.25%	±10%	2.5c + 2.4c/V	42ms + 40ms/V	≈ 120W	71 lbs.	1966.00
81F1150	PVR24010B	230V	206-254V	10A	2.3	±0.5%	+24 to -18%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 115W	52 lbs.	1783.50
81F1151	PVR24019B			18.8A	4.3	±0.5%	+24 to -18%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 120W	71 lbs.	1966.00
81F1148	PVR24020B			20A	4.6	±0.25%	±10%	2.5c + 0.6c/V	42ms + 10ms/V	≈ 115W	52 lbs.	1783.50
81F1146	PVR24040B			40A	9.2	±0.25%	±5%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 115W	52 lbs.	1783.50
81F1149	PVR24043B			42.5A	9.8	±0.25%	±10%	2.5c + 1.2c/V	42ms + 20ms/V	≈ 120W	71 lbs.	1966.00
81F1147	PVR24085B			85A	19.7	±0.25%	±5%	2.5c + 2.4c/V	42ms + 40ms/V	≈ 120W	71 lbs.	1966.00

CALL FOR QUANTITY PRICES

Superior Electric Variable Transformers

POWERSTAT® VARIABLE TRANSFORMERS

• Takes Overload • Boost Voltage • Sturdy Construction
• Efficient • Economical • Dependable



Epoxy-coated coils. An average of 20% higher current ratings; 10:1 greater overload capability; longer life; greater resistance to fungus, salt spray and other contaminating atmospheres. Commutator bars imbedded in place to prevent steady-state operating temperature and severe overloads from distorting the commutator. Designed to deliver continuously adjustable voltage from AC power lines. No waveform distortion. Precious metal plated commutators. Excellent regulation. High efficiency. Conservative ratings. All manually operated types listed below except the 10C-12 are available with motor drives. 1156D-1256D series types are available in ratings to 244 KVA. Contact Newark for details.

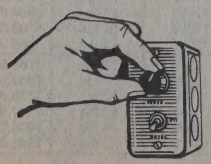
Stock No.	Type No.	(†) Fig.	Input Volts	Output Volts	Max. Amps	Max. KVA	Net Each
05F800	10C	A	120	0-132	2.25	.30	22.00
79W050	L10B	J	120	0-132	1.75	.23	67.00
05F809	21	B	120	0-140	5	.63	37.00
79W051	L21	J	120	0-140	4.5	.63	86.00
05F807	116BU	B	120	0-140	10	1.4	48.00
05F801	116B	C	120	0-140	10	1.4	71.00
79W052	116BT	G	120	0-140	10	1.4	75.00
05F1271	L116B	J	120	0-140	10	1.4	102.00
79W053	EN116B	F	120	0-140	8	1.1	114.00
05F857	3PN116B	C	120	0-140	10	1.4	74.00
79W054	VS3PN116B	E	120	0-140	10	1.4	214.00
05F743	117BU	B	120	0-120	12	1.4	54.00
05F839	117BT	G	120	0-120	12	1.4	74.00
79W055	EN117B	F	120	0-120	10	1.2	119.00
05F740	3PN117B	C	120	0-120	12	1.4	91.00
05F767	126U	B	120	0-140	15	2.1	98.00
05F766	126	D	120	0-140	15	2.1	109.00
79W057	3PN126	E	120	0-140	15	2.1	146.00
79W058	F126	D	120	0-140	15	2.1	140.00
06F158	136BU	B	120	0-140	22	3.1	142.00
05F812	136B	H	120	0-140	22	3.1	155.00
05F699	3PN136B	E	120	0-140	22	3.1	211.00
79W059	146U	B	120	0-140	30	4.2	226.00
05F1232	146	H	120	0-140	30	4.2	254.00
05F808	1156D	M	120	0-140	50	7.0	349.00
79W060	1156DU	K	120	0-140	50	7.0	336.00
05F1229	12	A	240*	0-240	.7	.17	33.00
05F895	22	B	240*	0-280	2.25	.63	54.00
05F672	216BU	B	240*	0-280	3.5	.98	64.00
05F802	216B	C	240*	0-280	3.5	.98	86.00
79W061	3PN216B	C	240*	0-280	3.5	.98	93.00
06F159	3PN217B	C	240*	0-240	5	1.2	103.00
05F769	226U	B	240*	0-280	7.5	2.1	98.00
05F768	226	D	240*	0-280	7.5	2.1	112.00
79W062	3PN226	E	240*	0-280	7.5	2.1	150.00
05F813	236B	H	240*	0-280	10	2.8	155.00
05F623	P236B	H	240*	0-280	10	2.8	194.00
06F160	3PN236B	C	240*	0-280	10	2.8	211.00
06F161	236BU	B	240*	0-280	10	2.8	142.00
79W063	246U	B	240*	0-280	15	4.2	234.00
05F1234	246	H	240*	0-280	15	4.2	254.00
79W064	F246	D	240*	0-280	15	4.2	296.00
05F806	1256D	M	240*	0-280	28	7.8	349.00
79W065	1256DU	K	240*	0-280	28	7.8	330.00

(†) Figures are approximate. Contact Newark for exact details. (*) All 240 volt units except Types 12 & 22 can be operated with 120 or 240 input but output current must then be derated. Contact your local Newark field office for details.

L Type. Meets OSHA. Equipped in grounded NEMA cord-plug assembly, on-off switch, pilot light, grounded output receptacle, fuse. Type 116B has integrally designed nonprojecting handle. Recessed panel controls. Rear slots accept wall hanger brackets. Type L21 & L116B have Powerkote coils.

VS Type. Accuracy of ±3% full scale. Single units in 116B-216B thru 146-246 series available with knobs having direct-reading voltmeters. Can measure load voltage without need for installation of separate voltmeters. Voltmeter remains stationary as knob rim is turned to vary voltage.

EN Type. Enclosed in cast aluminum & aluminum sheet dust-tight housing. Benchwall, floor, back or front or panel mounted. Knockout on each side of each end section for cable/conduit wiring. Can be connected to allow either clockwise or counter-clockwise knob rotation to vary output voltage.



DIGITAL MOTOR DRIVES

Available with motor-driven 116B-216B through 146-246 series units. Permit output voltage to be controlled over full range at 5 to 200 second speeds. Remote operation or digital control with pulse or square waves. Contact Newark Electronics for prices.

FOR FULL INFORMATION about the complete line of single and 3-phase, manual and motorized POWERSTAT Variable Transformers in ratings to 244kVA, contact your local Newark Electronics sales office, or Superior Electric.

14

STABILINE® Automatic Voltage Controls

SVR SERIES AUTOMATIC VOLTAGE REGULATORS

Highly erficient, extremely fast solid-state regulators designed for a variety of voltage control applications. Light in weight when compared with many other units of similar kVA ratings. Provide accuracy of ±3.5% for all line, load and power factor variations. Have virtually zero waveform distortion. Other series in the complete line include EMT and EMS (Electromechanical Solid-State) EMK (Electromechanical) and IES (Instantaneous Electronic Solid-State) with ratings to 300kVA.

SVRS SERIES TRANSIENT SUPPRESSORS/VOLTAGE REGULATORS

In addition to correcting for high or low voltage from power sources, units attenuate transverse-mode (line-to-line) noise and transients. Transient voltage attenuation of 40 dB from 5 to 50kHz. Provide the all-around protection needed by computers, business machines, word processors, microprocessor-based equipment and other voltage sensing devices to reduce or eliminate disruptions, data errors, loss of information and equipment failure. For 50/60Hz duty.

CR SERIES COMPUTER REGULATORS

Maintain properly conditioned voltage to computers and other voltage-critical equipment. Simple cord and plug connection to voltage source; two grounded receptacles for connecting equipment. Provide output of 120 volts rms ±3%, 60 Hz over an input range of 95 to 130 volts rms. Also provide 60dB minimum common-mode noise rejection to help prevent computer errors, loss of information and other noise related problems.

Stock No.	Type No.	(†) Fig.	Output Nom.	Input Volt. Range	Output Max.	Output Rated KVA	Wt. lb.	Each
02F1065	SVR8101CU*	B	115V	100-135	8.7A	1.0	28	502.00
02F1066	SVR8102CU*	B	115V	100-135	17.4A	2.0	40	709.00
02F1067	SVR8104CU*	B	115V	100-135	34.8A	4.0	45	939.00
80W039	SVR8201CU	B	220V	192-255	4.5A	1.0	28	537.00
80W040	SVR8202CU	B	220V	192-255	9.1A	2.0	40	747.00
80W041	SVR8204CU	B	220V	192-255	18.2A	4.0	49	997.00
80W042	SVRS88101CU	B	115V	100-135	8.7A	1.0	36	697.00
80W043	SVRS88102CU	B	115V	100-135	17.4A	2.0	50	995.00
80W044	SVRS88104CU	B	115V	100-135	34.8A	4.0	52	1345.00
80W045	SVRS88201CU	B	220V	192-255	4.5A	1	41	790.00
80W046	SVRS88202CU	B	220V	192-255	9.1A	2.0	48	1083.00
80W047	SVRS88204CU	B	220V	192-255	18.3A	4.0	56	1414.00
80W033	CR7105PCU*	A	120V	95-130	4.17A	0.5	39	369.00
80W034	CR7110PCU	A	120V	95-130	8.33A	1.0	60	548.00
80W035	CR7120PCU	A	120V	95-130	16.67A	2.0	110	934.00

TVS SERIES TRANSIENT VOLTAGE SUPPRESSORS

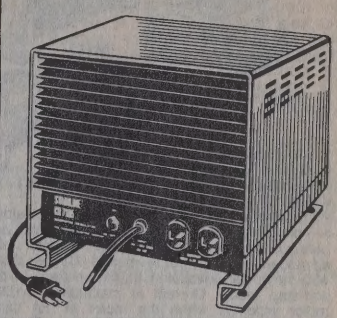
Attenuate transverse mode (line-to-line) noise or transients. Attenuate consistently regardless of position on sine wave or direction the transient is applied. Do not rely on absolute magnitude before attenuation occurs. Response time is virtually instantaneous and transient reduction is 40dB (100 to 1) from 5 to 50kHz. For 50/60Hz duty.

IT SERIES ISOLATION TRANSFORMERS

Multi-shielded isolation transformers exhibiting low capacitance between primary and secondary windings. Effective for isolating sensitive equipment and attenuating common-mode noise generated by power consuming devices. Interwinding capacitance is 0.005 pF maximum and common-mode noise attenuation is 126dB. For 50/60Hz duty.

Stock No.	Type No.	(†) Fig.	Line Voltage	Output Voltage	Current (Amps)	Wt. lb.	Each
99F1900	TVS151CU	B	120	120	15	11	225.00
99F1901	TVS151PCU	B	120	120	15	11	251.00
99F1902	TVS301CU	B	120	120	30	13	346.00
99F1903	TVS601CU	B	120	120	60	24	622.00
99F1904	TVS152CU	B	240	240	15	11	304.00
99F1905	TVS302CU	B	240	240	30	13	453.00
99F1906	TVS602CU	B	240	120	60	24	698.00
99F1907	1T105U	C	120	120	4.17	23	254.00
			240	240	2.08		
80W036	1T110U	C	120	120	8.35	40	401.00
			240	240	4.17		
80W037	1T125U	C	120	120	20.85	61	466.00
			240	240	10.43		
80W038	1T150U	C	120	120	41.70	100	533.00
			240	240	20.85		

(†) Figures are approximate. Call Newark for details.



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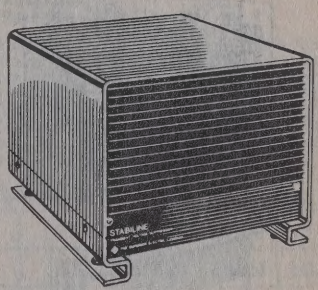

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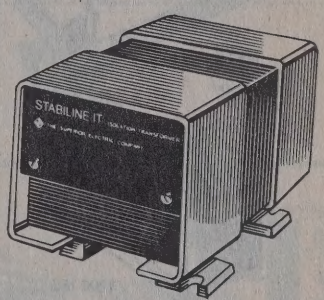


C

All SVR, SVRS, TVS and IT series units are listed under the Component Program of Underwriters Laboratories, Inc.

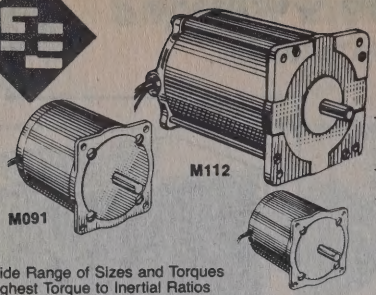
CR series regulators are listed by Underwriters Laboratories Incorporated.

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Superior Electric Motors

Stepping Motors & Controls

SLO-SYN DC Stepping Motors



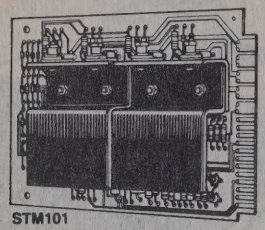
- Wide Range of Sizes and Torques
- Highest Torque to Inertial Ratios
- High Stepping Rates
- Fast Single-Step Response

Permanent magnet rotors and eight-pole stators. No brushes, ratchets or detents. Shielded ball bearings insure reliability and long life. Motor shaft advances 200 steps per revolution (1.8° per step). 400 steps per revolution (0.9° per step) in the half-step mode. Current is maintained on the motor windings when the motor is not being stepped to provide a high holding torque. Six-lead motors are standard. Can be used as five-lead motor. Accuracy ±5% noncumulative.

Stock No.	Type No.	DC Volts	Amps per Wndg.	Holding Torque	Res. Torque	Rotor Inertia (Lb.-In.)	Shaft Dia. (")	Overhang (Lb.)	Thrust Load (Lb.)	Net Wt. (Lb.)	Each
Use with 1000 steps/second* Stepping motor controls											
05F2192	M061-FD08	1.3	3.9	53	5	0.04	.250	15	25	1¼	113.00
79W090	M062-FD03	5.3	1.6	100	8	0.08	.250	15	25	2	139.00
05F2197	M091-FD06	2.9	3.1	150	5	0.23	.375	25	50	3¼	110.00
79W088	M092-FD08	3.0	4.0	300	10	0.42	.375	25	50	5½	129.00
Use with 3000 steps/second† stepping motor controls											
05F2192	M061-FD08	1.3	3.9	53	5	0.04	.250	15	25	1¼	113.00
05F2194	M062-FD09	1.7	4.7	100	8	0.08	.250	15	25	2	152.00
05F2199	M092-FD09	2.5	4.5	300	10	0.42	.375	25	50	5½	143.00
05F2200	M093-FD11	2.8	5.5	450	15	0.64	.375	25	50	7¾	180.00
05F2203	M112-FJ12	3.6	6.1	1125	30	2.75	.500	25	50	14½	383.00
Use with 5000 steps/second* stepping motor controls**											
05F2194	M062-FD09	1.7	4.7	100	8	0.08	.250	15	25	2	139.00
79W083	M112-FJ326	1.8	12.7	1125	30	2.75	.500	25	50	14½	383.00

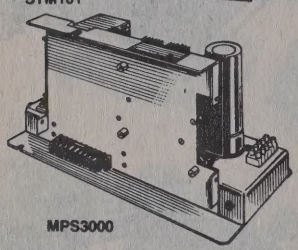
****Suffix number on control required for proper motor/control combination. Consult Newark**

SLO-SYN® Modular Stepping Controls



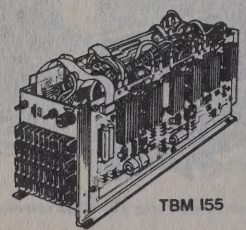
STM101

1000 Steps/Second Translator STM101: Provides sequencing and switching logic for bidirectional control. Converts pulses from a minicomputer, microprocessor or other external logic source into necessary stepping sequence. External logic controls step rate, direction and number of steps taken. Internal oscillator with 0-1000 pulse/sec. range provided for "off-line" or manual positioning control. Requires an external 24 VDC, 6 amp. power source. External Pulse Requirements: High 2.4-5.5 VDC, low 0-0.4 VDC. Dim. 4¼" x 6½".
05F829 Net. 110.00



MPS3000

Power Supply MPS3000: For use with STM101/STM103 translator modules or PIM151/PIM153 preset indexer modules which have compatible voltage and current ratings and which can be integrally mounted. Have terminals for all a-c input, d-c output and motor connections. Output: 24 VDC; 5 VDC. Power Input: 120 VAC, 60 Hz, 5 amp. Dim. 17"L x 8"W x 8"H.
02F1000 Net. 414.00



TBM 155

5000 Steps/Sec Preset Indexer TBM155: Indexing motions to 99,999 motor steps, controlled from BCD logic switches, computer or microprocessor. Adj. acceleration/deceleration. Either the half-step (0.9°) or full-step (1.8°) mode. Functions: index, run, jog, high speed, close and clear signals. Input: 120/220/240 VAC, 50/60 Hz. Internal Osc.: Base, 0-1000 pulses/sec; high, 200-5000 pulse/sec. 21"L x 7"W x 8"H.

3000 Steps/Second Translator STM103: Similar to STM101 but with rates to 3000 full-steps (1.8°) or 6000 half-steps (0.9°)/sec. Half-step mode permits finer system resolution w/o loss of positioning speed. Adjustable acceleration and deceleration circuitry increases load handling capability. Requires external 24 VDC, 10 amp. power supply. Internal oscillator range 0-6000 pulse/sec. External Pulse Requirements: High level 2-5.24 VDC low level 0-0.8 VDC 5¾" x 11".
02F1002 Net. 175.00

5000 Steps/Second Translator TBM105: Open chassis unit incorporating d-c power supply and sequencing/switching logic for bidirectional control. Either half-step (0.9°) or full-step (1.8°) mode. Power Input: 120/220/240 VAC, 50/60 Hz, 5 amp max. Internal oscillator: base, 0-1000 pulse/sec; high, 200-10,000 pulse/sec. External Pulse Requirements: 2-5.25 VDC high, 0-0.5 VDC low. Dim. 21"L x 7"W x 8"H.
80W844 Net. 909.00

Dropping resistors are required for motors used with 1000 and 3000 steps/seconds controls. Consult below for appropriate series resistors.

DROPPING RESISTORS

Use with Motor	Stock No.	Type No.	Watts	Each
M061-FD08	**62F3690**	DR103788-G16	7.5, 100W	17.00
M062-FD03	**62F3691**	BM102088-G14	11, 50W	13.30
M062-FD09	**62F3694**	BM133832-G6	4.5, 160W	19.40
M091-FD06	**62F3693**	DR103788-G15	7, 100W	17.00
M092-FD08	**62F3693**	DR103788-G15	7, 100W	17.00
M092-FD09	**62F3694**	BM133832-G6	4.5, 160W	19.40
M093-FD07	**62F3695**	DR103788-G14	6.5, 100W	17.00
M093-FD11	**62F3696**	BM133832-G9	4, 160W	13.30
M112-FJ12	**62F3696**	BM133832-G9	4, 160W	13.30

SLO-SYN® AC SYNCHRONOUS MOTORS

Basic shaft speed 72 rpm synchronous with 60Hz line frequency. Three lead types need only single-pole, 3-position switch for rapid forward, reverse and stop. Can be stalled without overheating. No mechanical or electrical braking; starts or stops in less than 5° of shaft rotation. Order phase-shifting resistor and capacitor for 1-phase source.

SLO-SYN motors available with special or severe conditions operation features for AC applications. Subject to normal production/delivery time setup charge.

PHASE-SHIFTING COMPONENTS

Stock No.	For Motor Type	Resistor Resistor = 5% Tot.	Each	Stock No.	Capacitors Capacitor V_F = 6% #330VAC	Each
05F850	SS50#	R-SS50	7.50	**05F848**	C-SS50	10.90
05F850	SS80	R-SS50	7.50	**05F848**	C-SS50	10.90
57F3349	SS150#	R-SS150M	15.70	**57F3346**	C-SS150M	20.40
05F822	SS250#	R-SS250/400	8.10	**05F826**	C-SS250/400	11.50
05F822	SS400#	R-SS250/400	8.10	**05F826**	C-SS250/400	11.50
05F822	SS700	R-SS250/400	8.10	**57F3347**	C-X-1002X	53.70

UL LISTED

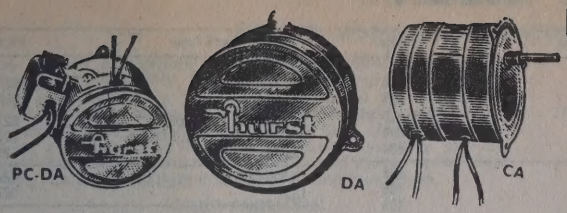
Standard, planetary gear and double end shaft models of the TS25, TS50, LS50, SS25, SS50, SS150, SS250 and SS400 motors can be supplied for applications requiring UL listing. These are identified with letter U suffix on type numbers. Are identical to corresponding non-listed motors. Listed under UL file number E31544.

Stock No.	Type	Max. Amps	Torque (Oz.-In.)	Inertia Momentum (Lbs.-In.)	Phase-Shifting Components Resistor ±5% tol.	Cap. μF ±6% @ 330V	Motor Net	Wt. Shpg.	Over-han (Lbs.)	(Lbs.) Thrust	Each
05F847	SS50#	0.3	50	0.50	400, 25W	2.25	3	3½	15	25	91.00
24F1646	SS80#	0.3	80	0.5	400, 25W	2.25	3	3½	15	25	91.00
05F844	SS150#	0.4	150	1.5	250, 25W	3.75	6½	8	25	50	111.00
05F2180	SS250#	0.6	250	30.0	150, 50W	6.50	6½	8	25	50	156.00
05F2183	SS400#	0.6	400	4.50	150, 50W	6.50	12¼	13¾	25	50	230.00
24F1647	SS700	1.0	700	10.0	150, 50W	11.0	14	15½	25	50	247.00

50/60 Hz, 1 Phase, 200 rpm @ 60 Hz. (#) 120V, 50/60Hz, 1 phase, 72rpm @ 60 Hz.

Instrument Motors

hurst



PC-DA BRAKE & CLUTCH

Continuous duty reversible synchronous motor, 120 oz-in at 1 RPM. Positive clutch and instantaneous brake stops the shaft rotation within ⅛° at 1 RPM and 12° at 60 RPM. Starting time for the shaft is within 20 msec. Capacitor included. Ship. Wt. 1 lb. 5 oz.

Stk. No.	Type	RPM	1-9	10-24	25-49	50-99
24F1471	PC-DA-1	1	37.78	34.88	33.18	31.48
24F1582	PC-DA-2	2				
24F1473	PC-DA-6	6				
24F1474	PC-DA-10	10				
24F1475	PC-DA-30	30				
24F1476	PC-DA-60	60				

DA REVERSIBLE 150 oz.-in at 1 RPM

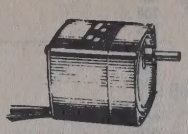
Continuous duty synchronous motor, 150 in. oz. at 1 RPM. Instantly reversible with SPDT switching. Accurate both clockwise and counter clockwise. Capacitor included. Dimensions: 2½" dia. x 1¾" depth. Shaft of stainless steel ⅜" dia. x 1" long flatted. 60 Hz. 95/130V, 5 watts. Ship. Wt. 14 oz.

24F1456	DA-1	1	28.04	25.23	23.96	22.80
24F1580	DA-2	2				
24F1458	DA-6	6				
24F1459	DA-10	10				
24F1460	DA-30	30				
24F1461	DA-60	60				

CA REVERSIBLE 100 oz.-in at 1 RPM

Instantly reversible with SPDT switching. 100 inch-ounce torque rating at 1 RPM. Case dimensions, 2½" dia. x 2⅛". Shaft, ⅜" dia. x 1" long flattened. Ship. Wt. 1 lb. 2 oz.

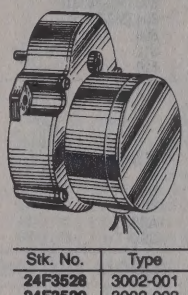
81F1372	CA-⅓	⅓	25.33	22.72	21.58	20.52
24F1584	CA-½	½				
24F1494	CA-1	1				
24F1496	CA-6	6				
24F1497	CA-10	10				
24F1498	CA-30	30				
24F1499	CA-60	60				



T-PERMANENT MAGNET REVERSIBLE 250 oz.-in at 1 RPM

Permanent magnet synchronous reversible instrument motor. Specs: Gear train loading: 250 oz. in. @ 1 RPM. Heat rise: 40°C F.L. Voltage: 115 VAC. Freq: 60 Hz. Power input: 8½ watts. Rotation: reversible fast start/stop. Rotor speed: 300 RPM (synchronous). Torque @ 300 RPM): 8 in. Capacitor included. Dim.: 2 17/32" x 2⅜" dia. Wt. less than 2 lbs.

Stk. No.	Part Number	Speed RPM	Rated Output Torque	1-9	10-24	25-49	50-99
24F1500	2602-001	1	250	44.44	40.44	38.05	37.42
24F1502	2602-012	4	218	44.44	40.44	38.05	37.42
24F1503	2602-013	6	210	42.79	40.44	38.05	35.66
24F1504	2602-006	10	168				
24F1505	2602-014	30	64				
24F1506	2602-009	60	32				
24F1507	2602-015	120	16				
24F1508	2601-001	300	8	28.19	26.63	25.05	23.49



MODEL A SYNCHRONOUS MOTOR

- **Reversible**
- **Fast Start/Stop**

Instrument grade motor is suitable for numerous types of application: chart drives, computer terminal and peripheral equipment, card readers and medical instrumentation. Rotor torque: 2.3 oz.-in. @ 300 rpm. "Drop in" replacement for pear shaped gear cup motors. Die cast gear housing. Perm. mag. Capacitor included.

Stk. No.	Type	RPM	1-9	10-24	25-49	50-99
24F3528	3002-001	1	25.74	23.20	22.06	21.03
24F3529	3002-003	2				
24F3530	3002-005	4	65.58	59.09	56.24	53.57
24F3531	3002-007	6				
24F3535	3002-013	20	30.89	27.82	26.52	25.22
24F3536	3002-015	30				
24F3537	3002-016	60				
24F3538	3002-020	120				
24F3539	3001-001	300*	40.02	38.02	36.01	34.01

STEPPER MOTORS & CONTROLS

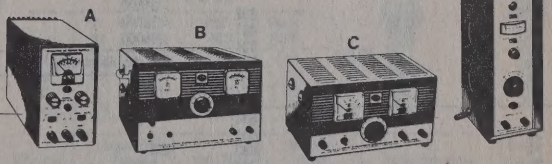
Stock No.	Type	Description	1-9	10-24	25-49	50-99
81F1368	AS-3003-001	Stepping motor	25.74	23.20	22.06	21.03
81F1369	PAS-3205-001	Stepper motor	30.89	27.82	26.52	25.22
81F1370	LAS-3602-001	Linear Motion	65.58	59.09	56.24	53.57
81F1371	EPC-011	Stepper Control Board	40.02	38.02	36.01	34.01

DIRECT DRIVE
PART NO. 3205-001

PART NO. 3003-001

EPSCO POWER SUPPLIES

For use in design, development, and testing of transistor circuitry. For servicing and operating auto, aircraft, marinecraft radio, electronic equipment, etc. For production line testing, industrial and educational laboratory work, and many other applications. Features include: Voltage regulation, AC ripple filtering, adjustable output voltage, large easy-to-read meters, isolated output terminals, 1-year warranty. Input—Regulated Models: 105-125 VAC,, 60 Hz. Industrial and General Purpose Models: 117 VAC, 50/60 Hz. Note: (*)—No-load to full-load unless otherwise specified. (†)—Output voltage change for each ampere of output current change, except on regulated units, % applies for either line or load. (††)—All 2% accuracy except 5% for general purpose units. Rectifiers: Selenium and Silicon. (**)—From 105-125 VAC.



REGULATED

Stock No.	Model	Volts Output	Amps. Output	Fig.	Line Reg.**	Load Reg.*	Max. Ripple, RMS	Meters	DC Imp. Ohms	Size (HxWxD) Inches	Wt. lbs.	NET
66F454	PSR-12-25	0-25	0-500mA	A	0.01%+2mV	0.01%	100μV	0-30V/600mA	.006	5¼x3½x10	7	214.50
66F455	PSR-12-50	0-50	0-250mA	A	0.01%+2mV	0.01%	100μV	0-60V/300mA	.02	5¼x3½x10	7	214.50

INDUSTRIAL

Stock No.	Model	Voltage Output	Amps. Output	Fig.	Load Reg.* (V/A)†	Max. Ripple %	Meters‡‡	DC Imped., Ohms*	Size (HxWxD) Inches	Wt. lbs.	NET
66F145	EFB	0-32	0-4	...	1.25	0.1	0.40/20V, 0.10A	1.25	7x12x8½	26	309.80
		0-16	0-8		1.0	0.1		1.0			
66F456	PS-1000-125	0-125	0-8A	B	1.0	Less than 1%	0-150V, 0-10A	1.0	9¾x14¼x19¼	113	689.50

GENERAL PURPOSE

66F119	D-612T	0-16	0-10	C	0.44 (3-10A)	0.5 C 5A	0-20V, 0-10A	0.44 (3-10A)	7x12x8½	20	208.50
		0-8	0-10		0.3 (3-10A)	2 @ 10A		0.3 (3-10A)			
66F261	EC-2	0-16	0-5	D	1.8	0.5	0-20V, 10A	1.8	10¾x4¾x6½	11	155.50

14

LAMP INDEX

Manufacturer's Type	Page
AND	
FEO	101
ALCOLITE	
BIM	641
BND	641
BNE	641
BNF	641
GT20	641
MC	641
MCM	641
ME	641
NE-1H	641
NE-211	641
T-1	641
T-1¾	641
CHICAGO MINIATURE (GENERAL INSTRUMENTS)	
General service	
PR	636
A1B	637
A1C	637
CM7	637
CM8	637
CM20	637
CM21-3	638
CM44	639
CML	638
NE	637
PSB	637
3S6/5	637
6S6	637
6T	637
7C7	637
10C7	637
10 thru 1800	636
1800 thru 8600	637
10S6C	637
24C	637
24E	637
24X	637
25P	637
48D	637
55C	637
900	638
5100	638
5700	638
6300	639
CM4	639
6400	638
6063	638
DIALIGHT	
4-1930	632
21	631
31	634
32	634
33	633
37	601
51	634
52	631
70	633
80	634
81	631, 633, 634
95	607
101	608
103	611
125	611
135	607, 609
137 (MS-25257)	632
140	632
162 (MS-25256)	632
177	632
181	632
249	630
250	628
252	632
270	632
501	104, 105

Manufacturer's Type	Page
DIALIGHT Con't	
502	634
506	631
507	628, 629, 611
508	628
514	634
515	628
521	105
550	105
555	105
558	606
559	630
560	105
580	105
730	104
733	104
739	104
740	104
743	104
745	104, 105
749	104
800 (MS-25041)	633
801 (MS-25041)	633
803 (MS-25331)	633
804 (MS-25331)	633
806	633
812	633
820	633
GTE SYLVANIA	
AS	648
CS	648
ES	648
ASB	648
CSB	648
ESB	648
PSB	649
MB	649
PS	649
RC	649
SM-1, SM-2	648
6C	648
21	648
24E	648
24X	648
31	648
41	648
48C	648
51	648
53B	648
55C	648
61	648
71	648
81	648
900	648
1900	650
TP	650
30000	648
31000	648
32000	648
38000	648
Audio visual lamp	650
IEE	
3600	112
370V	112
1760	109
22000	109
23000	109
24000	109
25000	109
FED	110
1000	110
1700	110
1800	110
2600	110
3700	110
7600	110
7700	110
8300	110
LCD	111

Manufacturer's Type	Page
IMLEC	
100, 101	627
105, 106	627
305, 314, 317, 328, 606, 614, 617, 628, 3115, 5115	627
CLF14	627
CLF28-CLF14	627
CLH	627
IMLEC LED'S	
150, 151	627
406	627
407	627
409	627
440	627
LEECRAFT	
L111	652
L301	652
L311	652
L401	652
11-200	653
12-200	653
16-00	653
21-00	653
22-00	653
23-00	653
24-00	653
26-00	653
27-00	653
28-00	653
31	651
32	651
32R	651
36EN	651
36N	651
39	652
41EN	651
41N	651
45	652
53-00	653
200	653
300	653
400	653
500	653
600	653
700	653
2200	653
2500	653
2600	653
L45	652
L58	652
L59	652
RADION	
A1A A1B A1C A9A	644
B1 BN	646
C2A C7A C9A	644
LD, LF	646
ML/6C ML/24E ML/24X	644
ML/48C ML/48D ML/55C	644
ML/24CSB	644
ML/6ESB thru ML/48ESB	644
ML/6PSB thru ML/120PSB	644
ML/14 thru ML/1800	642-643
ML/1800 thru ML/8805	642-643
MN	646
N	646
NE 51H, NE51R	644
NE 51HR	644
NE 83, NE86	644
PR4 thru PR12	642
S11, S1N	647
LAMP SOCKETS	
LSL	645
LSW	645
SLW	645
Socket Accessories	645

Indicator Lights

IMLEC MODULAR INDICATOR LIGHT ASSEMBLIES

Series 100/101 assemblies are a modular concept that provide low cost, great versatility. These pilot lights mount with a rubber bushing snapped into a 9 mm dia. cutout—no nut or retainer required. A variety of light sources—incandescent, neon, green glow neon or LED's—fit into the bushing and colored lens assemblies are slipped in from the top. Lens assembly may be mounted independently from light source and mated in the final assembly. Lens colors/light sources are interchangeable.

LAMP ASSEMBLY

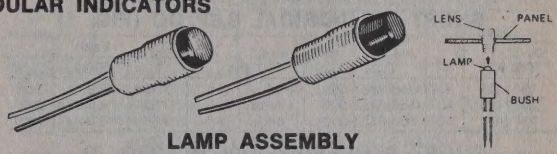
Stk. No.	Type	Light Source	Volts	mA	1-99	100-249	250-499	500-999
39F3525	F606	Incandescent	5-6.3	50	.51	.46	.43	.41
39F3526	F614	Incandescent	12-14	80	.52	.47	.44	.42
39F3527	F628	Incandescent	24-28	80	.53	.48	.45	.42
39F3528	N5115	Neon	110-120	1.5	.72	.65	.61	.58
39F3529	G5115	Green Glow	110-120	1.5	.94	.85	.80	.75
39F3530	L617RL	Red LED	2.0 Typ	10	.95	.86	.81	.76
39F3543	L617G	Green LED	1.9 Typ	10	.97	.87	.82	.78
35F3759	L617Y	Yellow LED	1.9 Typ	10	.99	.89	.84	.79

LENS BUSHING ASSEMBLY

Flush Style			Top Hot Style						
Stock No.	Type	Color	Stock No.	Type	Color	1-99	100-249	250-499	500-999
39F3531	100-R	Red	39F3537	101-R	Red	.33	.30	.28	.26
39F3532	100-A	Amber	39F3538	101-A	Amber				
39F3533	100-G	Green	39F3539	101-G	Green				
39F3534	100-B	Blue	39F3540	101-B	Blue				
39F3535	100-W	White	39F3541	101-W	White				
39F3536	100-C	Clear	39F3542	101-C	Clear				

105/106 SERIES MODULAR INDICATORS

Modular design concept from series 100/101, but smaller. Lens presses into 5 mm hole in the front panel, the rubber bushing with the lamp slips on from the rear to complete the assembly. No nut or retainer required. Lamps can be used with any lens allowing the light to meet design requirements while keeping the same styling.



LENS ASSEMBLY

Flush Style			Top Hat Style						
Stock No.	Type	Color	Stock No.	Type	Color	1-99	100-249	250-499	500-999
35F3700	105-R	Red	35F3705	106-R	Red	.28	.25	.24	.22
35F3701	105-A	Amber	35F3706	106-A	Amber				
35F3702	105-G	Green	35F3707	106-G	Green				
35F3703	105-B	Blue	35F3708	106-B	Blue				
35F3704	105-W	White	35F3709	106-W	White				

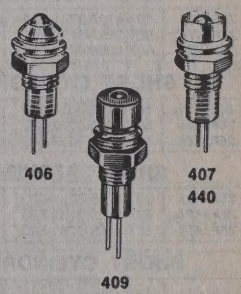
LAMP ASSEMBLY

Stk. No.	Type	Light Source	Volts	mA	1-99	100-249	250-499	500-999
35F3710	F305	Incandescent	4-6	60	.61	.55	.52	.49
35F3711	F314	Incandescent	12-14	40	.69	.62	.59	.55
35F3712	F328	Incandescent	24-48	24	1.07	.96	.91	.86
35F3713	N3115	Neon	100-120	1.0	1.43	1.29	1.22	1.14
35F3714	L317R	Red LED	2.0 Typ	10	1.00	.90	.85	.80
35F3715	L317G	Green LED	1.9 Typ	10	1.02	.92	.87	.82
35F3716	L317Y	Yellow LED	1.9 Typ	10	1.05	.95	.89	.84

LED SERIES INDICATOR LIGHTS

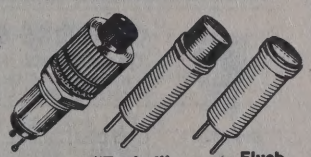
Model 406 is made of bright nickel plated brass and is also available with a black oxide finish (Indicated by BO suffix to type number). LED is installed forming a Macrodome lens. Panel hole, .244". **Model 407** is made from chrome plated brass and is supplied with turret type terminations. The LED is in a large dish shaped reflector to produce a much larger illuminated area. Panel hole is .244". **Model 440** is similar to model 407 except the diameter is larger, allowing for a larger reflected illumination, and is supplied with square leads for wire-wrapping. Panel hole is .335".

Stk. No.	Type	Color	Volts	mA	1-99	100-249	250-499	500-999
35F3717	LED-406R	Red	2.0	20	1.10	.99	.94	.88
23F5503	LED-406RBO	Red	2.0	20	1.20	1.08	1.02	.96
35F3718	LED-407R	Red	2.0	20	1.50	1.35	1.28	1.20
35F3719	LED-409R	Red	2.0	20	1.70	1.53	1.45	1.36
23F5500	LED-440R	Red	2.0	20	1.30	1.17	1.11	1.04
35D3720	LED-406G	Green	2.0	20	1.15	1.04	.98	.92
23F5504	LED-406GBO	Green	2.0	20	1.25	1.13	1.06	1.00
35F3721	LED-407G	Green	2.0	20	1.80	1.62	1.53	1.44
35F3722	LED-409G	Green	2.0	20	1.90	1.71	1.62	1.52
23F5501	LED-440G	Green	2.0	20	1.35	1.22	1.15	1.08
35F3723	LED-406Y	Yellow	2.0	20	1.20	1.08	1.02	.96
23F5505	LED-406YBO	Yellow	2.0	20	1.30	1.17	1.11	1.04
35F3724	LED-407Y	Yellow	2.0	20	2.65	2.39	2.25	2.12
35F3725	LED-409Y	Yellow	2.0	20	2.00	1.80	1.70	1.60
23F3502	LED-440Y	Yellow	2.0	20	1.40	1.26	1.19	1.12



190/191 SERIES CARTRIDGE LAMPS AND HOLDERS

- **Modular Design Concept**
- **All Lamps Fit Any Holder**
- **Five Different Lens Colors**
- **Two Different Holders**



INCANDESCENT CARTRIDGE 12-14V @ 80mA 30,000 HRS

Stock No.	Type	Stock No.	Type	Color	1-99	100-249	250-499
35F3726	CLF14-190R	35F3731	CLF14-191R	Red	1.45	1.31	1.23
35F3727	CLF14-190Y	35F3732	CLF14-191Y	Yellow			
35F3728	CLF14-190G	35F3733	CLF14-191G	Green			
35F3729	CLF14-190B	35F3734	CLF14-191B	Blue			
35F3730	CLF14-190W	35F3735	CLF14-191W	White			

INCANDESCENT CARTRIDGE 24-28V @ 40mA 15,000 HRS

35F3736	CLF28-190R	35F3741	CLF28-191R	Red	1.45	1.31	1.23
35F3737	CLF28-190Y	35F3742	CLF28-191Y	Yellow			
35F3738	CLF28-190G	35F3743	CLF28-191G	Green			
35F3739	CLF28-190B	35F3744	CLF28-191B	Blue			
35F3740	CLF28-190W	35F3745	CLF28-191W	White			

CARTRIDGE LAMP HOLDERS

Stock No.	Type	Body Color	10-90	100-490	500-990
35F3757	CLH-B	Black	2.26	2.03	1.92
35F3758	CLH-S	Silver	2.26	2.03	1.92

150/151 UNIVERSAL INDICATOR LIGHTS

Plastic bodies. For use when space is at a minimum.

PRICE CODE

	1-99	100-249	250-499	500-999
A	.76	.68	.65	.61
B	.88	.79	.75	.70
C	1.27	1.14	1.08	1.02
C1	.97	.87	.82	.78

Stk. No.	Square Type	Stk. No.	Round Type	Description	Price Code
23F5506	F150-06R	23F5515	F151-06R	6V, incan, Red	
23F5507	F150-06A	23F5516	F151-06A	6V, incan, Amber	
23F5508	F150-06G	23F5517	F151-06G	6V, incan, Green	
23F5509	F150-12R	23F5518	F151-12R	12V, incan, Red	
23F5511	F150-12G	23F5520	F151-12G	12V, incan, Green	A
23F5512	F150-24R	23F5521	F151-24R	24V, incan, Red	
23F5513	F150-24A	23F5522	F151-24A	24V, incan, Amber	
23F5514	F150-24G	23F5523	F151-24G	24V, incan, Green	
23F5524	NR150-115R	23F5527	NR150-115R	115V, neon, Red	
23F5525	NR150-115A	23F5528	NR150-115A	115V, neon, Amber	B
23F5526	NR150-115C	23F5529	NR150-115C	115V, neon, Clear	
23F5532	LI50-06Y	23F5541	LI51-06Y	6V, LED, Yellow	C
23F5533	LI50-12R	23F5542	LI51-12R	12V, LED, Red	C1
23F5534	LI50-12G	23F5543	LI51-12G	12V, LED, Green	C
23F5535	LI50-12Y	23F5544	LI51-12Y	12V, LED, Yellow	C
23F5536	LI50-24R	23F5545	LI51-24R	24V, LED, Red	C1
23F5537	LI50-24G	23F5546	LI51-24G	24V, LED, Green	C
23F5538	LI50-24Y	23F5547	LI51-24Y	24V, LED, Yellow	C

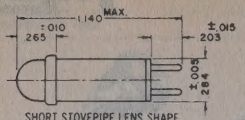


Fig. 7 STOVEPIPE

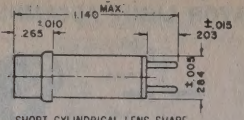
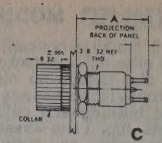


Fig. 1 CYLINDRICAL



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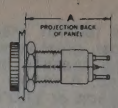


G

SOLID-STATE CARTRIDGES

Light source is a solid state lamp that provides the advantages of low power with extremely long life and is compatible with integrated circuits (can be driven directly by RTL, DTL, and TTL logic). May be used as direct replacements for existing cartridges using an incandescent lamp operating from a DC power source. An internal fresnel ring pattern in its lens design assures maximum distribution of the light output. Cartridge is supplied in a black anodized finish which produces a high contrast ratio. To facilitate proper installation of the cartridge, the polarity is marked (+) on the cartridge housing and the terminal base is keyed.

SHORT CYLINDRICAL 3.6V DC (FIG. 1)

Stk. No.	Type	Lens	Each 5	Each 10-20	Each 25-95
25F1429	507-4756-3331-500	Red	3.18	2.67	2.28
25F1461	507-4856-3332-500	Green	3.51	2.94	2.50
25F1462	507-4956-3333-500	Yellow	3.51	2.94	2.50

SHORT STOVEPIPE 3.6V DC (FIG. 7)

25F1423	507-4756-3731-500	Red	3.18	2.67	2.28
25F1473	507-4856-3732-500	Green	3.51	2.94	2.50
25F1474	507-4956-3733-500	Yellow	3.51	2.94	2.50

SHORT CYLINDRICAL 5V DC (FIG. 1)

25F1430	507-4757-3331-500	Red	3.18	2.67	2.28
25F1463	507-4857-3332-500	Green	3.51	2.94	2.50
25F1464	507-4957-3333-500	Yellow	3.51	2.94	2.50

SHORT STOVEPIPE 5V DC (FIG. 7)

25F1424	507-4757-3731-500	Red	3.18	2.67	2.28
25F1475	507-4857-3732-500	Green	3.51	2.94	2.50
25F1476	507-4957-3733-500	Yellow	3.51	2.94	2.50

SHORT CYLINDRICAL 6V DC (FIG. 1)

25F1431	507-4758-3331-500	Red	3.18	2.67	2.28
25F1465	507-4858-3332-500	Green	3.51	2.94	2.50
25F1466	507-4958-3333-500	Yellow	3.51	2.94	2.50

SHORT STOVEPIPE 6V DC (FIG. 7)

25F1425	507-4758-3731-500	Red	3.18	2.67	2.28
25F1477	507-4858-3732-500	Green	3.51	2.94	2.50
25F1478	507-4958-3733-500	Yellow	3.51	2.94	2.50

SHORT CYLINDRICAL 10V DC (FIG. 1)

Stk. No.	Type	Lens	Each 5	Each 10-20	Each 25-95
25F1432	507-4759-3331-500	Red	3.18	2.67	2.28
25F1467	507-4859-3332-500	Green	3.51	2.94	2.50
25F1468	507-4959-3333-500	Yellow	3.51	2.94	2.50

SHORT STOVEPIPE 10V DC (FIG. 7)

25F1426	507-4759-3731-500	Red	3.18	2.67	2.28
25F1479	507-4859-3732-500	Green	3.51	2.94	2.50
25F1480	507-4959-3733-500	Yellow	3.51	2.94	2.50

SHORT CYLINDRICAL 14V DC (FIG. 1)

25F1433	507-4760-3331-500	Red	3.18	2.67	2.28
25F1469	507-4860-3332-500	Green	3.51	2.94	2.50
25F1470	507-4960-3333-500	Yellow	3.51	2.94	2.50

SHORT STOVEPIPE 14V DC (FIG. 7)

25F1427	507-4760-3731-500	Red	3.18	2.67	2.28
25F1481	507-4860-3732-500	Green	3.51	2.94	2.50
25F1482	507-4960-3733-500	Yellow	3.51	2.94	2.50

SHORT CYLINDRICAL 28V DC (FIG. 1)

25F1434	507-4761-3331-500	Red	3.51	2.94	2.51
25F1471	507-4861-3332-500	Green	3.86	3.23	2.80
25F1472	507-4961-3333-500	Yellow	3.86	3.23	2.80

SHORT STOVEPIPE 28V DC (FIG. 7)

25F1428	507-4761-3731-500	Red	3.51	2.94	2.51
25F1483	507-4861-3732-500	Green	3.86	3.23	2.80
25F1484	507-4961-3733-500	Yellow	3.86	3.23	2.80

DATALAMP HOLDERS

Datalamp Holder is available with or without screw-on collar. The use of either is dependent on the desired front-of-panel appearance. The standard black anodized flange nut and collar produce the desired maximum contrast. In addition, the terminals of the holder are marked "A" and "B." The "A" terminal would denote positive (+) polarity. This feature insures proper installation and wiring.

CHART

DATA-LAMP HOLDER	Accommodate Cartridge Figure Numbers	Turret Terminals	Solder Cup Terminals	Dim. A Max.
C	1, 2, 3, 7	508-8738-504	508-7538-504	57/64
G	1, 2, 3, 7	250-8738-14-504	250-7538-14-504	1 1/32
C	4, 5	508-8745-504	508-7545-504	63/64
G	4, 5	250-8745-14-504	250-7545-14-504	1 1/8
G	6	250-8758-33-504	250-7558-33-504	1 21/32

TURRET TERMINALS

Stk. No.	Type	Description	Each 5	Each 10-20	Each 25-95
25F1291	508-8738-504	With Collar	3.45	2.75	2.32
25F1485	250-8738-14-504	Without Collar	3.07	2.42	2.06
25F1292	508-8745-504	With Collar	3.45	2.75	2.32
25F1486	250-8745-14-504	Without Collar	3.07	2.42	2.06
28F1801	250-8758-33-504	Without Collar	3.51	2.76	2.37

SOLDER CUP TERMINALS

25F1167	508-7538-504	With Collar	3.45	2.75	2.32
25F1487	250-7538-14-504	Without Collar	3.07	2.42	2.06
25F1209	508-7545-504	With Collar	3.45	2.75	2.32
25F1489	250-7545-14-504	Without Collar	3.07	2.42	2.06
28F1802	250-7558-33-504	Without Collar	3.51	2.76	2.37

CAPS FOR ABOVE HOLDERS (WITHOUT COLLARS)

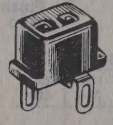
Stk. No.	Type	Color	Each 5	Each 10-20	Each 25-95	Each 100-245
TRANSLUCENT						
67F5901	250-1471-500	Red				
67F5902	250-1472-500	Green				
28F1804	250-1473-500	Amber	1.18	.92	.79	.69
67F5904	250-1475-500	White				
TRANSPARENT						
25F1523	250-3331-500	Red				
28F1805	250-3332-500	Green				
28F1806	250-3333-500	Amber	1.18	.92	.79	.69
28F1807	250-3335-500	White				

515-0074

CARTRIDGE CONNECTORS

Type 515-0050. Molded phenolic; solder lug terminals are of beryllium copper, cadmium plated, with elongated slots.

Stk. No.	Type	Each 5	Each 10-20	Each 25-95	100-245
28F1803	515-0074				
25F1251	515-0050	.52	.43	.39	.33



515-0050

Type 515-0012. Sleeve of aluminum with black anodized finish. Insulation of black molded phenolic. Solder cup terminals of phosphor bronze, gold plated.

Stk. No.	Type	Each 5	Each 10-20	Each 25-95	100-245
25F1252	515-0012	1.72	1.32	1.07	.86

SPRING CLIP

Effective when conventional mounting is not practical. For all Dialight Plug-in Neon, incandescent and solid-state lamps. Cartridges. Self-retaining. Of tubular heat treated spring steel.

Stk. No.	Type	Each 5	Each 10-20	Each 25-95	Each 100-245
25F1253	515-0051	.29	.23	.21	.10

Note: CARTRIDGES ON THIS PAGE ONLY AVAILABLE IN MULTIPLES OF 5.

15

Datalamp Cartridges

DIALIGHT

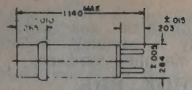


Fig. 1 SHORT CYLINDRICAL LENS

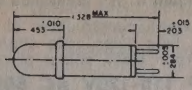


Fig. 2 STOVEPIPE LENS

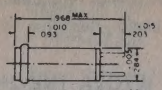


Fig. 3 FLAT LENS

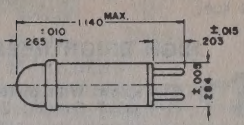


Fig. 7 SHORT STOVEPIPE LENS

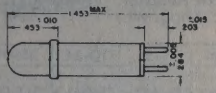


Fig. 4 STOVEPIPE LENS

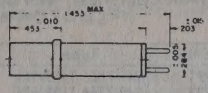


Fig. 5 LONG CYLINDRICAL LENS

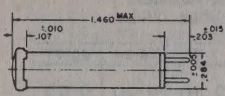


Fig. 6 PLANO CONVEX LENS

NEON CARTRIDGES

Neons offered with the lower resistor value gives the best indication, with a minimum life of 5000 hours, while the higher value results in long life, where 25000 hours or more is required. The high brightness types offer relatively constant light output through life, and five times the brightness of the standard neon, they should be used in all cases where the circuit voltage is adequate.

STANDARD BRIGHTNESS 105-125V AC OR DC (FIG. 4)

Stock No.	Type	Lamp	Built-In Res.	Lens Color	Each 5	Each 10-20
25F1180	507-4537-0931-640	A1B	56K	Red	3.28	2.56
25F1181	507-4537-0933-640	A1B	56K	Amber		
25F1182	507-4537-0935-640	A1B	56K	White		
25F1184	507-4537-0937-640	A1B	56K	Clear		
HIGH BRIGHTNESS 110-125V AC (FIG. 4)						
25F1190	507-4538-0931-610	A1C	22K	Red	3.28	2.56
25F1191	507-4538-0933-610	A1C	22K	Amber		
25F1192	507-4538-0935-610	A1C	22K	White		
25F1194	507-4538-0937-610	A1C	22K	Clear		

STANDARD BRIGHTNESS 105-125V AC OR DC (FIG. 5)

Stock No.	Type	Lamp	Built-In Res.	Lens Color	Each 5	Each 10-20
25F1185	507-4537-1531-640	A1B	56K	Red	3.28	2.56
25F1186	507-4537-1533-640	A1B	56K	Amber		
25F1187	507-4537-1535-640	A1B	56K	White		
25F1189	507-4537-1537-640	A1B	56K	Clear		
HIGH BRIGHTNESS 110-125V AC (FIG. 4)						
25F1195	507-4538-1531-610	A1C	22K	Red	3.28	2.56
25F1196	507-4538-1533-610	A1C	22K	Amber		
25F1197	507-4538-1535-610	A1C	22K	White		
25F1199	507-4538-1537-610	A1C	22K	Clear		

INCANDESCENT LAMP CARTRIDGES

Ratings of incandescent lamps in amperes are purely nominal and the values shown are subject to ±7% to ±10% tolerances. Quality control in lamp manufacture aims at producing lamps that will deliver rated hours at rated volts. Operation of lamps at nominal amperes will produce unsatisfactory life performance. It is undesireable to operate lamps from circuit voltages much higher than ratings by means of dropping resistors. Maximum power that may be put in is 2 to 3 watts.

TRANSLUCENT 6V, 0.2 Amp. (FIG. 1)

Stock No.	Type	C.P.	Hours	Lens Color	EACH 5	EACH 10-20
25F1128	507-3906-1471-600	.60	1,000	Red	2.40	2.14
25F1129	507-3906-1472-600	.60	1,000	Green		
25F1130	507-3906-1473-600	.60	1,000	Amber		
25F1132	507-3906-1475-600	.60	1,000	White		
TRANSLUCENT 6.3V, 0.2 Amp. (FIG. 2)						
25F1239	507-3909-0971-600	.40	20,000	Red	2.62	2.29
25F1240	507-3909-0972-600	.40	20,000	Green		
25F1241	507-3909-0973-600	.40	20,000	Amber		
25F1243	507-3909-0975-600	.40	20,000	White		
TRANSPARENT 10V, .014 Amp. (FIG. 1)						
45F500	507-3910-1431-600	.004	50,000	Red	2.62	2.29
45F501	507-3910-1432-600	.004	50,000	Green		
45F502	507-3910-1433-600	.004	50,000	Amber		
TRANSPARENT 10V, .040 Amp. (FIG. 1)						
25F1172	507-3911-1431-600	.08	10,000	Red	2.33	2.08
25F1173	507-3911-1432-600	.08	10,000	Green		
25F1174	507-3911-1433-600	.08	10,000	Amber		
25F1175	507-3911-1435-600	.08	10,000	White		
TRANSLUCENT 14V, 0.08 Amp. (FIG. 1)						
25F1134	507-3913-1471-600	.50	1,500	Red	2.40	2.14
25F1135	507-3913-1472-600	.50	1,500	Green		
25F1136	507-3913-1473-600	.50	1,500	Amber		
25F1138	507-3913-1475-600	.50	1,500	White		
TRANSLUCENT 14V, 0.08 Amp. (FIG. 2)						
25F1245	507-3914-0971-600	.30	15,000	Red	2.33	2.08
25F1246	507-3914-0972-600	.30	15,000	Green		
25F1247	507-3914-0973-600	.30	15,000	Amber		
25F1249	507-3914-0975-600	.30	15,000	White		
TRANSLUCENT 14V, .080 Amp. (FIG. 1)						
25F1168	507-3914-1471-600	.30	15,000	Red	2.33	2.08
25F1169	507-3914-1472-600	.30	15,000	Green		
25F1170	507-3914-1473-600	.30	15,000	Amber		
25F1171	507-3914-1475-600	.30	15,000	White		

TRANSLUCENT 28V, 0.04 Amp. (FIG. 3)

Stock No.	Type	C.P.	Hours	Lens Color	Each 5	Each 10-20
25F1093	507-3917-0371-600	.34	4,000	Red	2.33	2.08
25F1094	507-3917-0372-600	.34	4,000	Green		
25F1095	507-3917-0373-600	.34	4,000	Amber		
25F1096	507-3917-0375-600	.34	4,000	White		

TRANSLUCENT 28V, 0.04 Amp. (FIG. 2)

25F1122	507-3917-0971-600	.34	4,000	Red	2.33	2.08
25F1123	507-3917-0972-600	.34	4,000	Green		
25F1124	507-3917-0973-600	.34	4,000	Amber		
25F1126	507-3917-0975-600	.34	4,000	White		

TRANSLUCENT 28V, 0.04 Amp. (FIG. 1)

25F1140	507-3917-1471-600	.34	4,000	Red	2.33	2.08
25F1141	507-3917-1472-600	.34	4,000	Green		
25F1142	507-3917-1473-600	.34	4,000	Amber		
25F1144	507-3917-1475-600	.34	4,000	White		

TRANSPARENT 28V, 0.04 Amp. (FIG. 1)

28F1808	507-3917-1431-600	.34	4,000	Red	2.33	2.08
28F1809	507-3917-1432-600	.34	4,000	Green		
28F1810	507-3917-1433-600	.34	4,000	Amber		
28F1811	507-3917-1435-600	.34	4,000	White		

TRANSPARENT 28V, 0.04 Amp. (FIG. 1)

28F1812	507-3918-1431-600	.30	7,000	Red	2.33	2.08
28F1813	507-3918-1432-600	.30	7,000	Green		
28F1814	507-3918-1433-600	.30	7,000	Amber		
28F1815	507-3918-1435-600	.30	7,000	White		

TRANSLUCENT 28V, .040 Amp. (FIG. 1)

25F1176	507-3918-1471-600	.30	7,000	Red	2.33	2.08
25F1177	507-3918-1472-600	.30	7,000	Green		
25F1178	507-3918-1473-600	.30	7,000	Amber		
25F1179	507-3918-1475-600	.30	7,000	White		

INCANDESCENT CARTRIDGES 6V to 120V (FIG. 6)

Stock No.	Type Clear	Volts	CP	Hours	5	10-20	25-95	100-245
60F1228	507-5819-0747-600	6	0.7	5000	3.76	3.01	2.56	2.15
60F1229	507-5820-0747-600	12	2.1	5000				
60F1230	507-5821-0747-600	28	1.2	5000				
60F1231	507-5822-0747-600	48	1.5	5000				
60F1232	507-5823-0747-600	60	2.2	5000	3.93	3.56	3.22	2.95
60F1233	507-5824-0747-600	120	1.5	5000	3.76	3.01	2.56	2.24

Note: DATALAMPS Sold Only In Multiples Of 5

DIALIGHT Ultra-Miniature Lights

DATALITES WITH PERMANENT NEON LAMPS
Lamps are built-in—not replaceable. Units mount in 3/8" clearance hole.

Built-in; a rugged, long-life T-2 Neon Glow Lamp. Resistors to Mil-R-11 spec.

Lightweight construction of aluminum, black anodized finish. Plastic lens gives wide angle visibility. 2 insulated terminals of low carbon steel, solder plated. With mounting hardware.

HIGH BRIGHTNESS UNIT W/C2A (NE-2H) LAMP 110-125V AC 5000 APPROX. HRS.

Conform to military specifications (Mil-L-3661)

Stovepipe: With Built-in 22K Resistor.
(125/64x1/2" Overall: 2 Oz. Shpg. Wt.)

Stock No.	Type	Lens	1-9	10-24	25-99
20F887	249-7866-0931-514	Red	3.40	2.89	2.52
20F888	249-7866-0933-514	Amber			
20F889	249-7866-0935-514	White			
20F890	249-7866-0937-514	Clear			

Short Cylindrical; With Built-in 22K Resistor.
(125/64x1/2" Overall; 2 Oz. Shpg. Wt.)

Stock No.	Type	Lens	1-9	10-24	25-99
20F891	249-7866-1431-514	Red	3.40	2.89	2.52
20F892	249-7866-1433-514	Amber			
20F893	249-7866-1435-514	White			
20F894	249-7866-1437-514	Clear			

STANDARD BRIGHTNESS UNIT W/A9A (NE-2E) LAMP 105-125V DC 25000 APPROX. HRS.

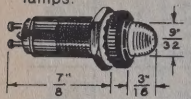
With Built-in 100-K Resistor
(125/64x1/2" Overall; 2 oz. Shpg. Wt.)

Stock No.	Type	Lens	1-9	10-24	25-99
25F1151	249-7841-0931-574	Red	3.40	2.89	2.52
25F1152	249-7841-0933-574	Amber			
25F1153	249-7841-0935-574	White			
25F1155	249-7841-0937-574	Clear			

With Built-in 100-K Resistor
125/64x1/2" Overall; 2 oz. Shpg. Wt.

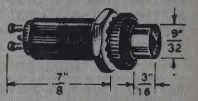
Stock No.	Type	Lens	1-9	10-24	25-99
25F1161	249-7841-1431-574	Red	3.40	2.89	2.52
25F1162	249-7841-1433-574	Amber			
25F1163	249-7841-1435-574	White			
25F1165	249-7841-1437-574	Clear			

GREEN or BLUE LENSES are not recommended for use with Neon lamps.



SOLID STATE DIODE-LITES

Complete package-light source, housing, and lens. Ready for permanent, panel mounting. Light source is a solid state lamp that provides the advantages of low power with extremely long life and is compatible with integrated circuits.



Stovepipe

SHORT CYLINDRICAL 3.6V DC

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1459	249-7867-3331-504	Red	4.16	3.49	3.00
25F1543	249-7967-3332-504	Green	4.57	3.82	3.30
25F1545	249-8067-3333-504	Yellow	4.57	3.82	3.30

SHORT STOVEPIPE 3.6V DC

25F1456	249-7867-3731-504	Red	4.16	3.49	3.00
25F1537	249-7967-3732-504	Green	4.16	3.82	3.30
25F1538	249-8067-3733-504	Yellow	4.16	3.82	3.30

SHORT CYLINDRICAL 5V DC

25F1435	249-7868-3331-504	Red	4.16	34.9	3.00
25F1546	249-7968-3332-504	Green	4.57	3.82	3.30
25F1547	249-8068-3333-504	Yellow	4.57	3.82	3.30

SHORT STOVEPIPE 5V DC

25F1437	249-7868-3731-504	Red	4.16	3.49	3.00
25F1539	249-7968-3732-504	Green	4.57	3.82	3.30
25F1540	249-8068-3733-504	Yellow	4.57	3.82	33.0

SHORT CYLINDRICAL 6V DC

25F1458	249-7869-3331-504	Red	4.16	3.49	3.00
25F1548	249-7969-3332-504	Green	4.57	3.82	3.30
25F1549	249-8069-3333-504	Yellow	4.57	3.82	3.30

SHORT STOVEPIPE 6V DC

25F1448	249-7869-3731-504	Red	4.16	3.49	3.00
25F1541	249-7969-3732-504	Green	4.57	3.82	3.30
25F1542	249-8069-3733-504	Yellow	4.57	3.82	3.30

Cylindrical

SHORT CYLINDRICAL 10V DC

Stk. No.	Type	Lens	1-9	10-24	25-99
25F1454	249-7870-3331-504	Red	4.16	3.49	3.00
25F1531	249-7970-3332-504	Green	4.57	3.82	3.30
25F1532	249-8070-3333-504	Yellow	4.57	3.82	3.30

SHORT STOVEPIPE 10V DC

25F1449	249-7870-3731-504	Red	4.16	3.49	3.00
25F1525	249-7970-3732-504	Green	4.57	3.82	3.30
25F1526	249-8070-3733-504	Yellow	4.57	3.82	3.30

SHORT CYLINDRICAL 14V DC

25F1455	249-7871-3331-504	Red	4.16	3.49	3.00
25F1533	249-7971-3332-504	Green	4.57	3.82	3.30
25F1534	249-8071-3333-504	Yellow	4.57	3.82	3.30

SHORT STOVEPIPE 14V DC

25F1450	249-7871-3731-504	Red	4.16	3.49	3.00
25F1527	249-7971-3732-504	Green	4.57	3.82	3.30
25F1528	249-8071-3733-504	Yellow	4.57	3.82	3.30

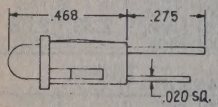
SHORT CYLINDRICAL 28V DC

25F1436	249-7872-3331-504	Red	4.50	3.78	3.27
25F1535	249-7972-3332-504	Green	4.95	4.16	3.57
25F1536	249-8072-3333-504	Yellow	4.95	4.16	3.57

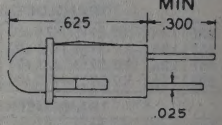
SHORT STOVEPIPE 28V DC

25F1438	249-7872-3731-504	Red	4.50	3.78	3.27
25F1529	249-7972-3732-504	Green	4.95	4.16	3.57
25F1530	249-8072-3733-504	Yellow	4.95	4.16	3.57

558 & 559 SERIES SNAP-IN LED INDICATORS



Snap-in mounting requires no additional hardware, 558 Series mounts in .156" hole. 559 Series mounts in .250" hole. Compact design allows high density packaging. Straight terminals suitable for wire-wrapping and/or soldering, or 6" wire leads, Black housing enhances contrast ratio. Polarity identified. High brightness LEDs. Wide angle visibility. Low power requirements: 15-20 mA. IC compatible. Vibration and shock resistant.



558 SERIES
REQUIRES EXTERNAL RESISTOR

Stk. No.	Type	LED Color	Description	1-9	10-99	100-499
25F1490	558-0101-001	Red	Straight Terminals	.79	.63	.42
25F1491	558-0201-001	Green	Straight Terminals	1.16	1.00	.79
25F1492	558-0301-001	Yellow	Straight Terminals	1.16	1.00	.79
25F1493	558-0101-003	Red	Wire Leads	1.19	1.03	.88
25F1494	558-0201-003	Green	Wire Leads	1.56	1.35	1.17
25F1495	558-0301-003	Yellow	Wire Leads	1.56	1.35	1.17

WITH INTEGAL RESISTOR (5V, 15mA TYPICAL)

25F1496	558-0102-001	Red	Straight Terminals	1.05	.89	.68
25F1497	558-0202-001	Green	Straight Terminals	1.47	1.31	1.00
25F1498	558-0302-001	Yellow	Straight Terminals	1.47	1.31	1.00
25F1499	558-0102-003	Red	Wire Leads	1.54	1.33	1.14
25F1500	558-0202-003	Green	Wire Leads	1.92	1.66	1.43
25F1501	558-0302-003	Yellow	Wire Leads	1.92	1.66	1.43

559 SERIES
REQUIRES EXTERNAL RESISTOR

Stk. No.	Type	LED Color	Description	1-9	10-99	100-499
25F1502	559-0101-001	Red	Straight Terminals	.79	.63	.42
25F1503	559-0201-001	Green	Straight Terminals	1.16	1.00	.79
25F1505	559-0301-001	Yellow	Straight Terminals	1.16	1.00	.79
25F1506	559-0101-003	Red	Wire Leads	1.19	1.03	.88
25F1508	559-0201-003	Green	Wire Leads	1.56	1.35	1.17
25F1516	559-0301-003	Yellow	Wire Leads	1.56	1.35	1.17

WITH INTEGRAL RESISTOR (5V, 15mA TYPICAL)

25F1517	559-0102-001	Red	Straight Terminals	1.05	.63	.42
25F1518	559-0202-001	Green	Straight Terminals	1.47	1.00	.79
25F1519	559-0302-001	Yellow	Straight Terminals	1.47	1.00	.79
25F1520	559-0102-003	Red	Wire Leads	1.54	1.03	.88
25F1521	559-0202-003	Green	Wire Leads	1.92	1.35	1.17
25F1522	559-0302-003	Yellow	Wire Leads	1.92	1.35	1.17
81F5731	559-3001-001	Red/Green	Straight Terminals	1.90	1.79	1.27
81F5732	559-3001-003	Red/Green	Wire Leads	2.29	2.08	1.48

15

Miniature Indicator Lights

DIALIGHT

Screw Terminal

Solder Terminal

11/16" MOUNTING HOLE
SERIES-95 HOLDERS 11/16" MTG. CLEARANCE HOLE
T3¼ Neon Lamps

STANDARD BRIGHTNESS

Meet MIL-L-3661. Use B1A (NE-51) neon lamp. Has built-in 56-K resistor. For use on 105-125VAC or VDC. 2 1/16" long, mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F549	95-0408-09-241	Black Nickel	Solder	2.92	2.35	2.05	1.90
45F547	95-1308-09-241	Black Nickel	Screw	3.15	2.53	2.24	2.03
45F488	95-0408-09-341	Polished Chrome	Solder	2.92	2.35	2.05	1.90
57F3727	95-1308-09-341	Polished Chrome	Screw	3.15	2.53	2.24	2.03

HI-BRIGHTNESS

Meet MIL-L-3661. Use B2A (NE-51H) neon lamp. Has built-in 22-K resistor. For use on 110-125VAC. 2 1/16" long, mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F548	95-0463-09-211	Black Nickel	Solder	2.92	2.35	2.05	1.90
45F550	95-1363-09-211	Black Nickel	Screw	3.15	2.53	2.24	2.03
45F489	95-0463-09-311	Polished Chrome	Solder	2.92	2.35	2.05	1.90
57F3731	95-1363-09-311	Polished Chrome	Screw	3.15	2.53	2.24	2.03

Meets MIL-L-3661. Use B2A (NE-51H) neon lamp. Has built-in 68-K resistor. For use on 210-250VAC or VDC.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F551	95-9463-09-361	Polished Chrome	Solder	2.92	2.35	2.05	1.90
45F552	95-9363-09-361	Polished Chrome	Screw	3.15	2.53	2.24	2.03

COMMERCIAL TYPE NEONS

Not MIL. Use B2A (NE-51H) neon lamp. Phenolic body, 2 1/16" long, mounts in 11/16" clearance hole. *Has built-in 56-K resistor, for use on 105-125VAC or VDC ACC. B1A (NE-51) lamp. (†) Has built-in 22-K resistor, for use on 110-120VAC. ACCOM. B2A (NE-51H) lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F555	95-9108-09-142*	White Nickel	Solder	2.25	1.90	1.64	1.47
45F556	95-9163-09-112†	White Nickel	Solder	2.25	1.90	1.64	1.47

T-3¼ INCANDESCENT LAMPS
11/16" MTG. CLEARANCE HOLE ENCLOSED INDICATOR

Meet MIL-L-3661. Use T-3¼ incandescent lamp with miniature bayonet base, 2-55 volts. 2 1/16" long, mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term.	1-9	10-24	25-99	100-249
45F553	95-0410-09-201	Black Nickel	Solder	2.28	1.94	1.75	1.56
45F554	95-1310-09-201	Black Nickel	Screw	2.45	2.13	1.83	1.68
57F3723	95-0410-09-301	Polished Chrome	Solder	2.28	1.94	1.75	1.56
57F3729	95-1310-09-301	Polished Chrome	Screw	2.45	2.13	1.83	1.68

COMMERCIAL TYPE INCANDESCENT

Not MIL. No resistor, for use on 2-55 VAC. Use T-3¼ incandescent lamp. Phenolic body, 2 1/16" long, mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Finish	Term	1-9	10-24	25-99	100-249
45F557	95-9110-09-102	White Nickel	Solder	1.86	1.64	1.41	1.25

LENS FOR ABOVE HOLDERS

TRANSPARENT

Stove Pipe (Internally Fluted)

Stove Pipe (Smooth Face)

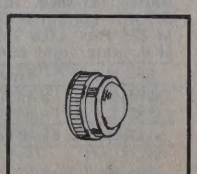
(*) Not Recommended for Use with Neon Lamps

Short Stovepipe Fluted		Lens	Short Stovepipe Plan	
Stock No.	Type No.	Color	Stock No.	Type No.
25F334	52-0991	Red	**25F446**	95-0931
25F335	52-0992	Green*	**25F465**	95-0932
25F336	52-0993	Amber	**25F467**	95-0933
25F337	52-0994	Blue*	**25F474**	95-0934
25F338	52-0997	Clear	**25F468**	95-0937
25F339	52-0995	White	**25F469**	95-0935

1-9	10-24	25-99	100-249
.51	.42	.38	.31

Cylindrical		Lens
Stock No.	Type No.	Color
45F560	135-1431	Red
45F561	135-1432	Green*
45F562	135-1433	Amber
45F563	135-1434	Blue*
45F564	135-1437	Clear
45F565	135-1435	White

1-9	10-24	25-99	100-249
.51	.42	.38	.31



Screw Terminal

Solder Terminal

Type 81 Convex

Type 81 Faceted

SERIES 81-HOLDERS

11/16" MTG. CLEARANCE HOLE ENCLOSED INDICATOR

Uses T-3¼ incandescent lamp. Has no resistor. Rated: from 2 to 120 VAC or VDC. Meets Mil. specs., mounts in 11/16" hole in panels up to 3/8" thick. Does not include lamp or lens.

Stk. No.	Base Type No.	Terminal	Finish	1-9	10-24	25-99
45F528	81-0410-01-201	Solder	Blk. Nickel	2.42	2.06	1.78
57F3712	81-0410-01-102	Solder	Wht. Nickel	1.94	1.68	1.47
57F3713	81-0410-01-301	Solder	Chrome	2.42	2.06	1.78
57F3719	81-1310-01-301	Screw	Chrome	2.64	2.14	1.85
45F530	81-9110-01-102*	Solder	Wht. Nickel	1.94	1.74	1.52

*Commercial Type

SERIES 81—LENS ASSEMBLIES

Screws in lenses. Convex lenses back frosted except (*) Unfrosted.Faceted lenses are unfrosted.

POLISHED CHROME FINISH

CONVEX LENS		FACETED LENS		Lens
Stk. No.	Type No.	Stk. No.	Type No.	Color
25F1029	81-0111-300	**25F1036**	81-0431-300	Red
25F1030	81-0112-300	**25F1037**	81-0432-300	Green
25F1031	81-0113-300	**25F1038**	81-0433-300	Amber
25F1033	81-0135-300*	**25F1040**	81-0435-300	White
25F1035	81-0117-300	**25F1042**	81-0437-300	Clear

	1-9	10-24	25-99	100-249
Prices	1.05	.93	.78	.71

WHITE NICKEL FINISH†

CONVEX LENS		FACETED LENS		Lens
Stk. No.	Type No.	Stk. No.	Type No.	Color
25F1555	81-0111-100	**25F1562**	81-2131-100	Red
25F1556	81-0112-100	**25F1563**	81-2132-100	Green
25F1557	81-0113-100	**25F1564**	81-2133-100	Amber
25F1559	81-0135-100*	**25F1566**	81-2135-100	White
.....	.....	**25F1568**	81-2137-100	Clear

	1-9	10-24	25-99	100-249
Convex	.87	.78	.69	.60
Faceted	.87	.78	.69	.60

†For Black Nickel Lens Holder Change Suffix to 200

LIGHT SHIELD INDICATOR

Screw Terminal

Solder Terminal

Cap

Uses T-3¼ incandescent lamp with miniature Bayonet Base. Rated 2 to 55 VAC or VDC. Mounts in 11/16" hole. Light shield cap has 1/2" × 1/2" opening. Polished Crome finish.

Stk. No.	Base Assembly Type	Terminal	1-9	10-24	25-99	100-249
65F1070	21-0410-29-301	Solder	2.58	2.20	1.94	1.73
65F1071	21-1310-29-301	Screw	2.85	2.38	2.10	1.91

LIGHT SHIELD CAP

Stk. No.	Type				
65F1072	21-2900-300	2.29	2.02	1.76	1.61

PILOT BULB REMOVER

Type 506-0045. Molded of rubber. Has two hollow ends which stretch over and engage lamps tightly. One end for T-3¼ type bulbs; the other for T-4½ type bulbs. Core of solid rubber provides needed rigidity for sure grip. Wt., 4 oz.

Stock No.	Type No.	1-9	10-24	25-99	100-249
25F1544	506-0045	.86	.76	.69	.58

Type 506-0073. Molded rubber. One end for T-3¼ types. Other for S6 candelabra screw base bulbs.

Stock No.	Type	1-9	10-24	25-99	100-249
25F480	506-0073	.81	.58	.48	.41

15

Sub-Miniature Indicator Lights

INCANDESCENT 15/32" THRU 17/32" MOUNTING HOLE INCANDESCENT

INDICATOR LIGHTS—TWO TERMINAL—FULLY INSULATED

Front Mounting

Stovepipe Lens

Front or Back Mounting

Cylindrical Lens

Meet MIL requirements. Phenolic insulated. Lens cap assembly unscrews from front of panel for easy replacement of lamp. Two terminals (soldering) provided for electrical connections. Anti-rotation (locked) construction provides secure locking of socket terminal assembly and center terminal. Stovepipe and cylindrical lenses molded of high heat plastic. Light source T-1¾ midget flange base lamp; voltage range: 1.35 to 28. Order holder and lens separately to obtain necessary parts for self-assembly of complete unit. Less lamp.

HOLDERS Front mounting.

Stk. No.	Type	Clear. Hole	1-9	10-24	25-99	100-249
25F1615	101-5030-09-201	15/32"	2.83	2.21	1.84	1.58
65F1074	101-8430-09-201	15/32"	3.36	2.61	2.20	1.89

Front or back mounting in 15/32" clearance hole.

Stk. No.	Type	1-9	10-24	25-99	100-249
25F1228	101-3830-09-201	2.83	2.21	1.84	1.58

STOVEPIPE LENS CAP

Color	TRANSLUCENT Stk. No.	TRANSLUCENT Mfg. No.	TRANSPARENT Stk. No.	TRANSPARENT Mfg. No.
Red	25F1269	101-0971	25F1588	101-0931
Green	25F1270	101-0972	25F1589	101-0932
Amber	25F1271	101-0973	25F1590	101-0933
White	25F1273	101-0975	25F1592	101-0935

Prices	1-9	10-24	25-99	100-249
	.74	.57	.47	.39

FLAT CYLINDRICAL LENS CAPS

Red	25F1616	140-1471	25F1622	140-1431
Green	25F1617	140-1472	25F1623	140-1432
Amber	25F1618	140-1473	25F1624	140-1433
White	25F1620	140-1475	25F1626	140-1435

Prices	1-9	10-24	25-99	100-249
	.74	.57	.47	.39

TWO TERMINAL-MS 25256

Uses T-1¾ incandescent lamps of 1.35 to 28 v. Front panel mounting in 15/32" clearance hole. Shipping weight, 1½ oz. less lamp.

Stock No.	Color	Type No.	Mil. Std. Dwg. No.	1-9	10-24	25-99
25F1203	Yel.	162-8430-0933-502	MS25256-2	3.38	2.69	2.27
25F1204	Green	162-8430-0932-502	MS25256-4			
25F1205	Red	162-8430-0931-502	MS25256-6			
25F1206	Clear	162-8430-0937-502	MS25256-8			
25F1207	White	162-8430-0975-502	MS25256-10			
25F1208	Blue	162-8430-0934-502	MS25256-12			

NEON

C7A (NE-2D) NEON SUB-MINIATURES MS25257

Uses T-2 Neon Glow Lamp. 62K Resistor is built in for use on 105-125 volts AC or DC. Stovepipe lens is plastic with 180° lens spread. Mounting bushing is aluminum with black anodize finish. Steel internal tooth lock-washer and hex mounting nut are cadmium plated and coated with iridite. Terminals are brass, hot-tinned, with elongated slots. Less lamp. Size 1½x⅝". Shpg. wt. 2 oz. Front mounting in 15/32" clearance hole.

Stock No.	Type No.	Mil. Std. Dwg. No.	Color	1-9	10-24	25-99
25F1200	137-8836-0933-552	MS25257-2	Yel.	5.68	4.45	3.74
25F1201	137-8836-0931-552	MS25257-4	Red			
25F1202	137-8836-0937-552	MS25257-6	Clear			

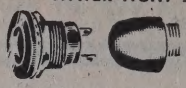
Series 137-8864 Holders. For bright light when used with (C9A-NE-2J) lamp, built-in 22K Res. on 110-125 VAC (†) 33K Res. for long life. Black anodize finish, aluminum bushing, steel hardware. Less lamp. Base assembly.

Stk. No.	Type No.	1-9	10-24	25-99	100-249
45F504	137-8864-09-512	4.94	3.88	3.27	2.77
45F505	137-8864-09-532†				

LENSES TO BE USED WITH SERIES 137-8864 HOLDERS

45F506	137-0931	Red	.74	.57	.47	.39
45F507	137-0933	Amber				
45F509	137-0937	Clear				

WATER-TIGHT 2-TERMINAL SUB-MINIATURE LIGHTS


Holder Lens Cap

With retained "O" ring seal. Front mounting in 15/32" clearance hole. Takes T-1¾ midget flange base incandescents. From 1.35 to 28 volts. Terminals of brass and hot-tinned. Lockwasher, hex-nut supplied. Less lamp. Wt. 2 oz.

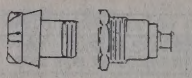
HOLDERS

Stk. No.	Type	1-9	10-24	25-99	100-249
25F1637	177-8430-09-503	3.05	2.45	2.08	1.83

LENS CAPS FOR ABOVE HOLDERS

Color	Stk. No.	Transparent	Stk. No.	Translucent	1-9	10-24
Red	25F1638	177-0931-003	45F694	177-0971-003	1.31	1.05
Green	25F1639	177-0932-003	45F695	177-0972-003		
Amber	25F1640	177-0933-003	45F696	177-0973-003		
Blue	25F1641	177-0934-003	45F697	177-0974-003		
White	25F1642	177-0935-003	45F698	177-0975-003		
Yellow	25F1643	177-0936-003	45F699	177-0976-003		
Clear	25F1644	177-0937-003	.....	.....		

SERIES 270 TRANSLUCENT PANEL EDGE


Lens Cap Base

For Mil-P-7788 plastic plate panels. Mounts in 15/32" clearance hole. Less T-1¾ amp. Overall size 17/16". Shpg. wt. 1½ oz. Order separate base and cap.

BASE ASSEMBLIES

Stk. No.	Type	Terminals	1-9	10-24	25-99	100-249
57F3706	270-1830-702	Screw	1.81	1.45	1.23	1.09
57F3707	270-1930-702	Solder	1.33	1.16	.97	.87

LENS CAP ASSEMBLIES

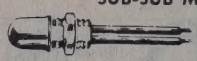
Stk. No.	Type	Filter Color	1-9	10-24	25-99	100-249
57F3705	270-0111	Red	1.33	.99	.82	.70
65F1073	270-0171	Clear				

1 TERMINAL LIGHT SHIELD ASSEMBLY

Mtg. hole 15/32" d. Opening is ¼" x 3/16". Meets MIL-SPEC. MIL-L-7806A. Uses T-1¾ lamp. Overall size, approx. 1¼". With lockwasher and nut. Less lamp. Shpg. wt., 1½ ozs. 201 suffix indicates black nickel. 301, chrome.

Stk. No.	Mfg. No.	Terminal	1-9	10-24	25-99	100-249
25F910A	4-1930-2900-201	Solder	4.50	3.74	3.25	2.83
25F911A	4-1830-2900-201	Screw	5.26	4.36	3.75	3.27
25F911B	4-1830-2900-301	Screw				
25F910B	4-1930-2900-301	Solder	4.50	3.74	3.25	2.83

SUB-SUB MINIATURE INDICATOR LIGHTS



MS25446. T-1 filament lamp in plastic cap. Flexible 6" Type E wire leads. .193" panel mounting hole clearance. Lens cap dia.: 1/32" long. Lamp rating: 5.0 volt at .06 amps 60,000 hr. of life. 6.3 volts .07 amps, 6000 hrs. Sealed unit, non-replaceable lamp.

Stock No.	Color	Type No.	Mil. Spec.	1-9	10-24	25-99
25F1295	Red	252-9951-0971	MS25446-4	5.21	4.82	4.46
25F1294	Green	252-9951-0972	MS25446-3			
25F1297	Amber	252-9951-0973	MS25446-6			
25F1293	Blue	252-9951-0974	MS25446-2			
25F1296	White	252-9951-0975	MS25446-5			
25F1298	Clear	252-9951-0937	MS25446-7			

NEON

WATER-TIGHT TWO TERMINAL INDICATORS

Series 181-8864, 181-8836 Holders. For use on 105-125VAC or DC with built-in 62K Res., except (*) 110-125VAC only with built-in 22K Res. Like 137-8836 series except with retained "O" ring seal, water-tight construction. Less lamp.

Stk. No.	Type No.	1-9	10-24	25-99	100-249
45F510	181-8836-09-553	5.63	4.48	3.85	3.29
45F511	181-8864-09-513*				

LENSES TO BE USED WITH SERIES 181-8864,181-8836 HOLDERS

Stk. No.	Type No.	Color	1-9	10-24	25-99	100-249
45F512	181-0931-003	Red	1.28	1.06	.89	.76
45F514	181-0935-003	White				
45F515	181-0937-003	Clear				

15

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

Miniature Indicator For PSB Bulb 11/16" Mounting Hole

Complete Assembly

Base Assembly

Type 81 Faceted

Type 135 Cylindrical (Translucent)

Type 52 Stove Pipe (Internally Fluted Transparent)

Type 95 Stove Pipe (Smooth Face Translucent)

ASSEMBLIES FOR PSB BULBS—BASE HOUSING

Accommodates T-2 incandescent bulb with telephone slide base (PSB Type) in a range of voltages from 6 to 120 volts. Uses any of 4 styles of high temperature Lexan caps in various colors. Phenolic housing, white nickel finish. Rated 75 watts, 125 volts. Solder terminals. Electrical contact can be made with AMP connector 42198-2. Mounting in 1/16 clearance hole. 1 27/32 overall size.

Stock No.	Type No.	1-9	10-24	25-99	100-249
60F1550	81-1059-01-102	2.54	2.14	1.86	1.71

LENSES FOR HOUSING ABOVE

Transluc. Cyl.		Transpar. Fluted		Transluc. Smooth		
Stock No.	Type	Stock No.	Type	Stock No.	Type	Color
60F1551	135-3271	60F1558	52-3191	60F1565	95-3171	Red
60F1552	135-3272	60F1559	52-3192	60F1566	95-3172	Green
60F1553	135-3273	60F1560	52-3193	60F1567	95-3173	Amber
60F1554	135-3274	60F1561	52-3194	60F1568	95-3174	Blue
60F1555	135-3275	60F1562	52-3195	60F1569	95-3175	White
60F1556	135-3276	60F1563	52-3196	60F1570	95-3176	Yellow
...	...	60F1564	52-3197	...	...	Clear

Prices	1-9	10-24	25-99	100-249
	.68	.57	.49	.45

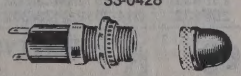
SERIES 81—TRANSPARENT FACETED LENSES

Stock No.	Type	Color	1-9	10-24	25-99	100-249
60F1572	81-0431-100	Red	.87	.78	.69	.60
60F1573	81-0432-100	Green				
60F1574	81-0433-100	Amber				
60F1575	81-0434-100	Blue				
60F1576	81-0435-100	White				
60F1577	81-0436-100	Yellow				
60F1578	81-0437-100	Clear				

TELEPHONE SLIDE BASE INDICATOR LIGHTS 9/16" MTG. HOLE

Back of panel mount in 9/16" clearance hole. Takes T-2 incandescent bulb with telephone slide base. Front panel lamp replacement. With knurled ring, lockwasher, and hex mounting nut. Chrome finish. Solder term. Overall size: 2 15/16". Less lamp. Wt. 3 oz.

33-0428



70-0428

Stock No.	Type	1-9	10-24	25-99	100-249
45F682	70-0428-11-306	3.32	2.81	2.45	2.04
45F683	33-0428-01-306				

LENS CAPS FOR ABOVE HOLDERS

Stk. No.	Stovepipe Type	Color	Stk. No.	Convex Type
45F684	70-1131-300	Red	45F689	37-0111-300
45F685	70-1132-300	Green	45F690	37-0112-300
45F686	70-1133-300	Amber	45F691	37-0113-300
...	...	Blue	45F692	37-0114-300
45F688	70-1135-300	White	45F693	37-0115-300

Prices	1-9	10-24	25-99	100-249
	1.94	1.57	1.39	1.14

PRESS-TO-TEST ASSEMBLY FOR 1" MOUNTING HOLE

Mounts in 1" clearance hole. Overall size approx. 1 1/4 x 3 1/4". Three, rugged binding screw terminals: 2 for "normal" circuit; 1 for "test" circuit. Uses S6 bulbs with candelabra screw base. Supplied less lamp. Transparent, back frosted lens.

Conforms to MIL Specs.

Stock No.	Type No.	1-9	10-24	25-99	100-249
45F620	820-2701-01-502	17.79	14.13	11.99	10.24

LENS CAPS FOR ABOVE HOLDERS

Stock No.	Type	Color	1-9	10-24	25-99	100-249
45F621	820-0111-500	Red	4.37	3.67	3.22	2.56
45F622	820-0112-500	Green				
45F623	820-0113-500	Amber				
45F627	820-0117-500	Clear				

PRESS-TO-TEST ASSEMBLY FOR 5/8" MOUNTING HOLE

804-1710 803-1710 806-1710

Built-in bulb-testing device. Units light when pressed if lamp is satisfactory. 3 solder terminals. 180° visible light beam for daylight, indirect "halo" light for night. Less lamps. Accommodates T-3 1/4 lamp.

WITH MECHANICAL SHUTTER DIMMER—5/8" LENS

Stk. No.	Type	Mil. Type No.	Lens Color
25F991	804-1710-0331-504	MS25331-2	Red
25F992	804-1710-0332-504	MS25331-3	Green
25F993	804-1710-0333-504	MS25331-4	Amber

WITHOUT DIMMER-1/2" LENS

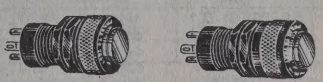
25F995	803-1710-0331-504	MS25331-6	Red
25F996	803-1710-0332-504	MS25331-7	Green
25F997	803-1710-0333-504	MS25331-8	Amber

WITHOUT DIMMER-1" LENS

25F1510	806-1710-0431-504	.....	Red
25F1511	806-1710-0432-504	.....	Green
25F1512	806-1710-0433-504	.....	Amber

Lens	1-9	10-24	25-99	100-249
804 Series	10.23	8.40	7.13	6.22
803 Series	8.86	7.10	5.93	5.11
806 Series	10.24	8.11	6.82	5.90

PRESS-TO-TEST ASSEMBLIES FOR 15/32" MOUNTING HOLE



Accommodates T-1 3/4 lamp. QPL listed. Mounts from back of panel. Marking is die-stamped and filled on all lens caps.

FOR T-1 3/4 LAMP

Dimming		Type	Non-Dimming		Type	Lens
Stk. No.	MS No.	801-1030	Stk. No.	MS No.	800-1030	Color
25F983	25041-1	0337-504	25F987	25041-5	0337-504	Clear
25F984	25041-2	0331-504	25F988	25041-6	0331-504	Red
25F985	25041-3	0332-504	25F989	25041-7	0332-504	Green
25F986	25041-4	0333-504	25F990	25041-8	0333-504	Amber
25F1514	25041-10	0334-504	25F1515	25041-11	0334-504	Blue

	1-9	10-24	25-99	100-249
801 Series	8.38	7.00	6.03	5.28
800 Series	7.01	5.65	4.88	4.19

SERIES 812

Meet or exceed requirements of MIL-L-7961B and MIL-L-3661. 3 terminals. "Press-To-Test" marking is die-stamped and filled on the flange nut. Accommodates T-1 3/4 lamp. Mounts from back of panel in 15/32" hole.

BASE ASSEMBLY

Stk. No.	Type	1-24	25-49	50-99	100-249
25F1600	812-1030-09-506	5.27	4.21	3.57	3.05

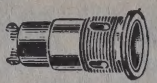
NON-DIMMER TRANSLUCENT 1/2" STOVEPIPE LENS CAPS

25F1609	812-0975	White	2.25	1.87	1.59	1.39
25F1610	812-0971	Red				
25F1611	812-0972	Green				
25F1612	812-0973	Amber				

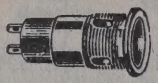
DIALIGHT Indicator Lights and Sockets

LARGE INDICATOR LIGHTS
1″ MOUNTING HOLE
Friction Fit Cap Series

Base 31-0914


Base 31-3101

Lens 32-0111


Base 31-4001

Faceted Lens 32-0431

U.L. APPROVED INDICATOR LIGHT ASSEMBLIES

Candelabra socket; lamp removable from front. Requires 1″ clearance hole for mounting. Less lamp. Series 31-0914-01 for use with B7A (NE-45) neon glow lamps in 115 volt circuit. 2⅜″ long. 4 oz. Series 31-3101, 31-4001 Indicator light is for use with S6 bulb on 115 volt circuit. 5 oz. Less lamp. Order holder and lens separately to obtain necessary parts for self-assembly of complete unit. For example: 32-0111-300 lens plus 31-0914-01-102 holder becomes a 32-0914-0111-302 assembly.

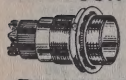
Stk. No.	Convex Type	Terminal	1-9	10-24	25-99	100-249
45F605	31-0914-01-102	side screw	3.54	3.16	2.74	2.51
45F606	31-3101-01-102	screw	3.22	2.86	2.49	2.22
65F1075	31-4001-01-102	solder	3.04	2.70	2.32	2.10

LENS CAP FOR ABOVE HOLDERS

Stk. No.	Convex Type No.	Color	Stk. No.	Faceted Type No.
25F1576	32-0111-300	Red	25F1582	32-0431-300
25F1577	32-0112-300	Green	25F1583	32-0432-300
25F1578	32-0113-300	Amber	25F1584	32-0433-300
45F681	32-0135-300	White	45F680	32-0435-300
65F1076	32-0137-300	Clear	25F1587	32-0437-300

1-9	10-24	25-99	100-249
1.52	1.33	1.18	1.07

SCREW-ON CAP SERIES
CONVEX AND FACETED LENS SHAPES


Base

Cap

Candelabra socket, lamp is removable from front. Requires 1″ clearance hole for mounting. Less lamp. Accommodates an S6 lamp. Order cap and base separately. Polished chrome finish.

Stk. No.	Type	Terminal	1-9	10-24	25-99	100-249
65F1077	51-0901-01-301	side screw	4.68	4.14	3.59	3.23
65F1078	51-3101-01-301	screw	3.83	3.39	2.93	2.67
65F1079	51-4001-01-301	solder	3.65	3.21	2.78	2.52

LENS CAPS FOR ABOVE HOLDERS

Stk. No.	Convex Type No.	Color	Stk. No.	Faceted Type No.
65F1080	51-0111-300	Red	65F1085	51-0431-300
65F1081	51-0112-300	Green	65F1086	51-0432-300
65F1082	51-0113-300	Amber	65F1087	51-0433-300
65F1083	51-0135-300	White	65F1088	51-0435-300
65F1084	51-0137-300	Clear	65F1089	51-0437-300

Quantity	1-9	10-24	25-99	100-249
Prices	2.62	2.31	2.02	1.83

SCREW-ON CAPS—TORPEDO LENS SHAPE

Stk. No.	Type	Terminal	1-9	10-24	25-99	100-249
58F1350	80-0901-05-301	side screw	4.46	3.96	3.43	3.12
58F1353	80-3101-05-301	screw	3.76	3.37	2.90	2.67
65F1090	80-4001-05-301	solder	3.58	3.16	2.75	2.49

LENS CAP FOR ABOVE HOLDERS

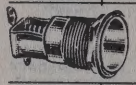
Stk. No.	Unfrosted Type No.	Color	Stk. No.	Back Frosted Type No.
58F1357	80-0531-300	Red	58F1358	80-0511-300
65F1091	80-0532-300	Green	58F1354	80-0512-300
65F1092	80-0533-300	Amber	58F1351	80-0513-300
.....	.....	White	65F1094	80-0535-300
65F1093	80-0537-300	Clear	.....	.....

Quantity	1-9	10-24	25-99	100-249
Prices	1.95	1.77	1.53	1.41

OPEN TYPE INDICATOR
Large open type 1″ mtg. hole
1-INCH OPEN PLATED TYPE ASSEMBLY

Polished chrome-plated brass jewel holders. *Uses T-3¼ bay, base lamp. #Uses S6 cand. screw lamp. Reg. 1″ mtg. holes. Less lamps. 3 oz. Use Series 32 Lens Caps listed on this page.

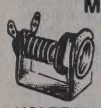
Stk. No.	Type	1-9	10-24	25-99	100-249
45F677	502-3241-102*	2.00	1.69	1.50	1.35
45F679	502-3214-102#	2.65	2.16	1.87	1.55


HOLDER

Accommodates faceted jewels in holder. Candelabra socket for S6 lamp. Require 1″ hole. Less lamp. Wt. 5 oz. Use Series 32 Lens Caps listed on this page.

Stk. No.	Type	1-9	10-24	25-99	100-249
45F700	502-3228-102	2.43	2.10	1.83	1.65

MINIATURE OPEN TYPE 1¹⁄₁₆″ MTG. HOLE


HOLDER

CAP

Miniature screw and (*) bayonet socket assemblies. Uses faceted jewels. Mounts in 1¹⁄₁₆″ hole. Bulb removable from front. With tinned solder terminals. Uses T-3¼ Bulb. Less bulbs. Wt. 3 oz.

Stk. No.	Type	1-9	10-24	25-99	100-249
45F670	502-8136-102*	1.63	1.34	1.14	.95
45F671	502-8137-102				

Uses faceted jewel. Requires 1¹⁄₁₆″ mtg. hole. Designed for panels up to ¼″ thick. With mtg. washers. Uses T-3¼ lamp. Less lamp. Tinned terminals. 4 oz.

Stk. No.	Type	1-9	10-24	25-99	100-249
45F672	502-8140-100	2.63	2.48	2.33	2.18

HALF INCH DIA. LENS CAPS FOR ABOVE HOLDERS

Faceted Stk. No.	Faceted Type	Lens Color	Convex-frosted Except* Back Stk. No.	Convex-frosted Except* Back Type
25F1562	81-2131-100	Red	25F1555	81-0111-100
25F1563	81-2132-100	Green	25F1556	81-0112-100
25F1564	81-2133-100	Amber	25F1557	81-0113-100
25F1566	81-2135-100	White	25F1559	81-0135-100*
25F1568	81-2137-100	Clear	25F1561	81-0117-100

Prices	Type	1-9	10-24	25-99	100-249
	Faceted Convex	.87	.78	.69	.60

TAMPER PROOF OPEN TYPE 1¹⁄₁₆″ MTG. HOLE

CAP

HOLDER

115 volt pilot light assemblies, uses faceted jewels, chrome-plated brass holder. Candelabra socket for S6 lamp, requires 1¹⁄₁₆″ hole for mounting. Less lamp. 4 oz.

Stk. No.	Type	1-9	10-24	25-99	100-249
45F673	502-2511	1.33	1.16	1.00	.87

FACETED LENS CAP FOR ABOVE HOLDER

Stk. No.	Type	Lens Color	1-9	10-24	25-99	100-249
25F430	514-2512-0431-302	Red	2.34	2.06	1.83	1.65
25F431	514-2512-0432-302	Green				
25F432	514-2512-0433-302	Amber				

OPEN TYPE 7⁄₁₆″ MTG. HOLE

CAP

HOLDER

Complete with (*) candelabra, (†) bayonet or (#) min. screw base sockets for standard pilot bulbs. Uses faceted jewels in nickel plated brass holders. Solder terminals. Requires 7⁄₁₆″ hole for mtg. Less bulbs. Wt. 2 oz.

Stk. No.	Type	Lamp	1-9	10-24	25-99	100-249
45F674	502-1010*	S6	1.16	1.02	.87	.79
45F675	502-1024†	T3¼	.85	.70	.58	.54
45F676	502-1015#	T3¼	.85	.70	.58	.54

FACETED LENS FOR ABOVE HOLDERS

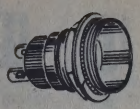
Stk. No.	Type	Lens	1-9	10-24	25-99	100-249
25F435	514-1012-2131-102	Red	.70	.63	.54	.49
25F436	514-1012-2132-102	Green				
25F437	514-1012-2133-102	Amber				
25F439	514-1012-2135-102	White				

15

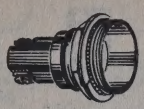
Oil-Tight Indicator Lights

DIALIGHT

LARGE OIL-TIGHT INDICATOR
FOR 1" MOUNTING HOLE



Solder Terminal Base



Screw Terminal Base

Smooth Lens

Faceted Lens

Torpedo Lens

INCANDESCENT BASE

Enclosed assemblies for heavy-duty industrial applications. Gasketed lens. Lens gives 180° light spread. Takes 6S6 incandescent (bayonet or screw mount) lamps. Supplied without lamp 1 3/16" × 1 7/8". Mounting weight: 3 oz.

ACCOMMODATES 6S6 SCREW BASE LAMPS

Stk. No.	Type	Terminal	1–9	10–24	25–99	100–249
57F3733	103-0901-05-103	side screw	6.61	5.84	5.06	4.59
45F590	103-3101-05-103	fixed screw	5.53	4.87	4.24	3.82

ACCOMMODATES 6S6/DC BAYONET BASE LAMPS

65F1095	103-3202-05-103	fixed screw	6.26	5.53	4.80	4.32
45F589	103-3502-05-103	moveable screw	6.31	5.59	4.82	4.37

ACCOMMODATES 10C7/DC BAYONET BASE LAMPS

65F1096	103-3227-05-103	fixed screw	6.57	5.80	5.03	4.54
65F1097	103-3527-05-103	moveable screw	6.61	5.84	5.06	4.59

NEON BASE

For use with the B7A (NE-45) candelabra screw base lamp. Resistor built-in the lamp base. Overall size approx. 1 3/16" × 2 7/32". Comes with split lockwasher and hex nut. Less lamp. Shpg. wt. 3 ozs. Order holder and lens separately to obtain necessary parts for self-assembly of complete unit. Has fixed terminal screw.

Stock No.	Type No.	1-9	10-24	25-99	100-249
45F607	103-3114-05-103	5.28	4.68	4.04	3.72

LENS CAPS FOR ABOVE HOLDERS
DOME SHAPED LENSES

Stk. No.	Unfrosted Type	Color	Stk. No.	Back Frosted Type
45F608	103-1231-403	Red	**45F598**	103-1211-403
65F1098	103-1232-403	Green	**45F599**	103-1212-403
45F609	103-1233-403	Amber	**45F600**	103-1213-403
45F602	103-1235-403	White	.....	.....
45F611	103-1237-403	Clear	.....	.....
1–9	10–24		25–99	100–249
2.51	2.08		1.80	1.55

LENS FOR ABOVE BASES
FACETED AND TORPEDO SHAPED LENSES

Stock No.	Faceted Type No.	Color	Stock No.	Torpedo Type No.
45F591	103-1331-403	Red	**65F1099**	103-0531-403
45F592	103-1332-403	Green	**65F1100**	103-0532-403
45F593	103-1333-403	Amber	**65F1101**	103-0533-403
45F595	103-1335-403	White	**65F1102**	103-0535-403
45F597	103-1337-403	Clear	**65F1103**	103-0537-403
1–9	10–24		25–99	100–249
2.51	2.08		1.80	1.55

Note: Green Not Recommended With Neon.

MINIATURE OIL-TIGHT INDICATOR
FOR 11/16" MOUNTING HOLE

Screw Terminal Base

Solder Terminal Base

Plain

Fluted

INCANDESCENT BASE

Meets MIL-L-3661. Use T-3¼ incandescent lamp with miniature bayonet base, 2-55 volts. Mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Term.	1–9	10–24	25–99	100–249
45F566	125-0410-11-103	Solder	3.37	2.97	2.59	2.37
25F906	125-1310-11-103	Screw	3.54	3.16	2.74	2.51

NEON BASE

Use B1A (NE-51) neon lamp. Has built-in 56K resistor for use on 105-125V AC-DC service. Mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Term.	1–9	10–24	25–99	100–249
45F567	125-0408-11-143	Solder	3.92	3.49	3.03	2.75
25F907	125-1308-11-143	Screw	4.22	3.75	3.26	2.98

HIGH BRIGHTNESS NEON BASE

Use B2A (NE-51H) neon lamp. Has built-in 22-K resistor. For use on 110-125 VAC, bright light. Mounts in 11/16" clearance hole. Less lamp.

Stk. No.	Type	Term.	1–9	10–24	25–99	100–249
45F618	125-0463-11-113	Solder	3.92	3.49	3.03	2.75
65F1106	125-1363-11-113	Screw	4.22	3.75	3.26	2.98

HIGH BRIGHTNESS NEON BASE

Use B2A (NE-51H) neon lamp. Has built-in 68K resistor. For use on 210-250 AC/DC service.

65F1104	125-9363-11-163	Screw	4.22	3.75	3.26	2.98
65F1105	125-9463-11-163	Solder	3.92	3.49	3.03	2.75

STOVEPIPE LENS CAPS FOR ABOVE HOLDER

Stk. No.	Unfrosted Type	Color	Stk. No.	Back Frosted Type
45F582	125-1131-403	Red	**45F575**	125-1111-403
45F583	125-1132-403	Green	**45F576**	125-1112-403
45F584	125-1133-403	Amber	**45F577**	125-1113-403
45F586	125-1135-403	White	.....	.....
45F588	125-1137-403	Clear	.....	.....
1–9	10–24		25–99	100–249
1.82	1.53		1.34	1.21

STOVEPIPE LENS
Internally Fluted

Stock No.	Type	Color	1–9	10–24	25–99	100–249
45F568	125-1191-403	Red				
45F569	125-1192-403	Green				
45F570	125-1193-403	Amber	1.82	1.53	1.34	1.21
45F572	125-1195-403	White				
45F574	125-1197-403	Clear				

PILOT BULB REMOVER

Type 506-0045. Molded of rubber. Has two hollow ends which stretch over and engage lamps tightly. One end for T-3¼ type bulbs; the other for T-4½ type bulbs. Core of solid rubber provides needed rigidity for sure grip. Wt. 4 oz.

Stock No.	Type No.	1–9	10–24	25–99	100–249
25F1544	506-0045	.86	.76	.69	.58

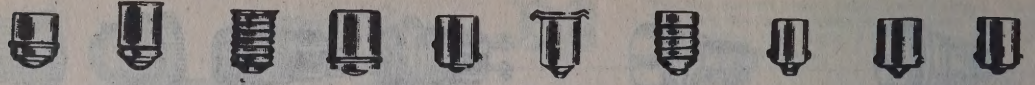
Type 506-0073. Molded rubber. One end for T-3¼ types. Other for S6 candelabra screw base bulbs.

Stock No.	Type No.	1–9	10–24	25–99	100–249
25F480	506-0073	.81	.58	.48	.41

GENERAL INSTRUMENT

Chicago Miniature Lamps

BASE STYLES



1	2	3	4	5	6	7	8	9	10
Submidget Flanged	Midget Grooved	Miniature Screw	Midget Flanged	Index Bayonet	Miniature Flanged	Candelabra Screw	Miniature Bayonet	S.C. Bayonet	D.C. Bayonet

Lamps listed in this catalog are the more popular types available from Chicago Miniature. If your application requires special lamp or a lamp not shown, send Newark a description of your needs. We will submit our recommendations. "AS" types are aged & selected to critical application.

W—wire terminals. (*)—Not illustrated. (+)—Wedge base. L—Long life. (**) Bulbs are described by a letter indicating shape, and a number which is an approximation of diameter expressed in eighths of an inch. For example S-8 is "S" shape, 8 eighths or one inch in diameter. **Sold in multiples of 10 only.**

GENERAL SERVICE LAMPS

Stock No.	Type	Design V.	Design Amp	Life Hours	Base	** Bulb	10 Each	100 Each
27F100	PR-2	2.38	.50	15	7	8-3½	.46	.41
27F101	PR-3	3.57	.50	15	7	8-3½	.46	.40
27F102	PR-4	2.33	.27	10	7	8-3½	.46	.40
27F103	PR-6	2.47	.30	30	7	8-3½	.46	.40
27F105	PR-12	5.95	.50	15	7	8-3½	.50	.44
27F106	PR-13	4.75	.50	15	7	8-3½	.50	.44
25F091	10	2.5	.5	3000	*	G-3½	.87	.77
25F092	12	6.3	.15	L	*	G-3½	.69	.61
27F111	13	3.7	.30	15	8	G-3½	.39	.34
27F112	14	2.47	.30	15	8	G-3½	.39	.34
25F006	19	14.4	.10	1000	*	G-3½	.99	.87
27F113	27	4.9	.30	30	8	G-4¼	.75	.66
25F1645	37	14.0	.09	1500	+	T-1¾	.46	.41
27F225	40	6.3	.15	3000	8	T-3¼	.40	.36
27F117	43	2.5	.50	3000	9	T-3¼	.63	.56
27F118	44	6.3	.25	3000	9	T-3¼	.34	.30
27F119	45	3.2	.35	3000	9	T-3¼	.97	.85
27F121	47	6.3	.15	3000	9	T-3¼	.34	.30
27F122	48	2.0	.06	1000	8	T-3¼	.73	.64
27F123	49	2.0	.06	1000	9	T-3¼	.72	.63
27F124	50	7.5	.22	1000	8	G-3½	.46	.41
27F125	51	7.5	.22	1000	9	G-3½	.34	.30
27F126	53	14.4	.12	1000	9	G-3½	.39	.34
27F127	55	7.0	.41	500	9	G-4½	.46	.40
27F128	57	14.0	.24	500	9	G-4½	.39	.34
25F832	63	7	.63	1000	10	G-6	.51	.45
25F1646	73	14.0	.08	15000	+	T-1¾	.50	.44
25F1647	74	14.0	.10	500	+	T-1¾	.46	.41
27F133	82	6.5	1.05	500	11	G-6	.55	.48
25F1648	85	28.0	.04	7000	+	T-1¾	.63	.55
25F1649	86	6.3	.20	20000	+	T-1¾	.61	.54
27F135	88	6.8	1.9	300	11	S-8	.79	.69
27F138	93	12.8	1.04	500	10	S-8	.74	.66
25F094	112	1.2	.22	5	8	GTL-3	.90	.79
25F834	130	6.3	.15	3000	9	G-3½	.39	.34
27F143	131	1.3	.10	50	8	G-3½	.38	.33
25F1652	158	14.0	.24	500	+	T-3¼	.53	.47
25F090	159	6.3	.15	10000	+	T-3¼	.28	.24
25F1717	161	14.0	.19	4000	+	T-3¼	.47	.42
25F1718	168	14.0	.35	1500	+	T-3¼	.50	.44
25F835	219	6.3	.25	L	10	G-3½	1.24	1.09
27F147	222	2.25	.25	5	8	GTL-3	.57	.50
25F095	239	6.3	.36	5000	9	T-3¼	1.12	.99
27F150	240	6.3	.36	5000	9	T-3¼	1.20	1.06
27F152	252	2.5	.35	10000	4	GTL-1¾	4.08	3.60
27F153	253X	2.5	.35	10000	2	GTL-1¾	5.02	4.43
25F096	259	6.3	.25	10000	+	T-3¼	.40	.35
27F154	261	2.5	.35	10000	2	GTL-1¾	5.38	4.74
27F1012	268	2.5	.35	10000	4	T-1¾	2.62	2.31
27F162	334LSV	28.0	.06	25000	2	T-1¾	2.08	1.83
25F1719	305	28.0	.56	480	10	S-8	1.41	1.24
27F158	307	28.0	.66	300	10	S-8	1.41	1.24
25F1836	308	28.0	.67	300	11	S-8	1.80	1.59
27F160	313	28.0	.17	500	9	T-3¼	.68	.60
26F500	323	3.0	.19	350	*	T-1¼	2.50	2.20
26F537	324	3.0	.19	350	W	T-1¼	.98	.87
26F501	327	28.0	.04	7000	4	T-1¾	.68	.60
26F502	327AS15	28.0	.04	7000	4	T-1¾	2.50	2.20
26F503	327AS25	28.0	.04	7000	4	T-1¾	1.82	1.60
26F504	328	6.0	.20	1000	4	T-1¾	.63	.55
26F541	330	14.0	.08	750	4	T-1¾	.79	.69
26F542	331	1.35	.06	500	4	T-1¾	1.31	1.15
26F544	334	28.0	.04	7000	2	T-1¾	1.18	1.04
26F508	335	28.0	.04	7000	3	T-1¾	1.29	1.14
26F547	336	14.0	.08	750	2	T-1¾	1.25	1.10
26F548	337	6.0	.20	1000	2	T-1¾	1.31	1.15
26F552	338	2.7	.06	6000	4	T-1¾	1.63	1.44
26F511	342	6.0	.04	10000	3	T-1¾	1.96	1.73
26F554	344	10.0	.014	10000	4	T-1¾	1.47	1.29

GENERAL SERVICE LAMPS

Stock No.	Type	Design V.	Design Amp	Life Hours	Base	** Bulb	10 Each	100 Each
26F555	345	6.0	.04	10000	4	T-1¾	1.31	1.15
26F914	346	18.0	.04	10000	2	T-1¾	1.48	1.31
25F008	349	6.3	.20	3000	4	T-1¾	1.06	.93
27F166	370	18.0	.04	10000	4	T-1¾	1.03	.91
27F1017	373	14.0	.08	750	3	T-1¾	1.53	1.35
27F167	375	3.0	.015	10000	4	T-1¾	1.43	1.26
27F1018	376	28.0	.06	25000	4	T-1¾	1.55	1.37
26F916	380	6.3	.04	50000	4	T-1¾	1.08	.95
26F917	381	6.3	.20	50000	4	T-1¾	1.32	1.17
26F918	382	14.0	.08	50000	4	T-1¾	1.08	.96
27F1021	385	28.0	.04	50000	4	T-1¾	1.82	1.61
27F168	386	14.0	.08	50000	2	T-1¾	1.53	1.35
26F919	387	28.0	.04	25000	4	T-1¾	.64	.57
27F169	388	28.0	.04	25000	2	T-1¾	1.32	1.17
27F1022	397	10.0	.04	5000	2	T-1¾	1.59	1.40
25F837	398	6.3	.20	3000	2	T-1¾	1.40	1.23
25F009	399	28.0	.04	25000	3	T-1¾	1.52	1.34
25F838	435	5.0	.50	15	8	G-4½	.80	.70
27F178	502	5.1	.15	100	8	G-4½	.41	.36
25F839	515	5.0	.115	40000	W	T-1¼	1.02	.90
81F190	555	6.3	.25	3000	+	T-3¼	.43	.38
25F841	583D	5.0	.06	100000	W	T-1¼	1.13	.99
25F1837	656	28.0	.06	5000	+	T-3¼	.84	.74
26F521	680	5.0	.06	100000	W	T-1	1.30	1.14
26F523	682	5.0	.06	100000	1	T-1	2.21	1.95
25F843	682AS15	5.0	.06	100000	1	T-1	3.05	2.69
26F525	683	5.0	.06	100000	W	T-1	1.42	1.25
25F844	683AS15	5.0	.06	100000	W	T-1	1.59	1.40
26F527	685	5.0	.06	100000	1	T-1	2.67	2.36
25F845	685AS15	5.0	.06	100000	1	T-1	2.80	2.47
26F533	715	5.0	.115	40000	W	T-1	1.55	1.37
26F534	715AS15	5.0	.115	40000	W	T-1	1.82	1.61
26F535	718	5.0	.115	40000	1	T-1	2.10	1.86
25F846	755	6.3	.15	50000	9	T-3¼	.72	.63
25F847	756	14.0	.08	50000	9	T-3¼	.86	.76
25F010	757	28.0	.08	7000	9	T-3¼	.76	.67
27F187	1034	12.8	1.80	200	6	S-8	.71	.63
27F189	1073	12.8	1.80	200	10	S-8	.74	.66
25F848	1130	6.4	2.6	200	11	S-8	1.08	.95
27F192	1133	6.2	3.91	200	10	RP-11	1.61	1.42
27F193	1141	12.8	1.44	500	10	S-8	.72	.63
27F195	1143	12.5	2.00	40	10	RP-11	2.16	1.91
27F198	1184	5.5	6.25	100	11	RP-11	2.91	2.57
27F202	1251	28.0	.23	L	10	G-6	1.35	1.19
25F849	1445	18.0	.15	250	10	G-3½	.39	.34
27F214	1487	14.0	.20	3000		T-3¼	.56	.49
27F215	1488	14.0	.15	200	9	T-3¼	.57	.51
27F217	1490	3.2	.16	3000	9	T-3¼	.94	.83
27F220	1493	6.5	2.80	100	11	S-8	3.23	2.85
25F1839	1619	6.7	1.90	500	10	S-8	2.16	1.91
27F223	1630	6.5	2.75	100	*	S-8	4.25	3.75
25F862	1648	8.0	2.0	1500	11	S-8	3.18	2.80
25F1858	1691	28.0	.61	1000	10	S-8	3.80	3.35
26F556	1705D	14.0	.08	750	W	T-1¾	.74	.65
26F557	1728D	1.35	.06	500	W	T-1¾	.63	.55
26F558	1730D	6.0	.04	10000	W	T-1¾	.63	.55
26F559	1738	2.7	.06	6000	W	T-1¾	.68	.60
27F1025	1762D	28.0	.04	7000	W	T-1¾	.69	.61
26F561	1764D	28.0	.04	7000	W	T-1¾	.68	.60
26F512	1767	2.5	.20	500	3	T-1¾	.98	.87
26F513	1768	6	.20	1000	3	T-1¾	1.29	1.14
26F564	1775	6.3	.075	500	3	T-1¾	1.65	1.45
27F227	1813	14.4	.10	1000	9	T-3¼	.52	.46
27F228	1815	14	.20	3000	9	T-3¼	.60	.53
27F229	1816	13	.33	1000	9	T-3¼	.56	.49

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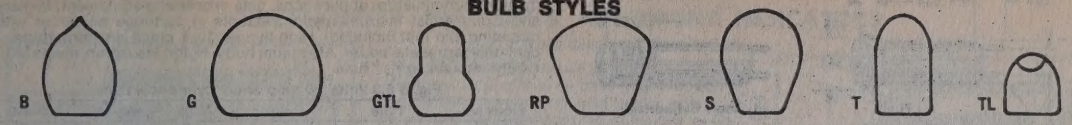
Chicago Miniature Lamps

GENERAL INSTRUMENT

BULB STYLES



** Bulbs are described by a letter indicating shape and a number which is an approximation of diameter expressed in eights of an inch. For example S-8 is "S" shape, 8 eights or one inch in dia.

(†) W-Wire terminals. (*) knurled screw (†) 0-medium screw (resistor in base. Medium screw (resistor in base). **Sold in multiples of 10 only.**

GENERAL SERVICE LAMPS (CONT'D)

Stock No.	Type	Design V.	Design Amps	Life Hours	† Base Style	** Bulb	Each 10-90	Each 100-490	Each 500-Up
27F230	1819	28	.04	1000	9	T-3¼	.58	.51	.45
27F231	1820	28	.10	1000	9	T-3¼	.58	.51	.45
27F232	1821	28	.17	500	5	T-3¼	1.82	1.61	1.40
27F233	1822	36	.10	1000	9	T-3¼	1.18	1.04	.90
27F234	1828	37.5	.05	3000	9	T-3¼	.94	.83	.72
27F235	1829	28	.07	1000	9	T-3¼	.51	.45	.39
25F085	1835	55.0	.05	5000	9	T-3¼	1.14	1.01	.88
27F236	1847	6.3	.15	20000	9	T-3¼	.31	.27	.24
27F237	1850	5	.09	1500	T-3¼	.75	.66	.58	
25F1900	1864	28.0	.17	1500	9	T-3¼	.58	.51	.45
27F239	1866	6.3	.25	20000	9	T-3¼	.43	.38	.33
27F240	1869D	10.0	.014	10000	W	T-3¼	1.06	.93	.81
27F241	1891	14.0	.24	500	9	T-3¼	.31	.27	.24
27F242	1892	14.4	.12	1000	9	T-3¼	.31	.27	.24
27F243	1893	14.0	.33	3000	9	T-3¼	.31	.27	.24
25F1901	1895	14.0	.27	1500	9	G-4½	.31	.27	.24
27F244	2102D	18.0	.04	10000	W	T-1¾	.79	.69	.60
27F245	2107D	10.0	.04	5000	W	T-1¾	.82	.72	.63
25F099	212114D	6.0	.06	3000	W	T-1¼	.79	.69	.60
27F247	2124	2.5	.35	10000	W	GTL-1¾	2.86	2.52	2.19
25F185	2128	3.0	.0125	16000	W	T-1	1.50	1.32	1.14
25F086	2158D	3.0	.015	10000	W	T-1¾	1.07	.95	.82
27F250	2162D	14.0	.100	10000	W	T-1¾	.87	.77	.66
25F186	2169	2.5	.350	10000	W	T-1¾	1.48	1.31	1.13
25F1903	2180D	6.3	.04	50000	W	T-¾	.68	.60	.52
25F087	2181D	6.3	.20	50000	W	T-1¾	.77	.68	.59
25F187	2182D	14.0	.08	50000	W	T-1¾	.85	.75	.65
27F1028	2187D	28.0	.04	25000	W	T-1¾	.66	.59	.51
27F096	6803	5.0	.060	100000	W	T-¾	2.09	1.85	1.60
25F189	6833	5.0	.060	100000	W	T-¾	2.04	1.80	1.56
25F1904	6838	28.0	.024	16000	W	T-1	2.54	2.24	1.94
25F191	6839	28.0	.024	16000	1	T-1	3.74	3.30	2.86
25F193	7153	5.0	.115	40000	W	T-¾	2.04	1.80	1.56
27F294	7216	5	.125	5000	W	T-1	3.54	3.12	2.71
25F1907	8362	14.0	.08	50000	*	T-1¾	2.20	1.94	1.68
25F1908	8369	28.0	.065	5000	*	T-1¾	1.64	1.44	1.25
25F1913	8610	6.3	.20	5000	W	T-1¾	1.52	1.34	1.16
25F1909	8623	28.0	.04	1000	*	T-1¾	3.13	2.76	2.40
25F195	8627	28.0	.04	1000	W	T-1¼	1.87	1.65	1.43
25F1910	8632	28.0	.04	1000	*	T-1¼	3.13	2.76	2.40
25F1911	8635	28.0	.04	1000	*	T-1¼	3.40	3.00	2.60
26F592	8640	14	.08	1000	W	T-1¼	1.53	1.35	1.17
25F199	8666	5.0	.08	15000	W	T-¾	3.91	3.45	2.99

STANDARD VOLTAGE LAMPS

Stock No.	Type	Design V.	Life Watts	Base Hours	** Style	Bulb	EACH
27F260	6S6	115	6	1500	8	S-6	.68
27F271	6S6	145	6	1500	8	S-6	1.80
27F262	6S6/DC	120V	6	1500	11	S-6	1.13
27F263	6T4½/1	120V	6	1500	8	T-4½	2.06
27F264	7C7	115-125	7	1500	8	T-4½	.57
27F265	10C7	115-125	10	....	8	C-7	.97
27F266	10C7DC	115-125	10	3000	11	C-7	1.33
27F267	10S6C	230	10	1500	8	S-6	2.03

SOLD IN MULTIPLES OF 10 ONLY

NEON GLOW LAMPS

Stock No.	Type	Design V	Life W	Hours	** Base	1-Up Bulb	EACH
25F810	A1B	105-125	1/25	25000	W	T-2	.34
25F811	A1C	105-125	1/10	25000	W	T-2	.34
27F251	A1A(NE2)	105-125	1/17	25000+	W	T-2	.34
27F252	C7A(NE2D)	105-125	1/12	25000	4	T-2	2.35
25F812	A9A(NE2E)	105-125	1/12	25000	W	T-2	.34
27F253	C2A(NE2H)	105-125	1/4	25000	W	T-2	.34
25F813	C9A(NE2J)	105-125	1/4	25000	4	T-2	2.18
25F814	B6A(NE21)	110-125	1/4	7500	10	T-4½	3.73
27F254	B7A(NE45)	110-125	1/4	7500	8	T-4½	4.25
27F255	B9A(NE48)	110-125	1/4	7500	11	T-4½	3.73
27F256	B1A(NE51)	105-125	1/25	15000+	9	T-3 '	.84
27F257	B2A(NE51H)	105-125	1/7	25000	9	T-3¼	.84
81F191	AIG	105-125	1/25	25000	4	T-2	2.08
81F192	AIH	105-125	1/10	25000	4	T-2	2.08
81F193	J5A	105-125	1	10000	0	S-11	6.92

CM7-SERIES BI-PIN LAMPS

Stock No.	Type	Design V.	Design Amps	Life Hours	** Bulb	Each 10-90	Each 100-490	Each 500-Up
25F820	CM7112	5.0	.021	10000	T-¾	3.03	2.67	2.32
25F823	CM7118	5.0	.115	40000	T-¾	3.05	2.69	2.33
27F268	CM7327	28.0	.04	7000	T-1¾	.72	.63	.55
27F269	CM7328	6.0	.20	1000	T-1¾	.75	.66	.58
27F270	CM7330	14.0	.08	750	T-1¾	.77	.68	.59
25F854	CM7344	10.0	.014	10000	T-1¾	.92	.81	.71
25F853	CM7349	6.3	.20	3000	T-1¾	.79	.69	.60
25F855	CM7367	10.0	.04	5000	T-1¾	.89	.78	.68
25F856	CM7371	12.0	.04	10000	T-1¾	.85	.75	.65
25F858	CM7373	14.0	.10	10000	T-1¾	.85	.75	.65
25F859	CM7376	28.0	.065	5000	T-1¾	.92	.81	.71
27F1030	CM7377	6.3	.075	500	T-1¾	.77	.68	.59
25F852	CM7380	6.3	.04	50000	T-1¾	.82	.72	.63
25F857	CM7382	14.0	.08	50000	T-1¾	.79	.69	.60
25F825	CM7515	5.0	.115	40000	T-1¼	1.42	1.25	1.08
25F824	CM7583	5.0	.06	100000	T-1¼	1.36	1.20	1.04
25F828	CM7628	6.0	.20	1000	T-1¼	.70	.62	.54
25F850	CM7632	28.0	.04	1000	T-1¼	1.47	1.29	1.12
25F829	CM7646	14.0	.08	1000	T-1¼	1.47	1.29	1.12
27F271	CM7838	2.7	.06	6000	T-1¾	.87	.77	.67
25F851	CM7945	6.0	.04	10000	T-1¾	.82	.72	.63

CM8-SERIES LAMPS

Stock No.	Type	Design V.	Design Amps	Life Hours	Base	** Bulb	Each 10-90	Each 100-490	Each 500-Up
27F283	CM8-373	2.5	.35	10000	2	TL-1¾	3.63	3.20	2.77
27F286	CM8-374	2.5	.35	10000	W	TL-1¾	3.17	2.79	2.42
27F099	CM8-967	120	.02	5000	9	T-2	3.00	2.64	2.29

W: wire terminals

INDICATOR LAMPS

Spec. units for Dialco series 81 indicator lights. T-2 incandescent bulb, slide base: ¼" diam., 5000 hr. life. **PKG. OF 10 ONLY.**

Stock No.	Type	Volts	Amps	End. Foot Candles	Each 10-90	Each 100-490	Each 500-Up
35F2800	6PSB	6	.140	800	1.30	1.14	.99
35F2801	12PSB	12	.170	2400	1.28	1.13	.98
35F2802	24PSB	24	.073	2200	1.28	1.13	.98
35F2803	28PSB	28	.040	1900	1.28	1.13	.98
35F2804	48PSB	48	.053	1500	1.28	1.13	.98
35F2805	60PSB	60	.050	2400	1.28	1.13	.98
35F2806	120PSB	120	.025	1600	1.42	1.25	1.08

TELEPHONE SLIDE BASE

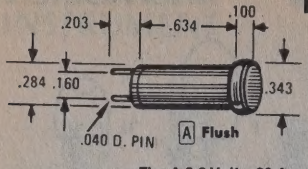
Incandescent lamps specially designed for use in telephone switchboards. 5000 hour life. ¼" diameter. **PKG. of 10 ONLY.**

Stock No.	Type	Volts	Amps	End. Foot Candles	Each 10-90	Each 100-490	Each 500-Up
27F084	24C	24	.072	875	1.16	1.02	.89
27F085	24E	24	.035	600	1.19	1.05	.91
27F087	24X	24	.035	600	1.47	1.29	1.12
27F090	48D	48	.021	100	1.47	1.29	1.12
27F091	55C	55	.052	1025	1.48	1.31	1.14

15

Chicago Miniature Lamps

INCANDESCENT CARTRIDGE INDICATOR LAMPS & HOLDERS



Ideal for subminiature applications, data processing equipment. Military and Commercial instrumentation. Mounts in cartridge holder or with mounting clip (not included). High temperature, crack resistant, translucent polycarbonate lenses. Aluminum body, Nylon insulation, meets MIL-L-3661, mounts in 9/32" hole.

Fig. A 6.3 Volts .20 Amp Flush Lens

Stock No.	Type	Color	10-99	100-499	500-999
28F2608	CML540131	Red	3.16	2.76	2.21
28F2609	CML540132	Green			
28F2612	CML540135	White			
28F2613	CML540136	Yellow			

Fig. A 14 Volts .08 Amp Flush Lens

Stock No.	Type	Color	10-99	100-499	500-999
39F2468	CML540281	Red	3.16	2.76	2.21
39F2469	CML540282	Green			
39F2472	CML540285	White			
39F2473	CML540286	Yellow			

Fig. A 28 Volts .04 Amp Flush Lens

Stock No.	Type	Color	10-99	100-499	500-999
39F2474	CML540291	Red	3.16	2.76	2.21
39F2475	CML540292	Green			
39F2478	CML540295	White			
39F2479	CML540296	Yellow			

CM21-3 SERIES CARTRIDGE INDICATOR CONNECTOR

Convenient, low cost connector for cartridge lamps. Heat resistant phenolic, brass spring terminals with cadmium plating.

Stock No.	Type	1-9	10-24	25-99
35F016	CM21-3	.55	.48	.39

CARTRIDGE INDICATOR MOUNTING CLIP

Mounting indicators directly in panels. Squeeze tabs and push over cartridge back. Spring brass terminals; cad. plated.

Stock No.	Type	1-9	10-24	25-99
39F3509	CML10380	.13	.12	.09

SLENDER "GLO-LITES" INDICATOR LITES

Offered with neon or indandescent lamps. High brightness neon lamps U.L. & CSA approved for 125 VAC, ¼ Watt operation. All types mount in 5/16" hole. Specify color when ordering: R-red; Gr-grn; Yellow.

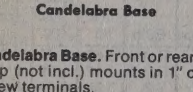
INCANDESCENT LAMPS

Stock No.	Type	"A" DIM	VAC	Amps	Lamp	1-99	100-499	500-999
39F2517	6386-001-607	13/32"	6.3	.20	2181	1.92	1.68	1.35
39F2518	6387-001-607	13/32	14	.08	2182			
39F2519	6388-001-607	13/32"	28	.04	2187			

NEON-RED AMBER OR CLEAR ONLY

Stock No.	Type	"A" DIM	VAC	Amps	Lamp	1-9	10-99	100-499
26F0014	6483-401-603	1¾"	125	.002	CZA	2.44	2.05	1.80

INSTRUMENT LIGHTS



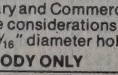
Candelabra Base. Front or rear mtg.; nickel pl. friction hood. Uses 120V, 6s6 lamp (not incl.) mounts in 1" dia. hole on 1⅜" ctrs. in panels up to ½" thk. Screw terminals.

Stk. No.	Type No.	1-9	10-24	25-99
39F3466	900-006	5.74	5.02	4.02

Min. Bayonet. Uses T-3¼ incand. lamp (not incl.). Threaded aluminum hood has black exterior finish. Mounts in 1 1/16" dia. hole in panels up to 13/32" thk.; incl. mfg. hdwe.

Stock No.	Type No.	1-9	10-99	100-499
39F3462	900-200	6.43	5.40	4.76
39F3463	900-208	6.43	5.40	4.76

GEMLITE



Reliable indicators used in Military and Commercial application where size and lamp replacement are prime considerations. Accept T-1 "Sub-Midget Flange Based Lamp." Mount in 5/16" diameter hole.

BODY ONLY

Stock No.	Type	10-99	100-499	500-999
25F1983	5160-458-6	4.20	3.71	3.21

Fig. B 6.3 Volts .20 Amp Short Cylindrical Lens

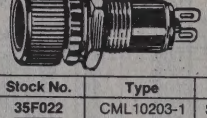
Stock No.	Type	Color	10-99	100-499	500-999
28F2614	CML640131	Red	3.16	2.76	2.21
28F2615	CML640132	Green			
28F2618	CML640135	White			
38F2619	CML640136	Yellow			

Fig. B 14 Volts .08 Amp Short Cylindrical Lens

Stock No.	Type	Color	10-99	100-499	500-999
39F2450	CML640281	Red	3.16	2.76	2.21
39F2451	CML640282	Green			
39F2454	CML640285	White			
39F2455	CML640286	Yellow			

Fig. B 28 Volts .04 Amp Short Cylindrical Lens

Stock No.	Type	Color	10-99	100-499	500-999
39F2456	CML640291	Red	3.16	2.76	2.21
39F2457	CML640292	Green			
39F2460	CML640295	White			
39F2461	CML640296	Yellow			

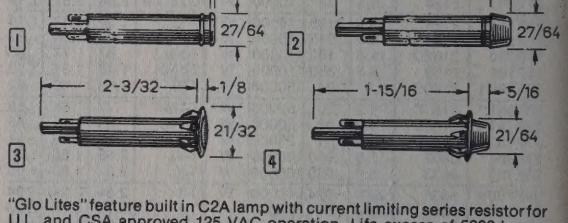


CARTRIDGE HOLDERS

Mounts in ⅜" dia. hole. Black anodized aluminum. Non-ferrous coated alloy terminals.

Stock No.	Type	Terminals	1-9	10-24	25-99
35F022	CML10203-1	Solder	2.40	2.10	1.68
35F020	CML10202-1	Turret			
28F2620	CML10204-1	Sid. Lug			

NEON "GLO-LITES" INDICATOR LITES



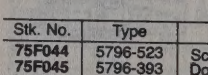
"Glo Lites" feature built in C2A lamp with current limiting series resistor for U.L. and CSA approved 125 VAC operation. Life excess of 5000 hours. Wired units have 10" #22 AWG leads. Figures 1 & 2 mount in ⅜" hole with supplied speed nut, 3 & 4" "Snap Mount" into ½" dia. hole. Specify color when ordering.

YELLOW, RED OR WHITE LENS

Stk. No.	Type	Fig.	Leads	Lamp	1-9	10-24	25-99
26F0005	6063-000-534	1	Solder Lugs	C2A	1.35	1.18	.95
26F0006	6063-000-634	2	Solder Lugs	C2A	1.35	1.18	.95
26F0007	6063-001-534	1	Wire	C2A	1.25	1.10	.88
26F0008	6063-001-634	2	Wire	C2A	1.25	1.10	.88
26F0009	6073-000-534	3	Solder Lugs	C2A	1.57	1.38	1.10
26F0010	6073-000-634	4	Solder Lugs	C2A	1.57	1.38	1.10
26F0011	6073-001-534	3	Wire	C2A	1.48	1.29	1.03
26F0012	6073-001-634	4	Wire	C2A	1.48	1.29	1.03

"TITELITES" LARGE LENS INDICATOR LITES

One inch diameter lens for distant and off angle visability. Mount in one inch diameter hole with two supplied neoprene gaskets sealing out oil and water. Indicators accept "S6" candelabra screw or double contact bayonet lamps. Indicators U.L. & CSA recognized up to 75 W, 125 V operation.



BASE ONLY

CONVEX LENS

BODY ONLY

Stk. No.	Type	For	1-9	10-99	100-499
75F044	5796-523	Screw Base	4.80	4.04	3.53
75F045	5796-393	Double Contact Bay	5.89	4.95	4.33

LENS ONLY

Specify Color: (*) Red, Green, Amber; (†) Red, Amber, Clear; (**) Red, Green, Clear.

Stk. No.	Type	Description	1-9	10-99	100-499
75F042	78A1-105*	Convex diffusing back	3.49	2.93	2.57
75F040	78A1-116*	Convex faceted trans.	3.49	2.93	2.57
75F048	78A-416†	Behive faceted trans.	2.70	2.27	1.99
75F043	78A-435*	Behive diffusing back	2.70	2.27	1.99
81F4901	78A-436**	Behive transparent	2.70	2.27	1.99

Chicago Miniature Lamps

GENERAL INSTRUMENT

SOLID STATE INDICATORS

"ULTRALITES" .20", .30" & .40" ROUND INDICATORS

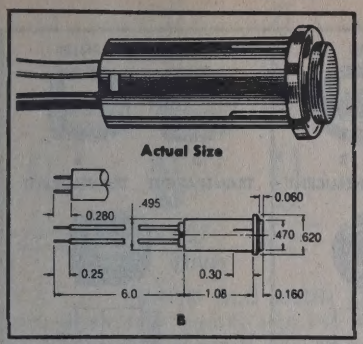


Fig. A. 0.2" Round Indicators are solid-state devices useful in low-power circuits. Has chrome bezel, current-limiting resistor, and up to 160° effective field of indication. Mounts in 9/32" hole; comes with 6 inch insulated leads. Body material is nylon.

Stk. No.	Type	VDC	mA	Color	Code
39F2530	6080-900-304	2	40*	Red	A
39F2531	6080-002-304	2	40*	Red†	B
39F2532	6080-005-304	2	40*	Grn.†	C
39F2533	6080-004-304	2	40*	Yel.†	C
39F2534	6081-900-304	5	16	Red	D
39F2535	6082-002-304	5	40	Red†	E
39F2536	6082-005-304	5	40	Grn.†	F
39F2537	6082-004-304	5	40	Yel.†	F
28F2552	6084-002-304	14	35	Red	E
28F2553	6084-004-304	14	35	Yel.	F
28F2554	6084-005-304	14	35	Grn.	F
28F2555	6086-002-304	28	15	Red	E
28F2556	6086-004-304	28	15	Yel.	F
28F2557	6086-005-304	28	15	Grn.	F

0.4" ROUND INDICATORS

Fig. B. These miniature solid-state devices feature wide effective field of indication—up to 140°, unequaled brightness and spot size and chrome bezel. Require low power drain. Luminous intensity at 40 mA: Red—13 mcd, Amber—10 mcd, Green—5 mcd. Maximum reverse voltage—5 VDC.

Stk. No.	Type	VDC	mA	Color	Code
39F2550	6340-302-505R	2	40*	Red	G
39F2551	6340-002-505R‡	2	40*	Red	H
39F2552	6340-301-505A	2	40*	Amb.	J
39F2553	6340-001-505A‡	2	40*	Amb.	K
39F2556	6342-302-505R	5	40	Red	L
39F2557	6342-002-505R‡	5	40	Red	M
39F2558	6342-301-505A	5	40	Amb.	L
39F2559	6342-001-505A‡	5	40	Amb.	M
28F2570	6344-302-505R	14	35	Red	L
28F2571	6344-002-505R	14	35	Red	M
28F2572	6344-301-505A	14	35	Amb.	L
28F2573	6344-001-505A	14	35	Amb.	M
28F2576	6346-302-505R	28	15	Red	J
28F2577	6346-002-505R	28	15	Red	K
28F2578	6346-301-505A	28	15	Amb.	L
28F2579	6346-001-505A	28	15	Amb.	M

PRICING CODE			
Key	10-99	100-499	500-999
A	1.39	1.21	.97
B	1.92	1.68	1.34
C	1.97	1.72	1.38
D	1.62	1.42	1.13
E	1.92	1.68	1.34
F	1.97	1.72	1.38
G	1.95	1.71	1.37
H	2.07	1.81	1.45
J	1.95	1.71	1.37
K	2.29	2.00	1.60
L	2.97	1.84	1.47
M	2.80	2.00	1.60

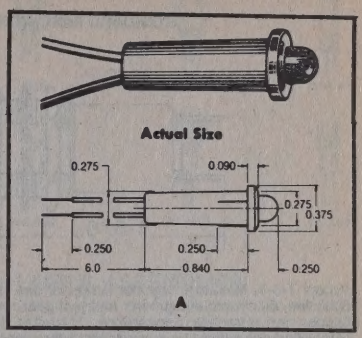


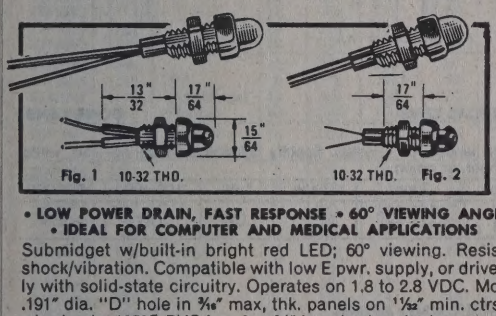
Fig. B. 0.3" Round Indicators. Similar to 0.4" indicators except for following: Mounts in 3/8 inch dia. hole, unit is slightly smaller than shown in figure B.

Stk. No.	Type	VDC	mA	Color	Code
39F2538	6330-302-505R	2	40*	Red	G
39F2539	6330-002-505R‡	2	40*	Red	K
39F2540	6330-301-505A	2	40*	Amb.	J
39F2541	6330-001-505A‡	2	40*	Amb.	K
39F2544	6332-302-505R	5	40	Red	L
39F2545	6332-002-505R‡	5	40	Red	M
39F2546	6332-301-505A	5	40	Amb.	L
39F2547	6332-001-505A‡	5	40	Amb.	M
28F2558	6334-302-505R	14	35	Red	L
28F2559	6334-002-505R	14	35	Red	M
28F2560	6334-301-505A	14	35	Amb.	L
28F2561	6334-001-505A	14	35	Amb.	M
28F2564	6336-302-505R	28	15	Red	L
28F2565	6336-002-505R	28	15	Red	M
28F2566	6336-301-505A	28	15	Amb.	L
28F2567	6336-001-505A	28	15	Amb.	M

ERRATA CODE

(*) Requires ext. current limiting resistor
(†) Indicates Hi-Efficiency
(‡) Solder lugs on leads. All others have wire terminals.

"SOLID-STATE ASTROLITE" SUBMINIATURE INDICATOR LITES

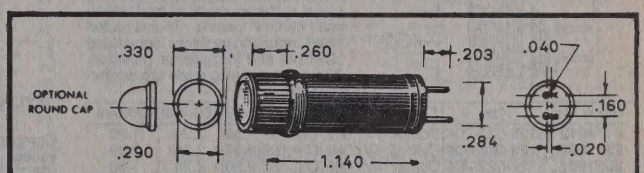


- **LOW POWER DRAIN, FAST RESPONSE • 60° VIEWING ANGLE**
- **IDEAL FOR COMPUTER AND MEDICAL APPLICATIONS**

Submidget w/built-in bright red LED; 60° viewing. Resistant to shock/vibration. Compatible with low E pwr. supply, or drive directly with solid-state circuitry. Operates on 1.8 to 2.8 VDC. Mounts in .191" dia. "D" hole in 3/16" max, thk. panels on 1 1/32" min. ctrs. 1.—6" wire leads, 105°C PVC ins. 2.—3/8" lg. wire terminals.

Stk. No.	Fig.	Type No.	6-99	100-499	500-999
39F3420	1	6039-004-304	2.42	2.12	1.70
39F3421	2	6039-005-304	2.15	1.88	1.51

SOLID STATE LED CARTRIDGE INDICATOR



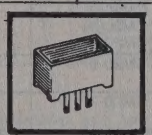
Short cylindrical cap with fresnel rings. Butyrate lens. Black anodized Aluminum housing. Black nylon insulator. Stainless steel pins. 20 mA. Minimum quantity of 10.

Stk. No.	Type	Oper. VDC	Color	10-99	100-499	500-999
39F3423	CM44-11-002-1	2.5-7.0V	Red	2.72	2.38	1.91

RECTANGULAR LED INDICATOR

Features: solid-state, long life, and reliability. Rectangular lighted area is lit by a GaAsP on GaP high performance LED chip. No light leakage from unit or sides. Stackable in X or Y direction. High brightness typically 4 mcd @ 20 mA. Applications include: legend backlighting, panel indicator, and bargraph meter.

Stock No.	Type	Color	10-99	100-499	500-999
28F2550	CM4-264	Red	.70	.62	.54
10F7969	CM4-364	Grn.	.70	.62	.54
28F2551	CM4-564	Yellow	.70	.62	.54



CM4-265

4-265 Series Rectangular LED indicators solid state LED lamps with .500 x .250 Lighted Area — Stackable in X or Y direction. 4.5 mcd @ 20 ma — Compact rugged lightweight — no light leakage from sides—max continuous forward current 35 ma per chip. @ 25%c — power dissipation 200 mw @ 25°c derated — 4 3 mw per °c — Peak forward current 1 μs pulse, .1% duty cycle 300 pps 1.0A—Temperature range: storage — 40°c to 100°c operating — 40°c to 85°c — solder time @ 260°c 5 seconds —

Stk. No.	Type	Lens Tint	Lens Diffusion	Light Color	Peak Wavelength, Typical	Luminous Intensity (Both Chips On) @ If = 20mA Guaranteed Minimum	Luminous Intensity (Both Chips On) @ If = 20mA Typical	10-99	100-499	500-999
10F7968	CM4-265	Red	Diffused	Red	635nm	4.5 mcd	—	1.99	1.76	1.53

Type T-4½. Pilot lamp with clear bulb. Candelabra screw base. Rated at 4 watts at 120 volts. Dimensions: 7/16" dia. by 1-9/16" max. overall. Wt., 4 oz.

Stock No.	Color	EACH
25F174	Clear	1.80

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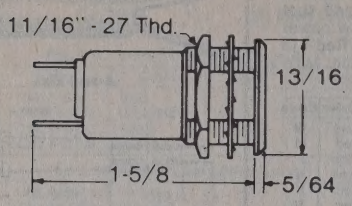
INDICATOR LIGHTS

CHICAGO MINIATURE LIGHTS

STANDARD INDICATORS

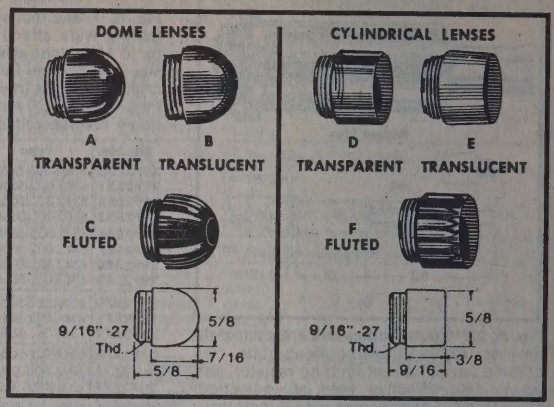


Accept T-3-¼ Miniature bayonet lamps for use in automotive panels, control consoles, electronic equipment, and test gear. Indicators have nickel-plated flanges for attractive appearance. U.L. and CSA recognized. Housing: glass-filled polyester; Lugs: brass; Hardware: zinc-plated steel. Mount in 1 1/16" diameter hole in panels up to 13/32" thick. 5100-822 designed for use with incandescent lamps,5100-832has 22K built-in resistor for use with B2A neon lamp on 125V, and5100-84 has 100K built-in resistor for use with B1A neon lamp on 125V or B2A lamp on 250V.

Stock No.	Type	Resistor	Terminals	1-9	100-499	500-999
28F2592	5100-822	None	Solder	1.52	1.33	1.07
28F2593	5100-832	22K	Solder	1.92	1.68	1.35
28F2594	5100-842	100K	Solder	1.92	1.68	1.35
81F4007	5100-823	None	Screw	1.92	1.68	1.35
81F4008	5100-824	None	¼" Quick Connect	1.52	1.33	1.07
81F4009	5100-834	22K	¼" Quick Connect	1.92	1.68	1.35
81F4010	5100-844	100K	¼" Quick Connect	1.92	1.68	1.35

NEON GLOW LAMPS FOR 5100 SERIES

Stock No.	Type	Design V	Design W	Life Hours	Base	** Bulb	10-Up EACH
27F256	NE51(B1A)	105-125	1/25	15000+	9	T-3¼	.87
27F257	NE51H(B2A)	105-125	1/7	25000	9	T-3¼	.87

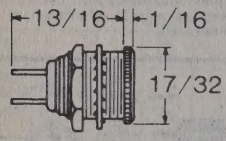


LENS CAPS FOR STANDARD INDICATORS

Polycarbonate lenses for 5100 series. Only transparent or fluted lenses should be used with neon lamps. Specify color. A, C, D, & F available in red, amber, clear, green, white. B & E available in red, green, white, yellow, amber, blue.

Stock No.	Type	Fig.	1-99	100-499	500-999
28F2598	25P-306	A	.70	.61	.49
28F2599	25P-307	B			
28F2600	25P-326	C			
28F2601	25P-606	D			
28F2602	25P-607	E			
28F2603	25P-626	F			

TINYLITES W/LENSES

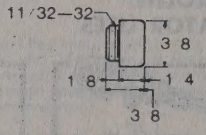


Tinylites are small units supplied with any of three low-voltage incandescent lamps installed. Used in a wide range of applications including alarm systems, medical equipment, and control panels. Nickel-plated brass mounting bushing. Zinc-plated steel nut and lockwasher provided. All current carrying parts are nonferrous metal.

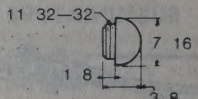
Stock No.	Type	Lens	Volt	Amp	Lamp	1-99	100-499	500-999
81F4012	5126-022-204	Dome	7V	.063	CM-162	2.56	2.24	1.80
25F1991	5126-022-604	Cyl.	7V	.063	CM-162	2.56	2.24	1.80
25F1992	5127-022-204	Dome	14V	.065	CM-163	2.56	2.24	1.80
25F1993	5127-022-604	Cyl.	14V	.065	CM-163	2.56	2.24	1.80
25F1994	5128-022-204	Dome	28V	.04	CM-333	2.56	2.24	1.80
25F1995	5128-022-604	Cyl.	28V	.04	CM-333	2.56	2.24	1.80

NOTE: Available—Red, Yellow, Green, White

LENS CAPS FOR TINYLITE INDICATORS



CYLINDRICAL LENS



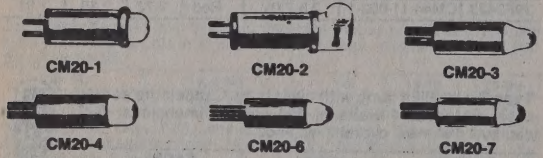
DOME LENS

Companion lenses for Tinylites. Specify color when ordering—red, white, yellow, amber, or green.

Stock No.	Type	Shape	1-99	100-499	500-999
28F2604	121A-604	Cyl.	.34	.30	.24
28F2606	121A-204	Dome			

15

CM20 SERIES SUBMINIATURE LENS-END LITES



- **Intense spot of luminous and infrared energy**
- **Choice of spot shape and orientation**

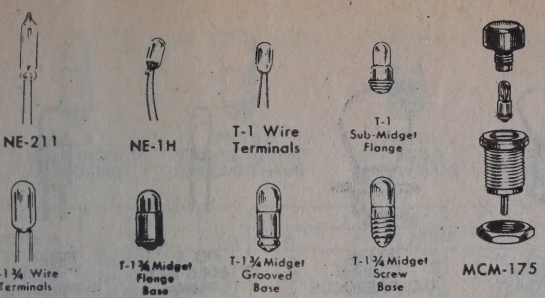
For close proximity use with photosensors where an intense spot of luminous and infrared energy is required. CM20-1, CM20-2 (right angle lens), and CM20-17 are mounted in bi-pin cartridges. Clear anodized aluminum body; stainless steel terminals; nylon insulation. CM20-3 thru CM20-17 are packaged in gold anodized aluminum sleeves with 24 AWG stranded wire leads. Type B insulation per MIL-W-16878. Semi-resilient thermosetting resin encapsulation. Wt. ½ oz. Note: (#) Spot covers ⅛" dia. target when projected ⅜" from end of bulb at min. intensity of 750 foot-candles. (††) When projected 1" from end of bulb, spot covers 1" dia. at 350 foot-candles. (§) ⅜" from bulb, spot covers 1/16" dia. at 750 foot-candles. Spot is narrow elliptical. (‡‡) Same as CM20-3 except spot covers ⅛" dia. target. Spot is round elliptical. (**) No specifications for spot, however, lamp is axially aligned.

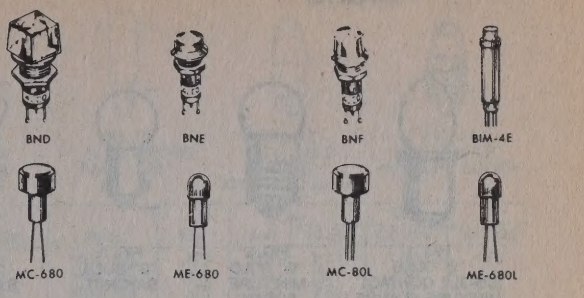
Type	Lamp Type	Volts	Amps ±10%	Life (Hours)
CM20-1#	TL-1¾	2.5	.350	10,000
CM20-2††	SL-2	3.0	.325	10,000
CM20-3§	TL-1¾	2.5	.350	10,000
CM20-4‡‡	TI-1¾	2.5	.350	10,000
CM20-6**	TL-1½	6.0	.200	1,000
		5.1	.180	10,000
CM20-7**	TL-1½	28.0	.040	1,000
		24.0	.036	10,000
CM20-17‡‡	TL-1¾	5.0	.350	10,000

PRICING TABLE

Stock No.	Type	1-99	100-499	500-999
25F1720	CM20-1	7.82	6.90	5.98
25F1721	CM20-2	20.83	18.38	15.93
25F1722	CM20-3	7.45	6.57	5.70
25F1723	CM20-4	9.30	8.21	7.11
25F1725	CM20-6	6.21	5.48	4.75
25F1726	CM20-7	7.36	6.50	5.63
67F4574	CM20-17	12.07	10.65	9.23

Alcolite Lamps and Assemblies ALCO





BRITE GLO NEON LAMPS

(T-1.) NE-1H. High intensity neon with lens end magnification. Ignition voltage 60 VAC or 67 VDC and a ballast resistor of 35K is recommended at 115 VAC. **NE-1-H** is same with insul. leads. T-1 #680: 5 VDC 60 mA, 100,000 hrs. For ¼" hole, 10" leads. Sold in Standard Packages of 10.

Stock No.	Type	Description	Each 1-99	100-499	500-999
57F2235	NE-211	11 mm Glow. Bare Leads	.49	.39	.36

Stock No.	Type	Description	1-19	20-99	100-499	500-999
57F2237	NE-1H	Short Bare Leads	.79	.71	.63	.58

INCANDESCENT T-1 AND T-1¾ LAMPS

Sold in Standard Packages of 10.

Stk. No.		Type	V	Amps	MSCP	1-19	20-99	100-499
23F5680	7207		3	.060	.032	.49	.44	.39
23F5681	8602		5	.015	.032	.55	.50	.44
57F2243	7210		5	.030	.030	.49	.44	.39
57F2239	680		5	.060	.032	.41	.37	.33
57F2240	683	T-1	5	.060	.053	.44	.40	.35
57F2241	713	Wire	5	.075	.088	.44	.40	.35
57F2242	715	Terminals	5	.115	.147	.44	.40	.35
23F5682	7219		12	.060	.15	.59	.53	.47
23F5683	8111		14	.065	.15	.67	.60	.54
23F5684	7220		18	.026	.15	1.09	.98	.87
23F5685	6838		28	.024	.15	1.09	.98	.87
57F2244	685		5	.060	.050	.87	.78	.70
57F2245	718	T-1	5	.115	.147	.99	.89	.79
57F2247	1112	Sub-Midget	14	.065	.150	1.07	.96	.86
57F2246	856	Flange	28	.024	.150	1.56	1.40	1.25
25F187	2182	T-1¾ Wire Terminals	14	.080	.30	.35	.32	.28
23F5686	7333		5	.060	.05	.55	.50	.44
57F2255	815		5	.115	.147	.57	.51	.46
23F5687	345		6	.04	.03	.55	.50	.44
23F5688	380		6.3	.04	.02	.65	.59	.52
57F2252	381	T-1¾	6.3	.20	.40	.51	.46	.41
23F5689	344	Midget	10	.014	.002	.68	.61	.54
57F2253	382	Flange	14	.08	.30	.51	.46	.41
37N1844	330	Base	14	.08	.50	.51	.46	.41
23F5690	370		18	.04	.15	.55	.50	.44
23F5691	385		28	.04	.20	.61	.55	.49
57F2254	387		28	.04	.30	.51	.46	.41
57F2250	327		28	.04	.34	.51	.46	.41
61F1226	379	T-1¾ Midget	6.3	.200	.40	.61	.55	.49
61F1227	386	Grooved	14	.080	.30	.61	.55	.49
61F1228	388	Base	28	.040	.30	.55	.50	.44
57F2257	378	T-1¾	6.3	.200	.40	.55	.50	.44
57F2256	362	Midget	14	.080	.30	.55	.50	.44
57F2258	399	Screw Base	28	.040	.30	.53	.48	.42

LAMP HOLDERS

Relampable miniature holders have ⅜" diameter lens and small size. **MCM-100** has 0.7" length, mounts with 5/16-32 nut. **MCM-175** has 1" length, mounts with ⅜-32 nut.

Stock No.	Type	Color	Description	1-25	26-99	100-499	500-999
57F2220	MCM-100T	Red	Holder, for T-1 Sub-Midget Flange Lamp	1.95	1.56	1.40	1.25
57F2221	MCM-100T	Green					
57F2222	MCM-100T	Blue					
57F2223	MCM-100T	Amber					
57F2224	MCM-100T	White					
57F2225	MCM-175T	Red	Holder for T-1¾ Midget Flange Lamp	2.15	1.89	1.55	1.38
57F2226	MCM-175T	Green					

NEON LAMPS ASSEMBLIES

BND Neon Asmbl., Sq. Lens—space saving. With or without built-in resistor. **BNE** Neon Asmbl., Compact Lens—protrudes slightly above panel. Oper. voltage: 75 VDC without resistor; for 115 VAC, use external resistors (150K, std. intensity; 33K, hi intensity). Temp.: −10° to 70°C. One 5/16-32 nut mt. BNE-4R has built-in 115 VAC resistor. **BNF** Neon Asmbl., Long Lens—like BNE, but extends greater distance beyond panel.

Stock No.	Type	Description	Color	1-25	26-99	100-499	500-999
57F2160	BND-2	Lamp Assembly, Std. Intensity	Red	1.30	1.17	.95	.85
57F2161	BND-2		Amber				
57F2162	BND-2R	Lamp Assembly with Resistor	Red	1.50	1.35	1.10	.98
57F2163	BND-2R		Amber				
57F2164	BND-2R		White				
57F2166	BND-3	High Intensity Lamp	Red	1.35	1.22	.99	.88
57F2168	BND-3R	High Intensity Lamp with Resistor	Red	1.55	1.40	1.13	1.01
57F2169	BND-3R		Amber				
57F2170	BND-3R		White				
57F2172	BNE-2	Std. Intensity Lamp	Red	1.35	1.22	1.00	.88
57F2174	BNE-3	High Intensity Lamp	Red	1.40	1.26	1.02	.91
57F2178	BNE-4R	High Intensity Lamp with Internal Resistor	Red	1.55	1.40	1.13	1.01
57F2179	BNE-4R		Amber				
57F2180	BNE-4R		White				
57F2181	BNE-4R		Clear				
57F2182	BNF-2	Standard Intensity Neon Lamp	Red	1.35	1.22	.99	.88
57F2183	BNF-2		Amber				
57F2190	BNF-4R	High Intensity Lamp with Internal Resistor	Red	1.55	1.40	1.13	1.01
57F2191	BNF-4R		Amber				
57F2192	BNF-4R		White				
57F2193	BIM-4E	Chrome Bezel	Red	1.05	.95	.89	.77
57F2194	BIM-4E		Amber				

INCANDESCENT LAMP ASSEMBLIES

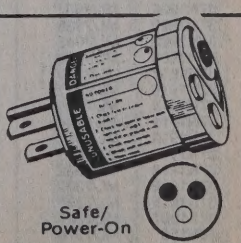
Ultraminiature series has cylindrical appearance and fits in 3/16" hole. Has 5 volt, 60 mA rating; life of 100,000 hours. Contains #683 T-1 lamp. Mounting ring supplied. Types ME-680L and MC-680L have solder tin dipped, high temperature leads. 24 AWG wire. Lens unscrews, T-1 lamp is exposed.

Stock No.	Type	Description	Color	1-25	26-99	100-499	500-999
57F2201	MC-680	Assembly with Pin Contacts	White	1.70	1.50	1.22	1.09
57F2206	ME-680		Red				
57F2202	MC-680LT	Assembly with 6" Leads	Red	1.85	1.63	1.33	1.18
57F2205	MC-680LT		White				
57F2209	ME-680LT	Assembly with 6" Leads	Red	1.65	1.45	1.19	1.06
57F2210	ME-680LT		Green				
57F2213	ME-680LT		White				

GT-20 OUTLET TESTER

Checks receptacles for reversed polarity and improper grounds. Unit plugs into any 3-way outlet. Neon lamp indicates condition of receptacle.

62F2940 Type GT-20. NET ... 8.95



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RADION™ brand Incandescent Lamps

FIG. 1
"B" BULB
SINGLE CONTACT
MINITURE FLANGE

FIG. 2
"G" BULB
MINITURE
SCREW

FIG. 3
"G" BULB
BAYONET

FIG. 4
"RP" BULB
S.C. BAYONET

FIG. 5
"S" BULB
D.C. PREFOCUS

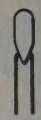


FIG. 6
"T" BULB WIRE
TERMINAL

FIG. 7
"T" BULB
BI-PIN BASE

Bulbs are designated by a letter, indicating the shape of the bulb, followed by a number, which indicates the approximate bulb diameter in eights of an inch. For example T-1¾ designates a tubular bulb approximately 7/32" (1¾ x ⅛) in diameter. Standard tolerances are ±25% for MSCP (brightness measure).

Lamps with letters as following type number are aged and selected with tighter MSCP tolerance. For example, standard MSCP tolerance on an ML/715 is ±25%. ML/715 is the same lamp to a ±15% of rated MSCP. LAMPS ARE SOLD IN MULTIPLES OF 10 ONLY.

Stock No.	Type	Fig	Design V	Design A	Design MSCP	Design Life	Bulb	Base	Mol	Mod	Each 10-99	Each 100-499	Each 500-999
10N153	PR4	1	2.33	.27	.40	10	B-3½	S.C. Pref.	1.25"	—	.50	.42	.37
10N151	PR2	1	2.38	.50	.80	15	B-3½	S.C. Pref.	1.25"	—	.51	.44	.37
10N154	PR6	1	2.47	.30	.45	30	B-3½	S.C. Pref.	1.25"	—	.50	.42	.37
10N152	PR3	1	3.57	.50	1.50	15	B-3½	S.C. Pref.	1.25"	—			
81N5353	PR13	1	4.75	.50	2.20	15	B-3½	S.C. Pref.	1.25"	—			
81N5354	PR12	1	5.95	.50	3.10	15	B-3½	S.C. Pref.	1.25"	—	.55	.47	.40
10N100	ML/14	2	2.47	.30	.50	15	G-3½	Min. Scr.	.94"	—	.39	.34	.30
10N109	ML/50	2	7.5	.22	1.00	1,000	G-3½	Min. Scr.	.94"	—	.46	.41	.36
10N110	ML/51	3	7.5	.22	1.00	1,000	G-3½	Min. Bay	.94"	—	.34	.30	.26
10N111	ML/53	3	14.4	.12	1.00	1,000	G-3½	Min. Bay	.94"	—	.39	.34	.30
10N112	ML/55	3	7.0	.41	2.0	500	G-4½	Min. Bay	1.06"	—	.46	.40	.35
10N113	ML/57	3	14.0	.24	2.0	500	G-4½	Min. Bay	1.06"	—			
10N147	ML/1895	3	14.0	.27	2.0	1,500	G-4½	Min. Bay	1.06"	—	.39	.34	.30
10N114	ML/63	3	7.0	.63	3.0	1,000	G-6	S.C. Bay	1.44"	—	.51	.45	.39
10N127	ML/1133	4	6.2	3.91	32.0	200	RP-11	S.C. Bay	2.25"	—	1.61	1.42	1.23
10B130	ML/1630	5	6.5	2.75	23.0	100	S-8	D.C. Pref.	2.0"	—	4.25	3.75	3.25
37N1900	ML/6803	6	5.0	.060	.03	100,000	T-¾	Wire	.187"	.094"			
37N1901	ML/6833	6	5.0	.060	.05	100,000	T-¾	Wire	.187"	.094	2.43	2.14	1.86
37N1906	ML/7153	6	5.0	.115	.15	40,000	T-¾	Wire	.187	.094	2.47	2.18	1.89
10N148	ML/2128	6	3.0	.0125	.001	16,000	T-1	Wire	.250"	.125"	1.64	1.44	1.25
37N1875	ML/680	6	5.0	.060	.03	100,000	T-1	Wire	.250	.125	1.30	1.14	.99
37N1877	ML/683	6	5.0	.060	.05	100,000	T-1	Wire	.250	.125	1.42	1.25	1.08
37N1878	ML/683AS15	6	5.0	.060	.05	100,000	T-1	Wire	.250	.125	1.58	1.40	1.21
37N1881	ML/713	6	5.0	.075	.09	25,000	T-1	Wire	.250	.125	1.36	1.20	1.04
37N1882	ML/715	6	5.0	.115	.15	40,000	T-1	Wire	.250	.125	1.55	1.37	1.19
37N1883	ML/715AS15	6	5.0	.115	.15	40,000	T-1	Wire	.250	.125	1.82	1.61	1.40
10N149	ML/7216	6	5.0	.125	.22	5,000	T-1	Wire	.250	.125	3.31	2.92	2.53
37N1902	ML/6838	6	28.0	.024	.15	16,000	T-1	Wire	.250	.125	2.78	2.46	2.13
37N1874	ML/583	6	5.0	.06	.05	100,000	T-1¼	Wire	.460"	.168"	1.08	.95	.82
37N1895	ML/2114	6	6.0	.06	.13	3,000	T-1¼	Wire	.460	.168	.75	.66	.58
37N1925	ML/8610	6	6.3	.20	.55	5,000	T-1¼	Wire	.460	.168	1.91	1.68	1.46
37N1927	ML/8640	6	14.0	.08	.50	1,000	T-1¼	Wire	.460	.168	1.87	1.65	1.43
37N1926	ML/8627	6	28.0	.04	.32	1,000	T-1¼	Wire	.460	.168	2.44	2.16	1.87
37N1886	ML/1728	6	1.35	.06	.01	500	T-1¾	Wire	.520"	.230"	.57	.51	.44
37N1928	ML/8805	6	5.0	.06	.03	100,000	T-1¾	Wire	.520	.230	.88	.74	.63
37N1887	ML/1730	6	6.0	.04	.03	10,000	T-1¾	Wire	.520	.230	.63	.55	.48
37N1897	ML/2181	6	6.3	.20	.40	50,000	T-1¾	Wire	.520	.230	.70	.62	.54
37N1892	ML/1869	6	10.0	.014	.002	10,000	T-1¾	Wire	.520"	.230	.80	.71	.62
37N1894	ML/2107	6	10.0	.04	.08	5,000	T-1¾	Wire	.520	.230			
37N1898	ML/2182	6	14.0	.08	.30	50,000	T-1¾	Wire	.520	.230	.79	.69	.60
37N1885	ML/1705	6	14.0	.08	.50	750	T-1¾	Wire	.520	.230			
37N1896	ML/2162	6	14.0	.10	.50	10,000	T-1¾	Wire	.520	.230	.68	.60	.52
37N1893	ML/2102	6	18.0	.04	.15	10,000	T-1¾	Wire	.520	.230	.80	.71	.62
37N1899	ML/2187	6	28.0	.04	.30	25,000	T-1¾	Wire	.520	.230	.74	.65	.56
37N1888	ML/1764	6	28.0	.04	.34	7,000	T-1¾	Wire	.520	.230			
37N1889	ML/1764LSV	6	28.0	.06	.34	25,000	T-1¾	Wire	.520	.230	.63	.55	.48
37N1904	ML/7112	7	5.0	.021	.034	10,000	T-¾	Bi-Pin	.325	.100			
37N1905	ML/7118	7	5.0	.115	.15	40,000	T-¾	Bi-Pin	.325	.100	3.74	3.30	2.86
37N1919	ML/7515	7	5.0	.115	.15	40,000	T-1¼	Bi-Pin	.600	.168	1.74	1.53	1.33
37N1921	ML/7646	7	14.0	.08	.50	1,000	T-1¼	Bi-Pin	.600	.168			
37N1920	ML/7632	7	28.0	.04	.32	1,000	T-1¼	Bi-Pin	.600	.168	1.82	1.60	1.39
37N1922	ML/7838	7	2.7	.06	.04	6,000	T-1¾	Bi-Pin	.625	.230	.97	.86	.75
37N1923	ML/7945	7	6.0	.04	.03	10,000	T-1¾	Bi-Pin	.625	.230	.93	.82	.71
37N1908	ML/7328	7	6.0	.20	.60	1,000	T-1¾	Bi-Pin	.625	.230	.82	.72	.63
37N1917	ML/7380	7	6.3	.04	.02	50,000	T-1¾	Bi-Pin	.625	.230	.93	.82	.71
37N1916	ML/7377	7	6.3	.075	.22	500	T-1¾	Bi-Pin	.625	.230	.87	.77	.67
37N1912	ML/7349	7	6.3	.20	.55	3,000	T-1¾	Bi-Pin	.625	.230	.91	.80	.69
37N1911	ML/7344	7	10.0	.014	.002	10,000	T-1¾	Bi-Pin	.625	.230	1.18	1.04	.90
37N1913	ML/7367	7	10.0	.04	.08	5,000	T-1¾	Bi-Pin	.625	.230			
37N1914	ML/7371	7	12.0	.04	.12	10,000	T-1¾	Bi-Pin	.625	.230	.97	.85	.74
37N1918	ML/7382	7	14.0	.08	.30	50,000	T-1¾	Bi-Pin	.625	.230	.90	.79	.69
37N1909	ML/7330	7	14.0	.08	.50	750	T-1¾	Bi-Pin	.625	.230	.85	.75	.65
37N1915	ML/7373	7	14.0	.10	.50	10,000	T-1¾	Bi-Pin	.625	.230	.97	.85	.74
37N1907	ML/7327	7	28.0	.04	.34	7,000	T-1¾	Bi-Pin	.625	.230	.71	.63	.54
10N150	ML/7376	7	28.0	.065	.65	5,000	T-1¾	Bi-Pin	.625	.230	1.13	.99	.86

15

Incandescent Lamps

RADION™ brand

FIG. 8
"T" BULB MIDGET FLANGED BASE

FIG. 9
"T" BULB MIDGET GROOVED BASE

FIG. 10
"T" BULB SCREW BASE

FIG. 11
"T" BULB MINITURE BAYONET

FIG. 12
"T" BULB WEDGE BASE LAMP

FIG. 13
"GTL" BULB MIDGET GROOVED BASE

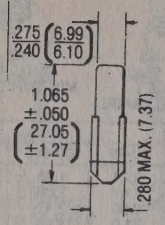
FIG. 14
"GTL" BULB MINITURE SCREW

Stock No.	Type	Fig	Design V	Design A	Design MSCP	Design Life	Bulb	Base	Mol	Mod	Each 10-99	Each 100-499	Each 500-999
37N1875	ML/682	8	5.0	.060	.03	100,000	T-1	Midg. Flg.	.375	.125	2.21	1.95	1.69
37N1879	ML/685	8	5.0	.060	.05	100,000	T-1	Midg. Flg.	.375	.125	2.67	2.36	2.05
37N1880	ML/685AS15	8	5.0	.060	.05	100,000	T-1	Midg. Flg.	.375	.125	2.80	2.47	2.14
37N1884	ML/718	8	5.0	.115	.15	40,000	T-1	Midg. Flg.	.375	.125	21.0	1.86	1.61
37N1903	ML/6839	8	28.0	.024	.15	16,000	T-1	Midg. Flg.	.375	.125	4.53	3.99	3.46
37N1845	ML/331	8	1.35	.06	.01	500	T-1¾	Midg. Flg.	.625	.230	1.31	1.15	1.00
37N1851	ML/338	8	2.7	.06	.04	6,000	T-1¾	Midg. Flg.	.625	.230	1.63	1.44	1.25
37N1860	ML/375	8	3.0	.015	.004	10,000	T-1¾	Midg. Flg.	.625	.230	1.43	1.26	1.10
37N1910	ML/7333	8	5.0	.06	.05	100,000	T-1¾	Midg. Flg.	.625	.230	1.47	1.29	1.12
37N1854	ML/345	8	6.0	.04	.03	10,000	T-1¾	Midg. Flg.	.625	.230	1.31	1.15	1.00
37N1843	ML/328	8	6.0	.20	.60	1,000	T-1¾	Midg. Flg.	.625	.230	.63	.55	.48
37N1864	ML/380	8	6.3	.04	.02	50,000	T-1¾	Midg. Flg.	.625	.230	1.08	.95	.82
37N1865	ML/381	8	6.3	.20	.40	50,000	T-1¾	Midg. Flg.	.625	.230	1.32	1.17	1.01
37N1856	ML/349	8	6.3	.20	.55	3,000	T-1¾	Midg. Flg.	.625	.230	1.06	.93	.81
37N1853	ML/344	8	10.0	.014	.002	10,000	T-1¾	Midg. Flg.	.625	.230	1.47	1.29	1.12
37N1857	ML/367	8	10.0	.04	.08	5,000	T-1¾	Midg. Flg.	.625	.230	1.55	1.37	1.19
37N1866	ML/382	8	14.0	.08	.30	50,000	T-1¾	Midg. Flg.	.625	.230	1.08	.96	.83
37N1844	ML/330	8	14.0	.08	.50	750	T-1¾	Midg. Flg.	.625	.230	.79	.69	.60
37N1858	ML/370	8	18.0	.04	.15	10,000	T-1¾	Midg. Flg.	.625	.230	1.03	.91	.79
37N1867	ML/385	8	28.0	.04	.20	50,000	T-1¾	Midg. Flg.	.625	.230	1.82	1.61	1.40
37N1869	ML/387	8	28.0	.04	.30	25,000	T-1¾	Midg. Flg.	.625	.230	.64	.57	.49
37N1840	ML/327	8	28.0	.04	.34	7,000	T-1¾	Midg. Flg.	.625	.230	.68	.60	.52
37N1841	ML/327AS15	8	28.0	.04	.34	7,000	T-1¾	Midg. Flg.	.625	.230	2.50	2.20	1.91
37N1861	ML/376	8	28.0	.06	.34	25,000	T-1¾	Midg. Flg.	.625	.230	1.55	1.37	1.19
37N1850	ML/337	9	6.0	.20	.60	1,000	T-1¾	Midg. Grv.	.625	.230	1.31	1.15	1.00
37N1863	ML/379	9	6.3	.20	.40	50,000	T-1¾	Midg. Grv.	.625	.230	1.52	1.34	1.16
37N1872	ML/398	9	6.3	.20	.55	3,000	T-1¾	Midg. Grv.	.625	.230	1.40	1.23	1.07
37N1871	ML/397	9	10.0	.04	.08	5,000	T-1¾	Midg. Grv.	.625	.230	1.60	1.40	1.21
37N1868	ML/386	9	14.0	.08	.30	50,000	T-1¾	Midg. Grv.	.625	.230	1.53	1.35	1.17
37N1849	ML/336	9	14.0	.08	.50	750	T-1¾	Midg. Grv.	.625	.230	1.25	1.10	.95
37N1855	ML/346	9	18.0	.04	.15	10,000	T-1¾	Midg. Grv.	.625	.230	1.48	1.31	1.14
37N1870	ML/388	9	28.0	.04	.30	25,000	T-1¾	Midg. Grv.	.625	.230	1.32	1.17	1.01
37N1846	ML/334	9	28.0	.04	.34	7,000	T-1¾	Midg. Grv.	.625	.230	1.18	1.04	.90
37N1847	ML/334LSV	9	28.0	.06	.34	25,000	T-1¾	Midg. Grv.	.625	.230	2.08	1.83	1.59
37N1852	ML/342	10	6.0	.04	.03	10,000	T-1¾	Midg. Scr.	.688	.230	1.96	1.73	1.50
37N1890	ML/1768	10	6.0	.20	.60	1,000	T-1¾	Midg. Scr.	.688	.230	1.29	1.14	.99
37N1891	ML/1775	10	6.3	.075	.22	500	T-1¾	Midg. Scr.	.688	.230	1.65	1.45	1.26
37N1862	ML/378	10	6.3	.20	.40	50,000	T-1¾	Midg. Scr.	.688	.230	1.68	1.48	1.29
37N1924	ML/8362	10	14.0	.08	.30	50,000	T-1¾	Midg. Scr.	.688	.230	1.73	1.53	1.32
37N1859	ML/373	10	14.0	.08	.50	750	T-1¾	Midg. Scr.	.688	.230	1.53	1.35	1.17
37N1873	ML/399	10	28.0	.04	.30	25,000	T-1¾	Midg. Scr.	.688	.230	1.52	1.34	1.16
37N1848	ML/335	10	28.0	.04	.34	7,000	T-1¾	Midg. Scr.	.688	.230	1.29	1.14	.99
10N107	ML/48	10	2.0	.06	.04	1,000	T-3¼	Min. Scr.	1.19	.405	.73	.64	.56
10N101	ML/40	10	6.3	.15	.52	3,000	T-3¼	Min. Scr.	1.19	.405	.40	.36	.31
10N105	ML/46	10	6.3	.25	.9	3,000	T-3¼	Min. Scr.	1.19	.405	.37	.31	.28
10N128	ML/1487	10	14.0	.20	1.4	3,000	T-3¼	Min. Scr.	1.19	.405	.56	.49	.43
10N108	ML/49	11	2.0	.06	.04	1,000	T-3¼	Min. Bay.	1.19	.405	.72	.63	.55
10N102	ML/43	11	2.5	.50	.5	3,000	T-3¼	Min. Bay.	1.19	.405	.63	.56	.49
10N104	ML/45	11	3.2	.35	.5	3,000	T-3¼	Min. Bay.	1.19	.405	.97	.85	.74
10N141	ML/1850	11	5.0	.09	.25	1,500	T-3¼	Min. Bay.	1.19	.405	1.00	.88	.77
10N123	ML/755	11	6.3	.15	.33	50,000	T-3¼	Min. Bay.	1.19	.405	.72	.63	.55
10N140	ML/1847	11	6.3	.15	.38	20,000	T-3¼	Min. Bay.	1.19	.405	.37	.33	.28
10N106	ML/47	11	6.3	.15	.52	3,000	T-3¼	Min. Bay.	1.19	.405	.34	.30	.26
10N143	ML/1866	11	6.3	.25	.65	20,000	T-3¼	Min. Bay.	1.19	.405	.55	.48	.42
10N103	ML/44	11	6.3	.25	.9	3,000	T-3¼	Min. Bay.	1.19	.405	.34	.30	.26
10N133	ML/1816	11	13.0	.33	3.0	1,000	T-3¼	Min. Bay.	1.19	.405	.56	.49	.43
10N125	ML/756	11	14.0	.08	.31	50,000	T-3¼	Min. Bay.	1.19	.405	.86	.76	.66
10N129	ML/1488	11	14.0	.15	1.5	200	T-3¼	Min. Bay.	1.19	.405	.57	.51	.44
10N132	ML/1815	11	14.0	.20	1.4	3,000	T-3¼	Min. Bay.	1.19	.405	.60	.53	.46
10N144	ML/1891	11	14.0	.24	2.0	500	T-3¼	Min. Bay.	1.19	.405	.44	.39	.34
10N146	ML/1893	11	14.0	.33	2.0	3,000	T-3¼	Min. Bay.	1.19	.405			
10N131	ML/1813	11	14.4	.10	.86	1,000	T-3¼	Min. Bay.	1.19	.405	.52	.46	.40
10N145	ML/1892	11	14.4	.12	.75	1,000	T-3¼	Min. Bay.	1.19	.405	.39	.34	.30
10N134	ML/1819	11	28.0	.04	.34	1,000	T-3¼	Min. Bay.	1.19	.405	.63	.55	.48
10N138	ML/1829	11	28.0	.07	1.0	1,000	T-3¼	Min. Bay.	1.19	.405	.56	.49	.43
10N126	ML/757	11	28.0	.08	.62	7,000	T-3¼	Min. Bay.	1.19	.405	.76	.67	.58
10N135	ML/1820	11	28.0	.10	1.6	1,000	T-3¼	Min. Bay.	1.19	.405	.63	.55	.48
10N142	ML/1864	11	28.0	.17	3.0	1,500	T-3¼	Min. Bay.	1.19	.405	.72	.63	.55
10N136	ML/1822	11	36.0	.10	2.5	1,000	T-3¼	Min. Bay.	1.19	.405	1.58	1.39	1.21
10N137	ML/1828	11	37.5	.05	.65	3,000	T-3¼	Min. Bay.	1.19	.405	1.69	1.49	1.29
10N139	ML/1835	11	55.0	.05	1.1	5,000	T-3¼	Min. Bay.	1.19	.405	1.92	1.69	1.47
10N117	ML/86	12	6.3	.20	.40	50,000	T-1¾	Wedge	.800	.230	.61	.54	.47
10N115	ML/73	12	14.0	.08	.30	50,000	T-1¾	Wedge	.800	.230	.50	.44	.38
10N116	ML/85	12	28.0	.04	.30	25,000	T-1¾	Wedge	.800	.230	.63	.55	.48
10N119	ML/159	12	6.3	.15	.38	20,000	T-3¼	Wedge	1.062	.405	.28	.24	.21
10N122	ML/259	12	6.3	.25	.65	20,000	T-3¼	Wedge	1.062	.405	.40	.35	.30
10N120	ML/161	12	14.0	.19	1.0	4,000	T-3¼	Wedge	1.062	.405	.47	.42	.36
10N124	ML/656	12	28.0	.06	.64	5,000	T-3¼	Wedge	1.062	.405	.84	.74	.64
10N121	ML/253	13	2.5	.35	—	10,000	GTL-1¾	Midg. Grv.	.687	.235	5.02	4.43	3.84
10N118	ML/112	14	1.2	.22	—	5	GTL-3	Min. Scr.	.922	—	.90	.79	.69

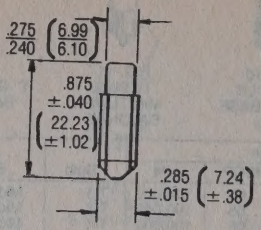
15

Incandescent and Neon Glow Lamps

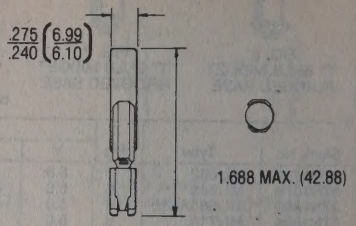
SLIDE BASE T-2 INCANDESCENT LAMPS FOR INDICATOR ASSEMBLIES



SLIDE BASE
FIG. 1



SLIDE BASE
FIG. 2



TELEPHONE SLIDE BASE
FIG. 3

Stock No.	Type	Fig.	Design Volts	Design Amps	End Foot Candles Avg.	Avg. Life (Hrs)	Each 1	Each 10	Each 100	Each 500
81N2644	ML/6PSB	1	6.0	.140	500	20,000				
81N2645	ML/12PSB	1	12.0	.170	2,000	12,000				
81N2646	ML/24PSB	1	24.0	.073	3,000	10,000	1.50	1.20	1.05	.90
81N2647	ML/28PSB	1	28.0	.040	1,600	5,000				
81N2648	ML/48PSB	1	48.0	.053	1,800	10,000				
81N2649	ML/60PSB	1	60.0	.050	2,600	7,500	1.72	1.38	1.20	1.03
81N2650	ML/120PSB	1	120.0	.025	1,200	5,000	1.68	1.35	1.18	1.01
81N2651	ML/6ESB	2	6.0	.040	250	15,000	1.44	1.15	1.01	.86
81N2652	ML/10ESB	2	10.0	.040	450	5,000	1.18	.95	.83	.71
81N2653	ML/12ESB	2	12.0	.040	650	15,000	1.52	1.22	1.07	.91
81N2654	ML/16ESB	2	16.0	.040	900	7,500	1.50	1.20	1.05	.90
81N2655	ML/24CSB	2	24.0	.017	150	15,000	1.56	1.25	1.09	.93
81N2656	ML/24ESB	2	24.0	.040	850	8,000				
81N2657	ML/28ESB	2	28.0	.040	1,500	6,000	1.50	1.20	1.05	.90
81N2658	ML/48ESB	2	48.0	.040	3,000	5,000	1.68	1.35	1.18	1.01
81N2639	ML/6C	3	6.0	.040	180	4,000	1.18	.95	.83	.71
81N2640	ML/24E	3	24.0	.035	600	8,000				
81N2641	ML/24X	3	24.0	.035	600	8,000	1.36	1.09	.95	.81
81N2642	ML/48C	3	48.0	.035	475	10,000	1.54	1.23	1.08	.92
81N2659	ML/48D	3	48.0	.021	100	20,000	1.24	.99	.87	.74
81N2643	ML/55C	3	55.0	.050	1,400	5,000	1.54	1.23	1.08	.92

NEON GLOW LAMPS

Neon Glow Lamps are low priced devices used for indicators and circuit control applications. Two closely spaced electrodes cause neon gas to ionize and glow when voltage is applied. Since they have no filament, lamps withstand considerable shock vibration. External resistors not included except *resistor included in base.

Sold in Multiples of 10

Fig. 4
Wire leads

Fig. 5
S.C. Midget Flange Base

Fig. 6
Min. Bayonet Base

Stock No.	Type	Fig.	Max. Overall Length	Max. Outside Dia.	Watts Nom.	Max. Breakdown Volts AC	Max. Breakdown Volts DC	Circuit Volts	Life Hrs. (Avg)	Resistor	10-99	100-490	500-990
37N2139	A1B	4	.500"	.244"	½s	65	90	120	25,000	220K			
37N2134	A9A	4	.750"	.244"	⅓s	65	90	120	25,000	100K	.39	.35	.30
37N2136	A1A	4	1.060"	.244"	⅓s	65	90	120	25,000	100K			
37N2133	C7A	5	.940"	.244"	⅓s	65	90	120	25,000	100K	2.28	2.01	1.75
37N2137	NE51	6	1.186"	.407"	⅓s	65	90	120	25,000	100K	.87	.77	.67
37N2144	NE51-R	6	1.186"	.407"	⅓s	65	90	120	25,000	100K*	1.70	1.55	1.40
						HIGH BRIGHTNESS							
37N2140	A1C	4	.500"	.244"	⅓	95	135	120	25,000	47K	.38	.33	.29
37N2135	C2A	4	.750"	.244"	¼	95	135	120	25,000	30K	.37	.33	.26
37N2141	C9A	5	.940"	.244"	¼	95	135	120	25,000	30K	2.10	1.86	1.61
37N2138	NE51H	6	1.186"	.407"	¼	95	135	120	25,000	30K	.87	.77	.67
37N2145	NE51H-R	6	1.186"	.407"	¼	95	135	120	25,000	30K*	1.70	1.55	1.40

CIRCUIT COMPONENTS

Stk. No.	Type	Fig.	D.C. Breakdown Voltage	D.C. Maintaining Voltage	Design Current (MA)	Max. Lamp Length	Max. Outside Dia.	Life (Hours) (AVG)	10-99	100-490	500-990
37N2142	NE83	4	60-100	60 avg.	5.0	940	.244"	5,000	1.16	.95	.83
37N2143	NE86	4	55-90	55 avg.	1.5	940	.244"	2,000	.81	.71	.61

MINIATURE BAYONET SOCKETS

Series LSL-11. Sockets accept miniature bayonet based lamps. Termination is to two solder lugs insulated from the mounting bracket. Socket configurations are illustrated at top right. Number following series designation in type number indicates mounting bracket, detailed below right. Brackets are .025/.032" steel, cadmium plated.

Stock No.	Type	Fig.	1-24	25-99	100-249	250-499
81N2560	LSL-11	1	1.74	1.29	.75	.37
81N2561 **81N2562** **81N2563**	LSL-11-128U LSL-11-128D LSL-11-463	2 3 4	1.83	1.45	.85	.41
81N2564 **81N2565**	LSL-11-586U LSL-11-102D	5 6	1.83	1.45	.89	.43
81N25566	LSL-11-125D	7	1.83	1.45	.85	.41
81N25567 **81N25568**	LSL-11-167U LSL-11-151U	8 9	1.83	1.45	.89	.43

Type LSP-11-530D. P.C. board mounted miniature bayonet socket. Mounts in two .070" dia. holes on ⅜" centers. See Fig. 10 at right.
81N2569 1-24 . . . . . 2.26 25-99 . . . . . 2.47 100-249 . . . . . 1.25 250-499 . . . . . $0.97

Series LSW-111. Miniature bayonet sockets in molded, black, nylon housings, making this series completely insulated and break resistant. Sockets are terminated to two wire leads, #22 AWG, 6" long. Mounting brackets are insulated from the socket and detailed below right. Number following series designation in type number is the bracket number. Brackets are .025/.032" steel, cadmium plated.

Stock No.	Type	Fig.	1-24	25-99	100-249	250-499
81N2570 **81N2571**	LSW-111-128D LSW-111-463	3 4	2.18	1.50	.99	.73
81N2572 **81N2573**	LSW-111-586U LSW-111-151U	5 9	2.18	1.61	1.01	.74

MINIATURE SCREW SOCKETS

Series LSL-10. Sockets accept miniature screw based lamps. Termination is to two solder lugs insulated from the mounting bracket. Socket configurations are illustrated at top right. Mounting brackets are .025/.032" cadmium plated steel and are detailed below right. Number following series designation in type number is the bracket number.

Stock No.	Type	Fig.	1-24	25-99	100-249	250-499
81N2574	LSL-10	1	1.77	1.52	.91	.45
81N2575 **81N2576**	LSL-10-128D LSL-10-463	3 4	2.27	1.81	1.00	.55

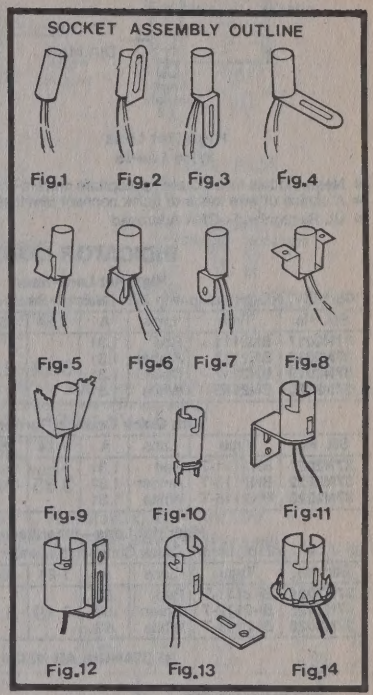
CANDELABRA BAYONET SOCKETS

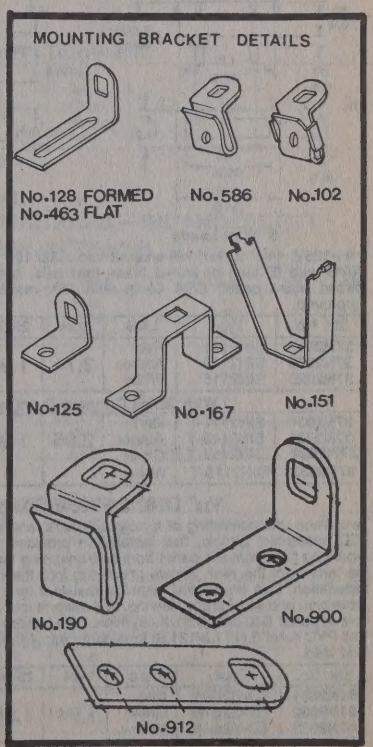
Series LSU-21. Sockets accept single contact candelabra bayonet based lamps. Single, #22 AWG, 6" long lead provides voltage to socket. Mounting bracket is electrically connected to socket shell providing ground connection. Socket configurations are illustrated above right. Brackets are .025/.042" cadmium plated steel and are detailed below right. Number following series designation in type number is the bracket number.

Stock No.	Type	Fig.	1-24	25-99	100-249	250-499
81N2577 **81N2578**	LSU-21-900D LSU-21-900U	11 12	2.29	1.75	1.20	.74
81N2579	LSU-21-912	13	2.73	1.75	1.20	.74

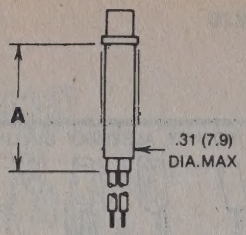
Series LSW-22. Double contact candelabra bayonet sockets with two #22 AWG, 6" long leads insulated from mounting bracket. Socket configurations illustrated above right. .025/.042" cadmium plated steel brackets are detailed below right. Number following series designation in type number is the bracket number.

Stock No.	Type	Fig.	1-24	25-99	100-249	250-499
81N2580 **81N2581** **81N2582**	LSW-22-190U LSW-22-900D LSW-22-900U	5 11 12	2.33	1.80	1.55	.91
81N2583	LSW-22-3592U	14	2.47	1.91	1.62	.94

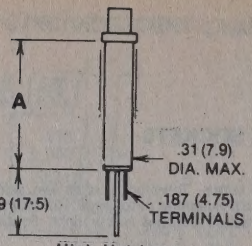




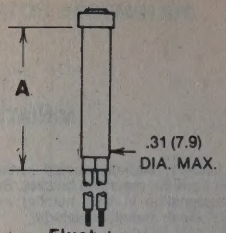
Indicator Lights



High Hat Lens
Wire Leads



High Hat Lens
Quick Connect Term.



Flush Lens
Wire Leads

- Neon models incorporate appropriate current-limiting resistors.
- A choice of wire leads or quick connect terminals is provided.
- UL Recognized—CSA Approved

INDICATOR LIGHTS

High Hat Lens-Neon

105-125V, NE-2H Lamp with 22K Resistor, Bezel and Wire Leads

Stk. No.	Type	Lens	A	1-24	25-99	100-249	250-499
37N2017	BN2111	Red	1.31	3.12	2.06	1.35	1.11
37N2018	BN2113	Amber	1.31				
37N2019	BN2117	Clear	1.31				
37N2020	BN2115	White	1.31				

With Quick Connect Terminals

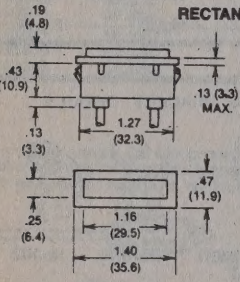
Stk. No.	Type	Lens	A	1-24	25-99	100-249	250-499
37N2021	BN2111-T	Red	1.31	3.85	2.88	1.88	1.50
37N2022	BN2113-T	Amber	1.31				
37N2023	BN2115-T	White	1.31				

High Hat Lens—Incandescent

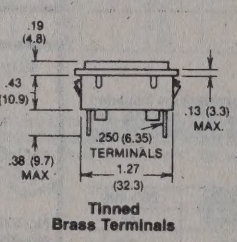
28 V.04A, #2187 Lamp, Quick Connect Terminals

Stk. No.	Type	Lens	A	1-24	25-99	100-249	250-499
37N2024	BI-2111-T	Red	.83	4.19	3.03	1.97	1.70
37N2025	BI-2112-T	Green	.83				
37N2026	BI-2115-T	White	.83				

RECTANGULAR NEON



6" Wire Leads



Tinned
Brass Terminals

105-125V, 1 9/32" x 13/32" will snap fit into .032/.100 thick panel. Black No. 24 AWG wire 6" long or tinned brass terminals, polycarbonate lens, chrome plated brass bezel. C6A Lamp with 18K resistor. UL Recognized-CSA approved.

Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
37N2027	SIN2111	Red	2.74	1.98	1.18	1.00
37N2028	SIN2113	Amber				
37N2029	SIN2115	White				

With Quick Connect Terminals

37N2030	SIN2111-T	Red	2.95	1.98	1.18	1.00
37N2031	SIN2113-T	Amber				
37N2032	SIN2117-T	Clear				
37N2033	SIN2115-T	White				

5/16" DIA. 2-Piece Snap-In LED

Two piece unit consisting of a polycarbonate lens and white nylon housing-LED assembly. Simple, fast installation provided by placing the lens into mounting hole from the panel front and snapping the housing assembly onto the lens from the rear. Allows pre-wiring into the circuit and testing before installation. Has low-profile, damage-resistant lens offering static discharge protection and wide-angle viewing. Will snap-fit into .312/.317 (7.93/8.05) dia. hole in panel .020 098 (0.51/2.49) thick. Wire Leads: No. 24 AWG., .015 (0.38) wall PVC 4.4/4.8 (111.8/121.9) long. stripped: .43/.57 (10.9/14.5). Anode (+): Red lead.

Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
81N2631	LD-R2S-W	Red	1.94	1.65	1.38	1.21
81N2632	LD-G2S-W	Green				
81N2633	LD-Y2S-W	Yellow				

- Mounting Hole: 5/16" dia. Supplied with push-on speednut.
- Wire Leads: Black; No. 18 AWG; 6" Long
- Lens: Polycarbonate
- Bezel: Chrome Plated Brass
- Housing: White Nylon

Flush Lens-Neon

105-125V,NE-2H Lamp with 22K Resistor, Bezel and Wire Leads.

Stk. No.	Type	Lens	A	1-24	25-99	100-249	250-499
37N2034	BN2311	Red	1.51	3.12	2.06	1.35	1.11
37N2035	BN2313	Amber	1.51				
37N2036	BN2317	Clear	1.51				
37N2037	BN2315	White	1.51				

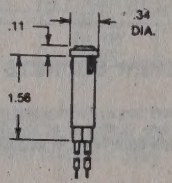
With Nylon Bezel

37N2038	N2311	Red	1.48	2.28	1.73	1.10	.95
37N2039	N2313	Amber	1.48				
37N2040	N2317	Clear	1.48				

Flush Lens Incandescent

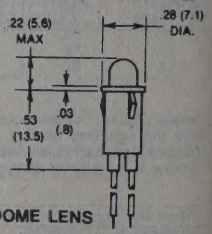
14V, .10A, #2162 Lamp, with Bezel

Stk. No.	Type	Lens	A	1-24	25-99	100-249	250-499
37N2041	BI 2311	Red	.83	3.78	2.54	1.56	1.43
37N2042	BI 2312	Green	.83				
37N2043	BI 2313	Amber	.83				
37N2044	BI 2314	Blue	.83				
37N2045	BI 2315	White	.83				



FLUSH LENS

LED INDICATORS



DOME LENS

2.5VDC forward Voltage, 24 AWG 6" Wire leads, with Red Anode lead, Black nylon housing, snap-fit into panels: 1/4" dia. hole on LD type, 5/16" dia. hole on LF type. Appropriate current limiting impedance must be included in circuit.

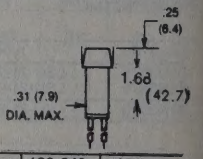
Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
37N2046	LD-R-2-W	Red	3.38	2.87	2.41	2.11
37N2047	LD-G2-W	Green				
37N2048	LD-Y2-W	Yellow				
81N2634	LD-RG-W	Red/Green				

Flush Lens 5/16" Dia Mtg Hole

37N2083	LF-0181	Red	2.21	1.68	1.07	.92

MINIATURE NEON

One piece poly-carbonated lens body, 105-125V, 5/16" DIA mounting hole, push-on speed-nut. 18 AWG Black 6" leads. NE-2H Lamp with 22K Resistor.



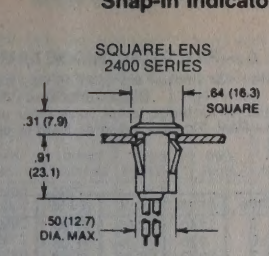
Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
37N2084	MN0131	Red	2.42	1.84	1.17	1.00

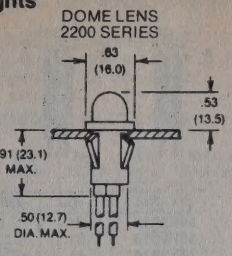
2-PIECE SNAP-IN

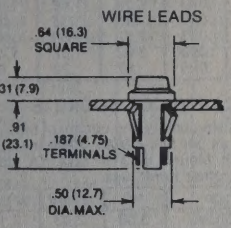
Indicator Lights

RADION™ brand

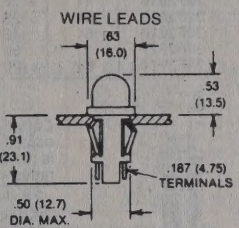
Snap-In Indicator Lights





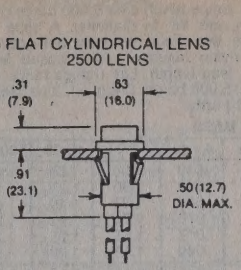


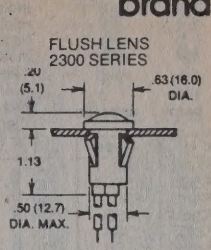
QUICK CONNECT TERMINAL

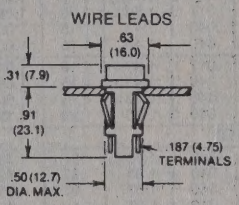


QUICK CONNECT TERMINAL

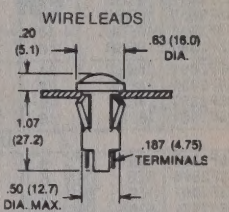
- **Neon models incorporate appropriate current-limiting resistors**
- **A choice of wire leads or quick connect terminals is provided**
- **Lights can be easily mounted by either push-on speednut or snap-fit into a.500" (12.70) dia. hole.**
- **UL Recognized—CSA approved**







QUICK CONNECT TERMINAL



QUICK CONNECT TERMINAL

- **Mounting: Will snap-fit into .500"/.505" (12.70/12.80) dia. hole in panels**
- **.020"/.0100" (.51/.254) thick. Push-on speednut.**
- **Wire Leads: Black, No. 18 AWG, 6" long**
- **Terminals: Tinned brass**
- **Lens: Polycarbonate**
- **Bezel: Chrome plated brass**
- **Housing: White nylon**

SQUARE LENS-NEON

105-125V, NE-2H Lamp, 22K Resistor, Bezel and Wire Leads.

Stk No.	Type	Lens	1-24	25-99	100-249	250-499
37N2049	SIN 2911	White	2.72	1.96	1.17	1.02
37N2050	SIN 2915	Amber				
37N2051	SIN 2913	Red				

With Quick Connect Terminals

37N2052	SIN 2911-T	Red	2.82	2.01	1.21	1.05
37N2053	SIN 2913-T	Amber				
37N2054	SIN 2915-T	White				

SQUARE LENS-INCANDESCENT

14V-.10A, 2162 Lamp Bezel and Wire Leads

37N2055	SIN 2911-14V	Red	3.45	2.67	1.57	1.43
37N2056	SIN 2912-14V	Green				
37N2057	SIN 2913-14V	Amber				

DOME SHAPED—NEON

105-125V, NE2H Lamp, 22K Resistor Bezel and Wire Leads

37N2058	SIN 2211	Red	2.28	1.81	1.10	.95
37N2059	SIN 2213	Amber	2.28	1.81	1.10	.95
37N2060	SIN 2217	Clear	2.28	1.81	1.10	.95
37N2061	SIN 2215	White	2.28	1.81	1.10	.95
37N2062	SIN 2211-250V*	Red	2.42	1.81	1.10	.95

*250 Volt, 100K resistor

With Quick Connect Terminals

37N2063	SIN 2211-T	Red	2.42	1.91	1.15	.99
37N2064	SIN 2213-T	Amber				
37N2065	SIN 2217-T	Clear				
37N2066	SIN 2215-T	White				
37N2067	SIN 2211-250V-T*	Red				

*250 Volt, 100K resistor

FLUSH LENS—NEON

105-125V, NE2H Lamp, 22K Resistor Bezel and Wire Leads

37N2068	SIN 2311	Red	2.28	1.81	1.10	.95
37N2069	SIN 2313	Amber	2.28	1.81	1.10	.95
37N2070	SIN 2317	Clear	2.28	1.81	1.10	.95
37N2071	SIN 2315	White	2.28	1.81	1.10	.95
37N2072	SIN 2311-250V*	Red	2.42	1.81	1.10	.95

*250 Volt, 100K resistor

With Quick Connect Terminals

37N2073	SIN 2311-T	Red	2.42	1.91	1.15	.99
37N2074	SIN 2313-T	Amber				
37N2075	SIN 2317-T	Clear				
37N2076	SIN 2315-T	White				
37N2077	SIN 2311-250V-T*	Red				

*250 Volt, 100K resistor

FLAT CYLINDRICAL—NEON

105-125V, NE-2H Lamp, 22K Resistor, Bezel and Wire Leads.

Stk No.	Type	Lens	1-24	25-99	100-249	250-499
37N2078	SIN 2511	Red	2.28	1.81	1.10	.95
37N2079	SIN 2513	Amber	2.28	1.81	1.10	.95
37N2080	SIN 2517	Clear	2.28	1.81	1.10	.95
37N2081	SIN 2515	White	2.28	1.81	1.10	.95
37N2082	SIN 2511-250*	Red	2.42	1.81	1.10	.95

*250 Volt, 100K resistor

With Quick Connect Terminals

37N1998	SIN 2511-T	Red	2.42	1.91	1.15	.99
37N1999	SIN 2513-T	Amber				
37N2000	SIN 2517-T	Clear				
37N2001	SIN 2515-T	White				
37N2002	SIN 2511-250-T*	Red				

*250 Volt, 100K resistor

FLAT CYLINDRICAL—INCANDESCENT

6V, .2A, 2112 Lamp, Bezel and Wire Leads

Stk No.	Type	Lens	1-24	25-99	100-249	250-499
37N2003	SII 2511-6V	Red	3.45	2.54	1.52	1.37
37N2004	SII 2512-6V	Green				
37N2005	SII 2513-6V	Amber				

With Quick Connect Terminals

37N2006	SII 2511-6V-T	Red	3.55	2.60	1.57	1.41
37N2007	SII 2512-6V-T	Green				

14V, .10A, 2162 Lamp Bezel and Wire Leads

37N2008	SII 2511-14	Red	3.45	2.67	1.57	1.43
37N2009	SII 2512-14	Green				
37N2010	SII 2513-14	Amber				
37N2011	SII 2515-14	White				

With Quick Connect Terminals

37N2012	SII 2571-14-T	Red	3.75	2.72	1.60	1.46
37N2013	SII 2512-14-T	Green				
37N2014	SII 2513-14-T	Amber				
37N2015	SII 2514-14-T	Blue				
37N2016	SII 2515-14-T	White				

Indicator Lamps, Sockets

slide base

unbased

INDICATOR LAMPS

Indicator lamps which offer 5,000 hours of use minimum, are ¼" in diameter. A slide type base has two metal contacts embedded in molded nylon insulator. All unbased lamps have ⅞" lead length. Life ratings range from 5,000 to 15,000 hours. Shpg. wt. 2 oz. **Sold in pkg. of 10 only.**

SLIDE BASE

Stk. No.	Type	V	Watts	Amps	1-9	10-99	100 Up
35F2851	4ESB	4	.16	.040	1.56	1.25	1.09
35F2852	5ESB	5	.20	.040	1.56	1.25	1.09
35F2853	6ESB	6	.24	.040	1.37	1.10	.96
35F2854	10ASB	10	.10	.010	1.75	1.41	1.23
35F2855	10CSB	10	.18	.017	1.56	1.25	1.09
35F2856	10ESB	10	.40	.040	1.12	.90	.79
35F2857	12ESB	12	.48	.040	1.45	1.17	1.02
35F2858	16CSB	16	.28	.017	1.56	1.25	1.09
35F2859	16ESB	16	.64	.040	1.43	1.15	1.00
35F2860	18ESB	18	.72	.040	1.43	1.15	1.00
35F2861	24CSB	24	.42	.017	1.48	1.19	1.04
35F2862	24ESB	24	.96	.040	1.43	1.15	1.00
35F2863	28ESB	28	1.12	.040	1.43	1.15	1.00
35F2864	48ESB	48	1.92	.040	1.60	1.28	1.12

UNBASED

35F2865	4ES	4	.16	.040	1.08	.87	.76
35F2866	5ES	5	.20	.040	1.08	.87	.76
35F2867	6ES	6	.24	.040	1.08	.87	.76
35F2871	10AS	10	.10	.010	1.37	1.10	.96
35F2872	10CS	10	.18	.017	1.18	.95	.83
35F2875	10ES	10	.40	.040	.95	.77	.67
35F2877	12ES	12	.48	.040	1.06	.86	.75
35F2878	16CS	16	.27	.017	1.10	.88	.77
35F2879	16ES	16	.64	.040	1.06	.86	.75
35F2880	18ES	18	.72	.040	1.06	.86	.75
35F2881	24CS	24	.42	.017	1.14	.92	.80
35F2882	24ES	24	.96	.040	1.06	.86	.75
35F2886	28ES	28	1.12	.040	.95	.77	.67
35F2892	48ES	48	1.92	.040	1.29	1.04	.91

PANEL LIGHT SOCKET AND LENSES

Nylon, to be used with indicator lamps (ESB Series). Sockets are designed for use with slide base indicator lamps and are rated for 75 watts, 125 volts. Quick mounting with a Tinnerman speed clip. Lenses are made of a high-temperature polycarbon material which eliminates lens warping and signall distortion due to heat. Unique internal design of lens allows for a wider viewing range. 2 oz.

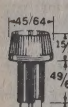
SOCKET

Stk. No.	Type	1-9	10-99	100-499
35F2816	30153	.82	.66	.57

Round Lens		Square Lens		
Stk. No.	Type	Stk. No.	Type	Color
35F2817	30160	**35F2823**	30170	Red
35F2818	30161	**35F2824**	30171	Clear
35F2819	30162	**35F2825**	30172	Amber
35F2820	30163	**35F2826**	30173	White
35F2821	30164	**35F2827**	30174	Green
35F2822	30165	**35F2828**	30175	Blue

LENS PRICES	1-9	10-99	100-499
	.43	.35	.31

SINGLE INDICATOR SOCKETS



Square type socket is made of nylon, the round socket of phenolic. Tinnerman clips for front of panel mounting.

Stk. No.	Type	Description	1-9	10-99	100-499
35F2816	30153	Round Socket	.82	.66	.57
35F2898	30151	Rectangle	.33	.27	.24

END COLOR CAPS

Pyrex caps for lamps exceeding 1.2 watts; profax caps for lesser wattages. Use ESB lamps.

Profax		Pyrex					
Stk. No.	Type	Stk. No.	Type	Color	1-9	10-99	100-499
35F2899	38001	**35F2904**	38071	Red	1.02	.82	.72
35F2900	38002	**35F2905**	38072	Yellow	.56	.45	.40
35F2901	38003	**35F2906**	38073	White	.56	.45	.40
35F2902	38004	**35F2907**	38074	Green	.56	.45	.40
35F2903	38005	.....	.....	Blue			
.....	.....	**35F2908**	38075	Blue			

STRIP SOCKET - U.L. APPROVED

For ESB lamps. 12 sockets. Use in line or separately.

Stk. No.	Type	Between Centers	1-9	10-99	1000-499
35F2895	31250	½"	6.14	4.92	4.30
35F2896	31275	¾"			

CARTRIDGE LAMPS, SOCKETS, LENSES

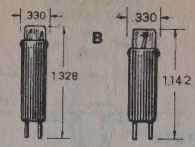
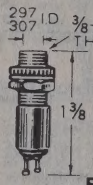


FIG. A.—PILOT CARTRIDGE LAMPS

Provide a far sharper signal in all lens colors than neon lights. Black anodized metal sleeves. All cartridge lamps have clear ends. Fig. A—Pilot. Fig. B.—Indicator. **Sold in pkgs. of 10.**

Stk. No.	Type	Volts	Watts	Amps	1-9	10-99	100 Up
35F2912	21	6	.8	.140	2.02	1.62	1.42
35F2913	31	12	2.0	.170	1.32	1.06	.93
35F2914	41	24	1.7	.073	2.02	1.62	1.42
35F2915	51	28	1.1	.040	.45	.37	.32
35F2916	61	48	2.5	.053	2.02	1.62	1.42
35F2917	71	60	3.0	.050	2.02	1.62	1.42
35F2918	81	120	3.0	.025	.87	.70	.62



PILOT CARTRIDGE SOCKETS

Cartridge light housing and facing nut are of black anodized aluminum as per MIL-A-8625. Base insulation is molded phenolic. Mounts in .375" hole. "A" designates solder lugs; other turret lugs.

Stk. No.	Type	1-9	10-99	100-499
35R2935	30095/SM2	3.03	2.43	2.12
35F2936	30096/SM2A	3.03	2.43	2.12

FIG. B—INDICATOR CARTRIDGE LAMPS

Stk. No.	Sold in pkg. of 10 Type	Volts	Watts	Amps	10-90	100-490	500-Up
35F2919	901	4	.16	.040			
35F2920	905	5	.20	.040			
35F2921	909	6	.24	.040			
35F2922	913	10	.18	.010			
35F2923	914	10	.18	.017			
35F2924	915	10	.40	.040	2.13	1.70	1.50
35F2925	918	12	.40	.017			
35F2926	925	16	.28	.040			
35F2927	926	16	.64	.040			
35F2928	930	18	.72	.040			
35F2929	933	24	.42	.017			

INDICATOR CARTRIDGE SOCKETS

Cartridge light housing and facing nut are black anodized aluminum as per MIL-A-8625. Base insulation is molded phenolic. Mounts in .375" hole. "A" designates solder lugs; other turret lugs.

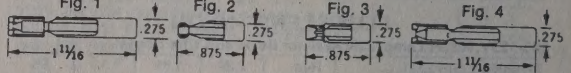
Stk. No.	Type	1-9	10-99	100-499
35R2933	30097/SM1	3.03	2.43	2.12
35F2934	30098/SM1A	3.03	2.43	2.12

CARTRIDGE LENSES

Constructed of polycarbons with high working temperatures that eliminates signal distortion and lens melting. Black anodized aluminum bezels. For housings listed above. Dia., .050".

Transparent		Translucent					
Stk. No.	Type	Stk. No.	Type	Color	1-9	10-99	100-499
35F2937	30140	.....	.....	Amber			
35F2938	30141	.....	.....	Clear			
35F2939	30142	**35F2942**	30147	Red	.99	.79	.69
35F2941	30144	**35F2944**	30149	Green			
.....	.....	**35F2945**	30145	Yellow			
.....	.....	**35F2946**	30146	White			

TELEPHONE AND SWITCHBOARD LAMPS



Sold in pkg. of 10

Stock No.	Lamp No.	Type	Volts	Amps	Fig. No.	EACH 10-90	100-490	500-Up
25F290	6C	30630	6.0	.040	1	1.34	1.07	.94
25F291	53B	35299	6.0	.240	2	1.43	1.15	1.00
25F2856	10ESB	31063	10.0	.040	2	1.12	.90	.79
25F294	24E	32450	24.0	.035	1	1.29	1.04	.91
25F295	24X	32495	24.0	.035	4	1.29	1.03	.91
25F296	48C	34830	48.0	.035	1	1.47	1.18	1.03
25F297	55C	35530	55.0	.050	1	1.47	1.18	1.03

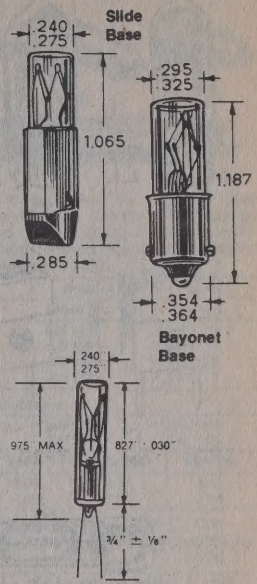
CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

Pilot Lamps, Sockets and Lenses

GTE SYLVANIA

SLIDE BASE/BAYONET BASE/WIRE TERMINAL/UNBASED T-2 PILOT LAMPS

6-120V. Min. life: 5,000 hrs. Offered with slide (PSB), and miniature bayonet (MB) bases: T-2 lamps are light source for Annunciator lamps with integral reflectors. Pilot Bi-Pin and Pilot Cartridge lamps. Wt. 2 oz. **SOLD IN PKGS. OF 10 ONLY.**



SLIDE BASE PILOT LAMPS

Stock No.	Lampt Number	Type Number	Avg. Watts	Avg. Amps.	Fila-ment	Avg. MSCP	Life (Hrs.)	M.O.L. Inches	Primary Service *Sockets Avail.		Each 1-9	Each 10-99	Each 100-Up
35F2800	6PSB	30672	.8	.140	C2F	.12	20,000	1.115	Pilot	*Panel			
35F2801	12PSB	31272	2.0	.170	C2F	.35	12,000	1.115	Pilot	*Panel			
35F2802	24PSB	32472	1.7	.073	C2F	.50	10,000	1.115	Pilot	*Panel	1.43	1.15	1.00
35F2803	28PSB	32972	1.1	.040	C2F	.29	5,000	1.115	Pilot	*Panel			
35F2804	48PSB	34872	2.5	.053	C7A	.70	10,000	1.115	Pilot	*Panel			
35F2805	60PSB	36072	3.0	.050	C7A	.73	7,500	1.115	Pilot	*Panel	1.64	1.31	1.15
35F2806	120PSB	32072	3.0	.025	CC7A	.36	10,000	1.115	Pilot	*Panel	1.60	1.29	1.13

MINIATURE BAYONET BASE PILOT LAMPS

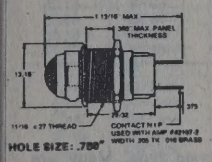
35F2807	6MB	35100	.8	.140	C2F	.12	20,000	1.187	Pilot	Panel	1.64	1.31	1.15
35F2808	12MB	35101	2.0	.170	C2F	.35	12,000	1.187	Pilot	Panel	1.64	1.31	1.15
35F2809	24MB	35103	1.7	.073	C2F	.50	10,000	1.187	Pilot	Panel	1.56	1.25	1.09
35F2810	28MB	35104	1.1	.040	C2F	.29	5,000	1.187	Pilot	Panel	1.64	1.31	1.15
35F2811	48MB	35106	2.5	.053	C7A	.70	10,000	1.187	Pilot	Panel	1.71	1.37	1.20
35F2812	60MB	35107	3.0	.050	C7A	.73	7,500	1.187	Pilot	Panel	1.75	1.41	1.23
35F2813	120MB	35108	3.0	.025	CC7A	.32	10,000	1.187	Pilot	Panel	1.68	1.35	1.18
35F2814	120MB/6	35109	6.0	.052	CC7A	1.43	3,000	1.187	Pilot	Panel	1.68	1.35	1.18

WIRE TERMINAL PILOT LAMPS

35F2781	6PS	30673	.8	.140	C2F	.12	20,000	.975	Pilot	Panel	1.08	.87	.76
35F2782	12PS	31273	2.0	.170	C2F	.35	12,000	.975	Pilot	Panel	1.06	.86	.75
35F2783	24PS	32473	1.7	.073	C2F	.50	10,000	.975	Pilot	Panel	1.06	.86	.75
35F2784	28PS	32973	1.1	.040	C2F	.29	5,000	.975	Pilot	Panel	1.06	.86	.75
35F2785	48PS	34873	2.5	.053	C7A	.70	10,000	.975	Pilot	Panel	1.06	.86	.75
35F2786	60PS	36073	3.0	.050	C7A	.73	7,500	.975	Pilot	Panel	1.33	1.07	.94
35F2787	120PS	32073	3.0	.025	C7A	.36	10,000	.975	Pilot	Panel	1.18	.95	.83

(†) Digits indicate voltage.

UNIVERSAL PILOT LIGHT HOUSING

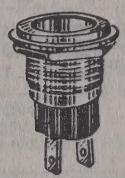


Flat Top Translucent

Fluted

Jeweled

Transparent Translucent



PILOT SOCKETS

Nickel plating on bezel, threaded sleeve. Mounts in panel up to .360" thick. Solder directly to lugs or use AMP connector 42197-2. Uses PSB lamps. UL listed.

SOCKET

Std. No.	Type	1-9	10-99	100-499
35F2829	30099	2.30	1.84	1.61

LENS PRICES

Prices	1-9	10-99	100-499
Jeweled	.99	.79	.69
Transpar.	.56	.45	.40
Translu.	.53	.43	.37
Flat Top	.99	.79	.69
Fluted	.50	.40	.35

LENSES

Made of Lexan, a high temperature plastic that performs well up to 290° F. Lexan provides wider visability than glass.

Jeweled		Transparent		Translucent		Flat Top		Fluted		
Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Stk. No.	Type	Color
35F2831	30100	35F2835	30110	35F2841	30130	35F2788	30200	35F2792	30120	Red
35F2832	30106	35F2836	30111	.....	.....	.....	.....	35F2793	30126	Amber
35F2833	30102	35F2837	30112	35F2842	30132	35F2789	30212	35F2794	30122	Green
35F2834	30103	35F2838	30113	.....	.....	35F2790	30213	35F2795	30124	Blue
.....	.....	35F2839	30114	35F2843	30131	35F2791	30214	.....	.....	Yellow
.....	.....	.....	.....	35F2844	30133	.....	.....	.....	.....	White
.....	.....	35F2840	30116	.....	.....	.....	.....	35F2796	30125	Clear

15

PANEL LIGHT SOCKETS AND LENSES

Candelabra		Bayonet			Each 1-9	Each 10-Up
Stk. No.	Type	Stk. No.	Type	V.		
35F2845	12RC	35F2848	12RB	12	2.52	2.02
35F2846	60RC	35F2849	60RB	60	2.52	2.02
35F2847	120RC	35F2850	120RB	120	2.18	1.75

LENSES

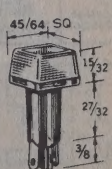
Round Lens		Square Lens*		
Stk. No.	Type	Stk. No.	Type	Color
35F2817	30160	35F2823	30170	Red
35F2819	30162	35F2825	30172	Amber
35F2821	30164	35F2827	30174	Green
35F2818	30161	35F2824	30171	Clear
35F2820	30163	35F2826	30173	White
35F2822	30165	35F2828	30175	Blue

LENS PRICES

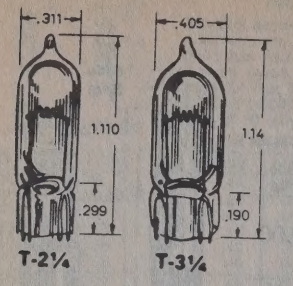
	1-9	10-99	100-499
PRICES	.43	.35	.31

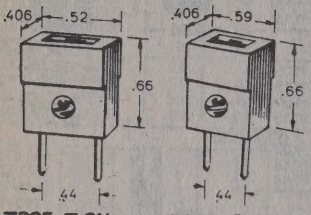
Long Life annunciator lamps designed for use in elevator panels, call boards, etc. Lamps are $^{57}/_{64}$"Wx$1^{1}/_{16}$"L for bayonet base and $^{57}/_{64}$"Wx$1^{3}/_{16}$"L for candelabra base. Each lamp operates a minimum of 5,000 hours. Their unique light control is made possible by a self-contained reflector. **SOLD IN PACKAGES OF 10 ONLY.**

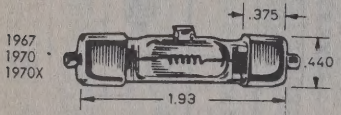
Made of phenolic for use with pilot lamps (PSB Series). For use with slide base indicator lamps 75 watts, 125 volts. Quick mounting with a Tinnerman speed clip. Lenses are made of a high-temperature polycarbon material which eliminates lens warping and signal distortion due to heat. Unique internal design of lens allows for a wider viewing range. 2 oz. U.S. listed.

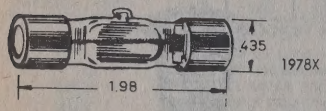


Stk. No.	Type	Desc.	1-9	10-99	100-499
35F2815	30152	Socket	.82	.66	.57









WEDGE BASE HALOGEN LAMPS

All-glass wedge base halogen lamp offers nearly constant light output over rated life. Precisely located filaments make lamps suited for optical systems. Applications include: Fiber Optics, Optical Devices, Detection Systems, Medical and Dental Instruments, and Aircraft Instruments.

Stock No.	Type	Bulb Size	Base	Design Volts	Watts	MS CP	Rated Av. Life	1-9	10-99	100-499
65F770	1989	T-2¼	Wedge	6	10	24	50			
65F771	1990	T-2¼	Wedge	12	12	20	200			
65F772	1991	T-3¼	Wedge	14	25	40	200			
65F773	1992	T-3¼	Wedge	14	35	64	200			
65F774	1993	T-3¼	Wedge	21	45	119	15	5.28	4.23	3.70
65F775	1994	T-3¼	Wedge	14	50	95	200			
65F776	1995	T-2¼	Wedge	6	12	20	200			
65F777	1996	T-2¼	Wedge	6	7	14	50			
65F778	1997	T-2¼	Wedge	6	10	20	50			
65F779	1999	T-3¼	Wedge	28	25	40	200			

SOCKETS FOR WEDGE BASE LAMPS

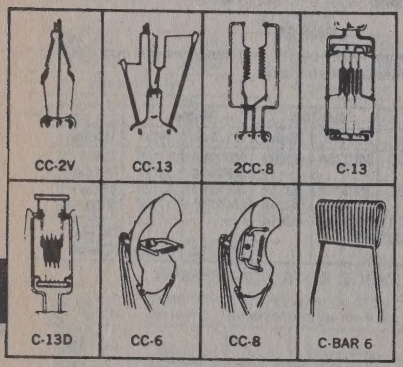
Lamp holders specifically designed for T-2¼ and T-3¼ wedge based lamps. Will hold lamp firmly in proper operating position, and ceramic and copper nickel alloy contacts are well suited to lamp temperature under normal conditions.

Stock No.	Type	Size	Watts	Amps	Volts	Temp.	1-9	10-99	100-499
65F780	TP20	T-3¼	75	10	40	225°C	1.95	1.56	1.37
65F781	TP25	T-2¼	25	6	28	225°C			

T-3 QUARTZ HALOGEN LAMPS

Designed primarily for aircraft applications. Feature high wattage in small envelope.

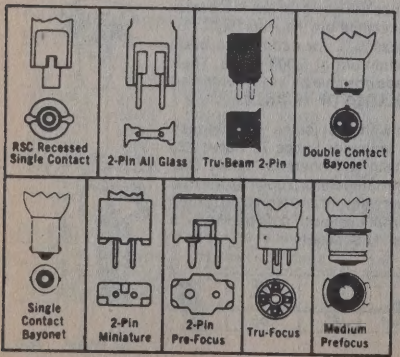
Stock No.	Type	Base	Design Volts	Design Amps	Watts	MS CP	1-9	10-99	100-499
65F782	1967		28.0	5.36	150	210	87.37	69.89	61.05
65F783	1970	Special	28.0	3.57	100	150	93.55	74.83	65.36
65F784	1970X	Sleeve	28.0	3.57	100	150	87.37	69.89	61.05
65F785	1978X		10	10.0	100	130	111.31	89.04	77.77



AUDIO VISUAL LAMPS

Every projector lamp is ANSI coded, referring to a specific lamp type. Many are "double branded"—that is, they have two ANSI codes. These lamps will work in projectors calling for either lamp type. Even if the old lamp was a clear top, the double branded blue top projector lamp will work just as efficiently, if not more so, as a replacement.

Stock No.	Type	Watts	Bulb	Base	Description	1-23	24-Up
65F786	BCK	500	T-6	Tf	Projector Lamp	32.19	22.53
65F787	BHB	250	T-3½	TB 2P	Projector Lamp	23.23	16.26
65F788	BHC/DYS/DYV	600	T-6	2 PP	Projector/Studio Lamp	20.09	14.06
65F789	BLC	30	S-11	DC Bay	Projector Lamp	3.40	2.38
65F790	BVE	625	T-6	2 PP	Projector Lamp	38.45	26.92
65F791	CAL/CXP	300	T-10	Tf	Projector Lamp	14.32	10.02
65F792	CAR	150	T-10	Tf	Projector Lamp	11.23	7.86
65F793	CAW/CAX	50	T-8	DC Bay	Projector/Studio Lamp	9.51	6.66
65F794	CBA	500	T-6	Tf	Projector Lamp	33.68	23.58
65F795	CEM	120	T-8	SC Bay	Projector/Studio Lamp	7.02	4.91
65F796	CHK	150	T-8	SC Bay	Projector/Studio Lamp	7.30	5.11
65F797	CTT/DAX	1000	T-12	Tf	Projector Lamp (120V)	24.72	17.30
65F798	CWA	750	T-12	Tf	Projector Lamp (120V)	21.91	15.34
65F799	CXK	300	T-10	Med Pf	Projector Lamp	15.72	11.00
65F800	CZA/CZB	500	T-10	Tf	Projector Lamp	16.04	11.23
65F801	CZX/DAB	500	T-10	Med Pf	Projector Lamp	16.68	11.68
65F804	DDB/DDW	750	T-12	Med Pf	Projector Lamp	17.45	12.22
65F805	DEK/DFW	500	T-12	Tf	Projector Lamp	16.36	11.45
65F806	DJL	150	T-14	Tf	Projector Lamp	16.53	11.57
65F807	DKM	250	T-14	Tf	Projector Lamp	23.87	16.71
65F808	DKP	250	T-14	Tf	Projector Lamp	23.51	16.46
65F809	DRC/DRB	1000	T-20	Med Pf	Projector/Studio Lamp	24.23	16.96
65F810	DRS	1000	T-20	Med Pf	Projector/Studio Lamp	21.00	14.70
65F811	DYP	600	G-6	2B	Projector Lamp	26.68	18.68
65F812	DZE	150	T-4	2 Pin Pf	Projector Lamp	10.85	7.60
65F813	EHA	500	T-6	2PP	Projector Lamp	36.19	25.33
65F814	EJL	200	T-3	RM2P	Projector Lamp	20.57	14.40
65F815	ELE/ELT	80	T-3	TB2P	Projector Lamp	24.72	17.30
65F816	ELH	300	T-3½	RM2P	Projector Lamp	21.17	14.82
65F817	ELS	50	T-3	TB2P	Projector Lamp	18.36	12.85
65F818	EMM/EKS	250	T-3½	TB2P	Projector Lamp	22.64	15.85
65F819	FAD	650	T-4	RSC	Projector/Studio Lamp	19.23	13.46
65F820	FAL	400	T-4	RSC	Projector Lamp	20.51	14.36
65F821	FCB	600	T-4	RSC	Projector/Studio Lamp	21.91	15.34
65F822	FCR	100	T-3½	2 Pin	Projector Lamp	8.64	6.05
65F823	FCS	150	T-4	2 Pin	Projector Lamp	7.87	5.51
65F824	FDT	100	T-3½	2 PP	Projector/Studio Lamp	10.81	7.57
65F825	FFJ	600	T-4	RSC	Projector Lamp	22.57	15.80
65F826	FGF	150	T-3½	2 PM	Projector Lamp	16.87	11.81



Indicator Lights

LEECRAFT

SNAPLITE NEON PILOT LIGHTS

Long-life nonreplaceable lamp. One piece nylon housing snaps into standard ½" hole. Body size: 1 1/16" behind panel × .495" dia. Retainer: 1/16" thick × 5/8" O.D. Lens: 27/64" O.D. have #18 gauge. 6" wire leads, except "T" suffix indicates .187" tab terminals. All rated 110-125V except * 210-250V, UL and CSA Listed.

SQUARE LENS—FIG. A

Color	Stk. No.	Type	1-24	25-99	100-249	250-499
Red	60F1290	32R2911	2.72	1.96	1.17	1.02
Amber	60F1291	32R2913				
White	60F1292	32R2915				
Red	60F1293	32R2911T	2.82	2.01	1.21	1.05
Amber	60F1294	32R2913T				
White	60F1295	32R2915T				

DOME SHAPED LENS—FIG. B

Red	60F1274	32-2211	2.28	1.81	1.10	.95
Amber	60F1275	32-2213				
Clear	60F1276	32-2217				
White	60F1277	32-2215				
Red	60F1278	32-2211T	2.42	1.91	1.15	.99
Amber	60F1279	32-2213T				
Clear	60F1280	32-2217T				
White	60F1281	32-2215T				
Red*	60F1426	35-2211				
Red*	60F1427	35-2211T				

FLAT CYLINDRICAL LENS—FIG. C

Red	25F1375	32-2111	2.28	1.81	1.10	.95
Amber	25F1376	32-2113				
Clear	25F1377	32-2117				
White	25F1378	32-2115				
Red	25F1379	32-2111T	2.42	1.91	1.15	.99
Amber	25F1380	32-2113T				
Clear	25F1381	32-2117T				
White	25F1382	32-2115T				
Red*	60F1428	35-2111				
Red*	60F1429	35-2111T				

FLUSH LENS—FIG. D

Red	60F1282	32-2311	2.28	1.81	1.10	.95
Amber	60F1283	32-2313				
Clear	60F1284	32-2317				
White	60F1285	32-2315				
Red	60F1286	32-2311T	2.42	1.91	1.15	.99
Amber	60F1287	32-2313T				
Clear	60F1288	32-2317T				
White	60F1289	32-2315T				
Red*	60F1424	35-2311				
Red*	60F1425	35-2311T				

INCANDESCENT SNAPLIGHTS 6V/.2A & 14V/.08A

All have chrome bezel to fit .500-513" hole. 18 AWG, 6" wire leads, except "T" suffix indicates .187 tab terminals.

SQUARE LENS CAP—FIG. A

Lens Color	6-Volt Types Stock No.	6-Volt Types Type	14-Volt Types Stock No.	14-Volt Types Type
Red	25F1362	32R-G1-2911	25F1367	32R-G3-2911
Green	25F1363	32R-G1-2912	25F1368	32R-G3-2912
Amber	25F1364	32R-G1-2913	25F1369	32R-G3-2913
White	25F1366	32R-G1-2915	25F1371	32R-G3-2915

	Type	1-24	25-99	100-249	250-499
Prices	32R-G1	3.45	2.54	1.52	1.37
	32R-G3	3.45	2.67	1.57	1.43

FLAT CYLINDRICAL LENS—FIG. C

Red	60F1470	32R-G1-2111	60F1480	32R-G3-2111
Green	60F1471	32R-G1-2112	60F1481	32R-G3-2112
Amber	60F1472	32R-G1-2113	60F1482	32R-G3-2113
White	60F1474	32R-G1-2115	60F1484	32R-G3-2115
Red	60F1475	32R-G1-2111T	60F1485	32R-G3-2111T
Green	60F1476	32R-G1-2112T	60F1486	32R-G3-2112T
Amber	.....	.....	60F1487	32R-G3-2113T
Blue	.....	.....	60F1488	32R-G3-2114T
White	.....	.....	60F1489	32R-G3-2115T

	Type	1-24	25-99	100-249	250-499
Prices	32R-G1	3.45	2.54	1.52	1.37
	32R-G3	3.45	2.67	1.57	1.43
	32R-G1-T	3.55	2.60	1.57	1.41
	32R-G3-T	3.75	2.72	1.60	1.46

FLUSH LENS CAP—FIG. D

Lens Color	Stock No.	Type	1-24	25-99	100-249	250-499
Red	60F1430	32R-G1-2311	3.45	2.54	1.52	1.37
Green	60F1431	32R-G1-2312				
Amber	60F1432	32R-G1-2313				
Blue	60F1433	32R-G1-2314				
White	60F1434	32R-G1-2315				
Red	60F1435	32R-G1-2311T	3.55	2.60	1.57	1.41
Amber	60F1437	32R-G1-2313T				

PRESS FIT MINIATURE NEON INDICATORS

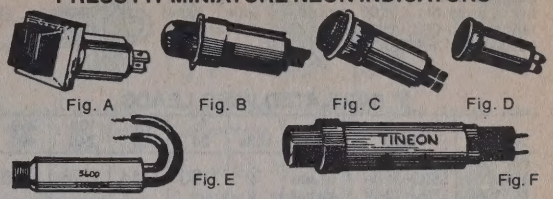


Fig. A Fig. B Fig. C Fig. D Fig. E Fig. F

Long-life, high-brightness neon lamps. Press fits into 5/16" diameter hole. Bezel is aluminum anodized. Housing, white nylon. Has transparent plastic lens available in various colors. Wire leads are #18 gauge insulated plastic. Standard length: 6" ½" stripped. Speed nut furnished for maximum security.

Tineon 36EN Series. With built-in resistor for 110-125V.

Lens Color	Flush Lens—Fig. E Stock No.	Flush Lens—Fig. E Type	High-Hat Lens—Fig. F Stock No.	High-Hat Lens—Fig. F Type
Red	60F1254	36EN2311	60F1250	36EN2111
Amber	60F1255	36EN2313	60F1251	36EN2113
Clear	60F1256	36EN2317	60F1252	36EN2117
White	60F1257	36EN2315	60F1253	36EN2115

Tineon 41EN. Less resistor, external resistor req.

Red	60F1262	41EN2311	60F1258	41EN2111
Amber	60F1263	41EN2313	60F1259	41EN2113

	Type	1-24	25-99	100-249	250-499
Prices	36EN	3.12	2.06	1.35	1.11
	41EN	2.74	2.08	1.31	1.08

WITH BEZEL—INCANDESCENT LAMPS

Similar to 41EN units above, but with incandescent lamps: 14V. .08A. Plastic flush lens.

Lens Color	Stock No.	Type	1-24	25-99	100-249	250-499
Red	25F1405	41EN-G3-2311	3.78	2.54	1.56	1.43
Green	25F1406	41EN-G3-2312				
Amber	25F1407	41EN-G3-2313				
Blue	25F1408	41EN-G3-2314				
White	25F1409	41EN-G3-2315				

FLUSH LENS CAP

36 Series. With built-in resistor for 110-125V.

41 Series. Less resistor; ext. resistance required for 250V. Both types are similar to Fig. E.

Lens Color	With Resistor Stock No.	With Resistor Type	Less Resistor Stock No.	Less Resistor Type
Red	60F1266	36N2311	60F1270	41N2311
Amber	60F1267	36N2313	60F1271	41N2313
Clear	60F1268	36N2317	60F1272	41N2317
White	60F1269	36N2315	60F1273	41N2315

	Type	1-24	25-99	100-249	250-499
Prices	36N	2.28	1.73	1.10	.95
	41N	2.00	1.67	1.11	.89

RECTANGULAR 3100 AND 3100T

Rectangular pilot light for maximum message display in compact areas. Have white housings and chrome plated bezels. No replacement of lamp needed. Includes proper dropping resistor for neon lamp. Lens is made of plastic. Mounting hole size, 1.281 × .395". Housing depth 21/32". Lens size: 1 15/32". Wt., 0.5 oz. 110-125 Volts.

3100 SERIES—6" WIRE LEAD

Lens Color	Stock No.	Type	1-24	25-99	100-249	250-499
Red	25F1391	31-2111	2.74	1.98	1.18	1.00
Amber	25F1392	31-2113				
Clear	25F1393	31-2117				
White	25F1394	31-2115				

3100T SERIES—BRASS TAB TERMINALS

Red	25F1395	31-2111T	2.95	1.98	1.18	1.00
Amber	25F1396	31-2113T				
Clear	25F1397	31-2117T				
White	25F1398	31-2115T				

WITH INCANDESCENT LAMPS

6V—.2A and 14V—.08A With .250 tab terminals.

Lens Color	6-Volt Types Stock No.	6-Volt Types Type	14-Volt Types Stock No.	14-Volt Types Type
Red	25F1410	31-G1-2111T	25F1415	31-G3-2111T
Green	25F1411	31-G1-2112T	25F1416	31-G3-2112T
Amber	25F1412	31-G1-2113T	25F1417	31-G3-2113T
Blue	.....	.....	25F1418	31-G3-2114T
White	25F1414	31-G1-2115T	25F1419	31-G3-2115T

	Type	1-24	25-99	100-249	250-499
Prices	31-G1	4.00	2.58	1.57	1.40
	31-G3	3.58	2.70	1.60	1.45

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

LEECRAFT Indicator Lights and LEDs

SERIES L59. Low cost, black nylon construction. Snap-fits .250″ mounting hole. Panel range .020-062. Diffused LED. Typical light output 1.5-1.8 MCD.

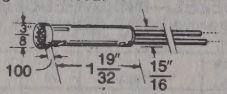
6″ INSULATED WIRE LEADS

Stk. No.	Type	Lens	Volts	1-24	25-99	100-249	250-499
60F1353	L59D-R2-W	Red	2	1.60	1.44	1.28	1.16
60F1354	L59D-G2-W	Green	2				
60F1355	L59D-Y2-W	Yellow	2				
10F7455	L59D-R6-W	Red	6	1.96	1.75	1.54	1.40
10F7456	L59D-G6-W	Green	6				
10F7457	L59D-Y6-W	Yellow	6				
10F7458	L59D-R12-W	Red	12	1.96	1.75	1.54	1.40
10F7459	L59D-G12-W	Green	12				
10F7460	L59D-Y12-W	Yellow	12				
10F7461	L59D-R24-W	Red	24	1.96	1.75	1.54	1.40
10F7462	L59D-G24-W	Green	24				
10F7463	L59D-Y24-W	Yellow	24				

BARE WIRE TERMINALS

60F1356	L59D-R2-T	Red	2	.77	.62	.47	.45
60F1357	L59D-G2-T	Green	2				
60F1358	L59D-Y2-T	Yellow	2				

L39UR complete Led assembly with 6″ wire leads and built-in dropping resistor. Hi-hat lens and chrome bezel. Snap fits 5/16 hole. Panel range .030-.052.



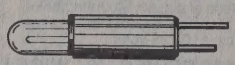
6″ WIRE LEADS

Stk. No.	Type	Lens	Volts	1-24	25-99	100-249	250-499
10F7473	L39UR-R6-2111	Red	6	2.85	2.25	1.66	1.52
10F7474	L39UR-G6-2112	Green	6				
10F7475	L39UR-Y6-2116	Yellow	6				
10F7476	L39UR-R12-2111	Red	12	2.85	2.25	1.66	1.52
10F7477	L39UR-G12-2112	Green	12				
10F7478	L39UR-Y12-2116	Yellow	12				
10F7479	L39UR-R24-2111	Red	24	2.85	2.25	1.66	1.52
10F7480	L39UR-G24-2112	Green	24				
10F7481	L39UR-Y24-2116	Yellow	24				

28 VOLT .04 AMP INCANDESCENT

Stk. No.	Type	Color	1-24	25-99	100-249	250-499
60F3616	45RNG5-2111	Red	4.19	3.03	1.97	1.70
60F3617	45RNG5-2112	Green				
60F3619	45RNG5-2114	Blue				
60F3620	45RNG5-2115	White				

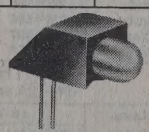
L72 STAND-OFF ASSEMBLY



LED mounted 28/32" spacer. For sub panel mounting use on PC board. Other heights available.

Stk. No.	Type	Net Each			
		Color	1-24	25-99	100-249
81F194	L7214DR	Red	.99	.86	.77
81F194	L7214DG	Grn.			
81F194	L7214DY	Yel.			

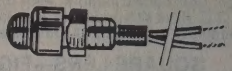
L611 STATUS INDICATOR



The L611 status indicator for direct PC board use. Discrete LED L111DR light source is standard. Others may be supplied on order.

Stk. No.	Type	Net Each			
		Color	1-24	25-99	100-249
81F195	L611DR	Red	.99	.86	.77
81F195	L611DG	Grn.			
81F195	L611DY	Yel.			

SERIES L58. All metal, lock-nut construction. Plated bezel. Mounting hole .191. Panel range .187 max. Diffused LED, light output 1.5-1.8 MCD typical.



6″ INSULATED WIRE LEADS

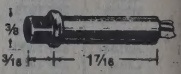
Stk. No.	Type	Lens	Volts	1-24	25-99	100-249	250-499
60F1325	L58D-R2-W†	Red	2	2.58	2.27	1.70	1.55
60F1326	L58D-G2-W†	Green	2				
60F1327	L58D-Y2-W	Yellow	2				
10F7464	L58D-R6-W	Red	6	2.94	2.58	1.95	1.79
10F7465	L58D-G6-W	Green	6				
10F7466	L58D-Y6-W	Yellow	6				
10F7467	L58D-R12-W	Red	12	2.94	2.58	1.95	1.79
10F7468	L58D-G12-W	Green	12				
10F7469	L58D-Y12-W	Yellow	12				
10F7470	L58D-R24-W	Red	24	2.94	2.58	1.95	1.79
10F7471	L58D-G24-W	Green	24				
10F7472	L58D-Y24-W	Yellow	24				

BARE WIRE TERMINALS

60F1328	L58F-R2-T†	Red	2	1.85	1.65	1.50	1.28
60F1329	L58F-G2-T†	Green	2	1.91	1.60	1.53	1.31
60F1330	L58D-Y2-T	Yellow	2	.82	.67	.52	.48

†Faceted Lens.

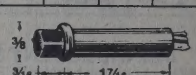
L45R complete Led assembly with 3/16 tab terminals and built-in dropping resistor. Hi-hat lens and chrome bezel. Press fits 5/16 hole. Speed nut supplied. Panel range .030-.094.



3/16″ TAB TERMINALS

Stk. No.	Type	Lens	Volts	1-24	25-99	100-249	250-499
60F1337	L45RN-R6-2111	Red	6	3.40	2.59	1.89	1.71
60F1338	L45RN-G6-2112	Green	6				
60F1339	L45RN-Y6-2116	Yellow	6				
10F7482	L45RN-R12-2111	Red	12	3.40	2.59	1.89	1.71
10F7483	L45RN-G12-2112	Green	12				
10F7484	L45RN-Y12-2116	Yellow	12				
10F7485	L45RN-R24-2111	Red	24	3.40	2.59	1.89	1.71
10F7486	L45RN-G24-2112	Green	24				
10F7487	L45RN-Y24-2116	Yellow	24				

Series 45. Brass blade terminals. 1/8″ wide, .020″ thick. Mnt. hole: 5/16″ w/chrome ring, speed nut incl.



110-125 VOLT NEON

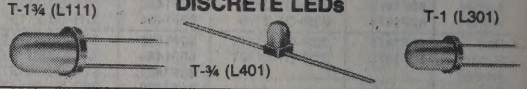
Stk. No.	Type	Lens	1-24	25-99	100-249	250-499
60F3600	45RN2111	Red	3.85	2.88	1.88	1.50
60F3601	45RN2113	Amber				
60F3602	45RN2115	White				

14 VOLT .08 AMP INCANDESCENT

Stk. No.	Type	Color	1-24	25-99	100-249	250-499
60F3610	45RNG3-2111	Red	4.19	3.03	1.97	1.70
60F3611	45RNG3-2112	Green				
60F3612	45RNG3-2113	Amber				
60F3614	45RNG3-2115	White				

DISCRETE LEDs

T-1¾ (L111) T-¾ (L401) T-1 (L301)



Stk. No.	Type	Features	Color	MCD Typ. @ 20 mA	Fwd. Typ. @ 20 mA	Net Each 1-24	25-99	100-249	Net/C 250-499
81F196	L111CR	High Brightness	Red	25 MCD	2.0 TYP	.54	.48	.42	.39
81F196	L111CG		Green	50	2.0	.58	.50	.44	.41
81F196	L111CY	Clear Lens	Yellow	30	2.0	.57	.51	.45	.42
81F197	L111DR	High Brightness	Red	4	2.0	.57	.51	.45	.42
81F197	L111DG		Green	7	2.0	.54	.48	.42	.39
81F197	L111DY	Diffused Lens	Yellow	10	2.0	.55	.49	.43	.40
81F198	L301DR	Diffused Lens	Red	1	2.0	.47	.42	.35	.32
81F198	L301DG		Green	4.5	2.0	.49	.44	.37	.34
81F198	L301DY		Yellow	3	2.0	.50	.45	.38	.35
81F199	L401DR		Red	3	1.6	.56	.52	.45	.40
81F199	L401DG	Diffused Lens	Green	1.0	2.4	.62	.65	.49	.46
81F199	L401DY		Yellow	2.0	2.5	.62	.55	.49	.46

Lampholders & Sockets

LEECRAFT

Series 200. Miniature bayonet sockets with insulating sleeves. Brackets made of .025/.032" steel cadmium plated. Wire leads, 22 gauge, 6" long.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
25F1300	02-01	A	2.18	1.61	1.01	.74
25F1302	02-06	D	2.18	1.50	.99	.73
25F1303	02-13	G	2.18	1.50	.99	.73
25F1304	02-15	I	2.18	1.61	1.01	.74

Series 300. Miniature bayonet sockets of molded bakelite. 300 type housing provides insulation where low voltage lamps are to be used. UL listed and CSA approved. Wire leads, 22 gauge, 6" long.

25F1305	03-01	A	2.61	1.90	1.30	.99
25F1306	03-02	B	2.61	1.90	1.30	.99
25F1307	03-05	C	2.61	1.90	1.30	.97
25F1308	03-06	D	2.61	1.90	1.30	.97
25F1309	03-13	G	2.61	1.90	1.30	.97
25F1311	03-20	H	2.61	1.90	1.30	.97

Series 12-200. Double contact candelabra bayonet, with stranded, tinned copper leads. Contacts are mounted on insulating phenolic disc. Bracket and shell are grounded.

60F1298	12-245	A	2.33	1.80	1.55	.91
60F1299	12-202	B	2.73	1.75	1.20	.74
60F1300	12-271	C	2.33	1.80	1.55	.91
60F1301	12-272	E	2.33	1.80	1.55	.91
60F1302	12-230BN	O	3.13	2.59	1.80	1.08
25F1332	12-240	M	2.47	1.91	1.62	.95

Series 2500. Subminiature grooved sockets w/solder terminals. Terminals are tinned and brackets are cadmium plated. (*Wire Leads, Grounded Shell).

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1303	25-06	D	2.42	1.89	1.42	1.13
60F1304	25-08	E	2.42	1.89	1.42	1.13
60F1305	25-35	L	2.01	1.73	1.44	1.21
60F1307	25-230N-1	O*	4.29	2.60	2.00	1.50

Series 400. Candelabra screw base in molded bakelite. #18 gauge wire leads in black and white, 6" long, ends stripped 1/2". UL listed. CSA approved.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
25F1312	04-01	A	2.76	1.88	1.42	1.18
25F1314	04-05	C	2.76	1.88	1.41	1.17
25F1315	04-06	D	2.76	1.88	1.41	1.17
25F1316	04-08	E	2.76	1.88	1.41	1.17
25F1317	04-15	I	2.76	1.88	1.42	1.18
60F1296	04-40	M	2.76	1.88	1.42	1.18

Series 500. Miniature screw sockets with soldering terminals. Terminals are tinned and brackets are cadmium plated.

25F450	05-05	C	2.27	1.81	1.00	.55
25F454	05-06	D	2.27	1.81	1.00	.55
25F451	05-07	F	1.77	1.52	.91	.45
25F447	05-08	E	2.27	1.81	1.00	.55
25F1318	05-13	G	2.27	1.81	1.00	.55
25F1319	05-15	I	2.71	1.81	1.08	.59

Series 11-200. Single contact candelabra bayonet w/ stranded tinned copper lead. Contact mounted on fibre insulator. Brackets are grounded electrically to socket shell.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1308	11-271	C	2.29	1.75	1.20	.74
25F1328	11-272	E	2.29	1.75	1.20	.74
60F1309	11-275	G	2.73	1.75	1.20	.74
60F1310	11-230BN	O	3.60	2.43	1.67	.94

Series 600. Candelabra screw sockets with solder terms. Brackets are .025/.032".

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
25F446	06-06	D	2.54	2.03	1.22	.67
25F462	06-07	F	1.98	1.57	.96	.50
25F448	06-08	E	2.54	2.03	1.22	.67
25F1321	06-13	G	2.54	2.03	1.22	.67

Series 700. Miniature bayonet sockets with soldering terminals for low voltage incandescent lamps. *For printed circuits.

25F457	07-01	A	1.83	1.45	.89	.43
25F458	07-04	B	1.83	1.45	.89	.43
25F455	07-05	C	1.83	1.45	.85	.41
25F459	07-06	D	1.83	1.43	.85	.41
25F456	07-07	F	1.74	1.29	.75	.37
25F449	07-08	E	1.83	1.45	.85	.41
25F1323	07-11	H	1.83	1.45	.89	.43
25F1324	07-13	G	1.83	1.45	.85	.41
25F1325	07-15	I	1.83	1.45	.89	.43
25F460	07-20	N	1.83	1.45	.85	.41
25F1326	07-35	L*	1.96	1.66	1.19	.92

Series 16-00. Subminiature midget screw lampholder. Available w/ variety of bracket styles. Solder lugs or wire lead. **For printed circuits.

Stk. No.	Type	Fig.	1-24	25-99	100-249	250-499
60F1311	16-08	E	2.38	1.83	1.25	.76
60F1312	16-35	**L	2.84	2.00	1.62	1.33
60F1313	16-07	F	2.38	1.67	1.12	.69

WEDGE BASE LAMPHOLDER

Series 53-00. For T-1¾ subminiature wedge base lamps. Solder lugs (53-07) and wire leads (53-207). Available with variety of bracket styles for Panel or PC board mounting. Type 53-35 is for PC mount. 53-208 wire leads, rt. angle bracket.

Stk. No.	Type	1-24	25-99	100-249	250-499
60F1318	53-07	1.19	.81	.55	.29
60F1319	53-207	1.43	.98	.57	.35
20F979	53-35	1.19	.81	.55	.29
60F2729	53-208	1.63	1.16	.64	.41

J

P

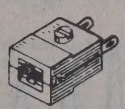
Q

Series 23-00. For T 3¼ Wedge Base lamp. Will also accommodate T-5 size. Supplied with solder lugs or 6" wire leads.
(23-240, 23-224). Specify 23-35 or 23-12+ for PC boards. For Wafer type construction, specify 24-07A. For L&M illustration see top of page.

Stock No.	Type	Fig.	1-24	25-99	100-249	250-499
60F2733	23-07	P	1.41	1.11	.72	.43
60F2748	23-35	L	1.41	1.11	.72	.43
60F2843	23-240	M	2.28	1.39	.94	.71
60F1314	23-23	J	1.70	1.21	.82	.49
60F1315	**23-224	J	2.02	1.33	.92	.61
60F2845	24-07A	Q	1.77	1.41	.87	.62

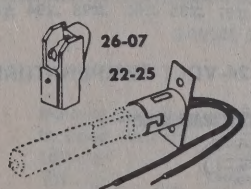
+30° Angle, PC board mount **Reverse of 23-23, Wire Leads

HALOGEN CYCLE LAMPHOLDERS



Series 27-00 for G.E. and other G4 Two Pin Halogen Cycle lamps. Ceramic construction. Tabs (.110"). Series 28-00 similar to Series 27-00 above except surface mount. Series 21-07 similar to above except for use with T 2¼ wedge base Halogen lamps. Series 21-207 — Wire Leads.

Stk. No.	Type	1-24	25-99	100-249	250-499
60F2731	27-07	1.97	1.31	1.01	.88
60F2732	28-07	2.30	1.53	1.18	1.03
60F2730	21-07	2.39	1.71	1.30	.96
60F1317	21-207	2.62	1.54	1.41	1.11



QUARTZ HALOGEN SOCKETS

2200 Series Candelabra bayonet socket for use with single-ended, double-contact GE or other Quartzline lamps.
2600 Series for use with recessed, single-contact, dual-ended lamps. For GE and other bulbs.
TYPE 22-25—Straight bracket socket.
TYPE 22-27—Step bracket socket.

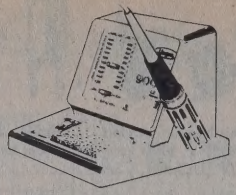
TYPE 26-07 1/4" Male Tab (Shown)
TYPE 26-207 4" Silicone Insulated Wire

Stk. No.	Type	1-24	25-99	100-249	250-499
60F3784	22-25	3.12	2.38	1.85	1.71
60F3785	22-27	3.12	2.38	1.85	1.71
20F981	26-07	4.62	3.65	3.04	2.67
60F2846	26-207	5.16	4.13	3.42	3.00

15

Ungar® Modular Soldering Systems

9000 SYSTEM



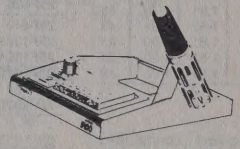
Electronic, closed loop temperature control operator adjustable over a range of 420°F-800°F. LED bar graph display in 20°F steps. 24VAC iron. Circuit breaker overload protection. Micro-Size handle.

81F9273 ..... 150.00

TIP SELECTION

Stock No.	Type	Description	1-9	10-49	50-Up
81F4018	9010	Precision Point	3.75	3.38	3.00
81F4019	9011	1/32" Spade			
81F4020	9012	1/16" Screwdriver			
81F4021	9015	5/64" Screwdriver			
81F4022	9016	3/32" Screwdriver			

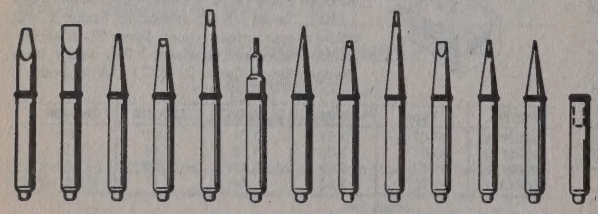
9100 SYSTEM



Similar to the System 9000 with additional features. Temperature range 400°F-800°F with continuous variable control. Neon on-off pilot light.

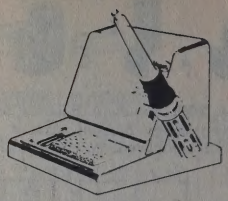
Stock No.	Type	Description	1-9	10-49	50-Up
81F4023	9100	.....	91.00	82.50	73.35

Uses same tips as 9000 Series.



#80 #81 #82 #83 #84 #85 #86 #87 #88 #92 #93 #94 #95

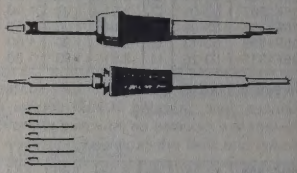
9200 SYSTEM



A temperature controlled soldering system that includes a system module base handle with Thermo-Duric® heater. 1/16" #87 screwdriver tip. Has sponge and tip tray and sponge iron holder.

Stock No.	Type	Description	1-9	10-49	50-Up
33F050	9260	for 600°F	91.00	82.50	73.35
33F051	9270	for 700°F			
33F052	9280	for 800°F			

9300 SYSTEM



Includes micro-Size handle with Thermo-Duric® heater. 1/16" #9012 screwdriver tip.

Stock No.	Type	Description	1-9	10-49	50-Up
81F4024	9370	700°F	28.95	26.06	23.16
81F4025	9380	800°F			

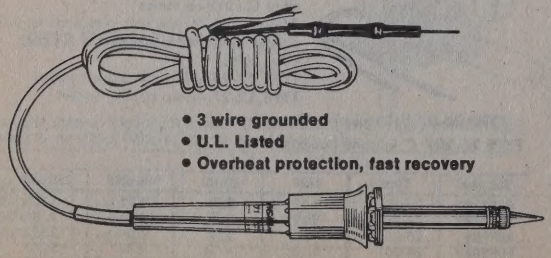
HEATERS

Stock No.	Type	Temperature	1-9	10-49	50-Up
34F1066	76	600° F	24.52	22.07	19.62
34F1067	77	700° F			
34F1068	78	800° F			

INTERCHANGEABLE TIPS

Stock No.	Type No.	Description	Size (in.)	1-9	10-49	50-Up
30F150	80	Long screwdriver	1/8"	3.20	2.88	2.56
30F154	81	Screwdriver	11/64"	3.47	3.12	2.78
30F159	82	Spade	1/32"	3.20	2.88	2.56
30F156	83	Screwdriver	1/32"	3.20	2.88	2.56
30F152	84	Long screwdriver	3/64"	3.47	3.12	2.78
30F158	85	Stepped spade	5/64"	3.30	2.97	2.64
30F155	86	Needle tip	3/64"	3.20	2.88	2.56
30F153	87	Screwdriver	1/16"	3.20	2.88	2.56
30F151	88	Long screwdriver	3/64"	3.20	2.88	2.56
34F1069	92	Screwdriver	1/8"	3.20	2.88	2.56
34F1070	93	Screwdriver	1/32"	3.20	2.88	2.56
34F1071	94	Short Conical	1/32"	3.20	2.88	2.56
10F7675	95	Tip Adapter	1/32"	1.98	1.78	1.58

UNGARmatic 24-VOLT TEMPERATURE CONTROLLED SOLDERING IRON



- **3 wire grounded**
- **U.L. Listed**
- **Overheat protection, fast recovery**

Designed for use with any 24V power supply which has 2 amp. output minimum. 3-wire grounded with an ungrounded secondary circuit. Features: on-line economical maintenance Long-life iron-clad tips; spring loaded tip retainer; controlled temperature heater; taper lock heat shield; cool grip handle with 3-wire heat resistant flexible cord set.

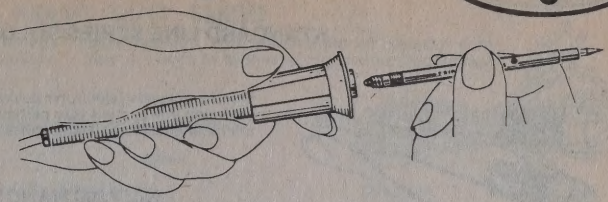
Stock No.	Type	Temperature	1-9	10-49	50-Up
34F1063	60T6	600°F	42.72	38.45	34.18
34F1064	607T	700°F			
34F1065	60T8	800°F			

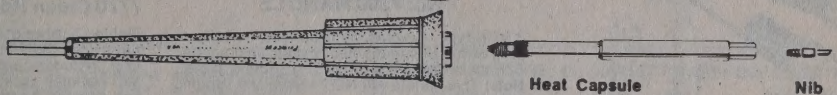
Modular Soldering Tools

Ungar®

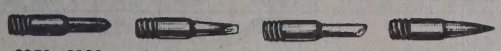
PRINCESS® MICRO LINE

Design enables pinpoint hand control, comfort and accuracy assuring hi-yield soldering of delicate circuitry and components in the tightest spaces. Ideal for micro-precision, micro-miniature soldering. Uses include flat and stack packs, hybrids and discrete devices.





SOLDERING NIBS



6950, 6960 | 6951, 6961 | 6952, 6962 | 6953, 6963

HEAT CAPSULES

For 120 Volts AC/DC operation. Heating section threaded to accept series of ⅛" "Princess" soldering nibs. Length: 3¾". Shipping weight: 2 oz.

Stk. No.	Type	Watts	Temp.	1-9	10-49	50-Up
32F896	6910	10	575-650°F	13.22	11.90	10.58
32F897	6915	15	700-775°F			
32F894	6918	18	775-850°F			

ASSEMBLED PRINCESS SOLDERING IRON KIT

Includes: 6902 handle, 6910 10 watt heat capsules, 6950 pencil nib, 6951 screwdriver nib, 6952 spade nib. Shpg. wt. 14 oz.

Stk. No.	Type	Description	1-9	10-49	50-Up
32F885	6975	Assembled	29.67	24.28	21.58

HANDLES

Model 6902. Polyvinyl chloride insulated cord. 120V AC/DC. 5"L × ½" dia. Wt. 3 oz.
Model 6903. Same except cord is 22 gauge flexible stranded w/molded 3-wire NEMA plug. Grounds capsule and tip.

Stk. No.	Type	Handles	1-9	10-24	25-Up
32F899	6902	2-Wire	11.25	10.13	9.00
32F898	6903	3-Wire	14.72	13.25	11.78

SOLDERING NIBS

Made of copper alloy; also available in iron clad silver plate. Four types of soldering nibs threaded (⅛") to fit princess heat Capsules.

Stk. No.	Type	Shape	Size	Plated	1-9	10-24	25-Up
32F893	6950	Pencil	.68 × ⅛"	Copper	1.03	.93	.83
32F892	6951	Screw Dr.	.68 × ⅛"	Copper	1.03	.93	.83
32F891	6952	Spade	.61 × ⅛"	Copper	1.03	.93	.83
32F890	6953	Point	.61 × ⅛"	Copper	1.97	1.78	1.58
32F889	6960	Pencil	.62 × ⅛"	Silver Plate	2.00	1.80	1.60
32F888	6961	Screw Dr.	.62 × ⅛"	Silver Plate	2.00	1.80	1.60
32F887	6962	Spade	.62 × ⅛"	Silver Plate	2.00	1.80	1.60
32F886	6963	Point	.61 × ⅛"	Silver Plate	3.58	3.23	2.87

Also accepts Standard Line Tiplets: PL-331, PL-332, PL-333, PL-338, PL-340, 7154, 7155, and 7062.

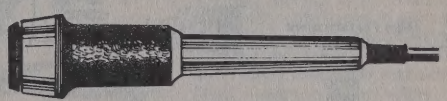
DI® SERIES DOUBLE SOLDERING IRONS

Lightweight compact design with flexible cord set. Rugged stainless steel thread-in heaters. Double insulated. Meets OHSA requirements. UL listed. Durable plastic handle.

THREAD-IN DI® HEATERS

Stk. No.	Type	Watts	Temp.	1-9	10-49	50-Up
33F1300	360	27W	650-750°F	10.50	9.45	8.40
33F1301	361	35W	750-850°F	10.50	9.45	8.40
33F1302	362	45W	850-950°F	10.50	9.45	8.40
33F1303	363*	45W	850-950°F	12.38	11.15	9.91

*Integral Heater/Tip (Chisel)



Handle with two-conductor cord set and plug. Durable plastic with finger-ease grip. Double insulated. 120 volt.

Stk. No.	Type	Description	1-9	10-24	25-Up
33F1304	5550	120V Thread-in handle	7.85	7.07	6.28

16

Designed to eliminate static induced currents. Useful for all general purpose and voltage sensitive components. Meets military, NASA, and other government contractor standards. Accepts more than 40 nibs, tips, tiplets, and de-soldered tips from Standard and Princess line. Ideal for MOSFET, IC components. UL listed heat cartridge available in 3 wattages. Protective coating on threads to reduce tip seizure. Lightweight handle. Grip. 3-wire cord approved for grounding soldering irons. 120V, 50-60Hz.

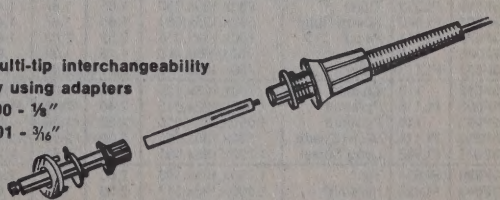
Stk. No.	Type	Watts	Temp.	1-9	10-49	50-Up
35F3077	1270	27	650-750°F	19.18	17.27	15.38
35F3078	1350	35	750-850°F			
35F3079	1450	45	900-1000°F			

STANDARD LINE TIP ADAPTERS

35F3080	100	For ⅛" Thread	.77	.70	.62
35F3081	101	For 3/16" Thread			

3-WIRE SOLDERING IRONS

Multi-tip interchangeability by using adapters
100 - ⅛"
101 - 3/16"

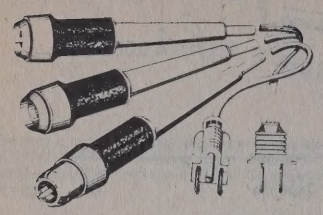


- **Approved 3-wire cord for soldering irons**
- **Ideal for MOSFET and IC Components**
- **Heat-resistant cord**

See page 632 for solder.

Modular Soldering Tools

STANDARD LINE SERIES SOLDERING HANDLES



Ideal for soldering electronic devices, printed circuit boards, and heavy wiring. Custom design the exact soldering iron to meet your particular application by choosing from the variety of handles, heaters, and interchangeable tips. Handles are balanced for comfort and fatigue-free soldering.

No. 7500 HANDLE

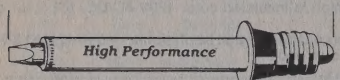
3 wire type. Completely grounded from tip to plug which eliminates electrostatic tip potential. Spring loaded, heat reflecting ground plate. **Note:** This handle will NOT accept any ceramic style heaters.

Stock No.	Type	1-9	10-49	50-up
32F978	7500	12.78	11.50	10.22

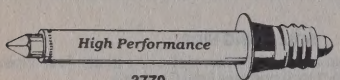
7760 RED HANDLE
7770 Clean Room Soldering Handle

Molded lightweight well balanced handle. Features cool "Soft Touch" flux and acid resistant grip. Includes cord protector and flexible cord set. Handles accept all Standard Line heaters and integral heater/tips. Grip dia. 1" handle length 5½".

Stock No.	Type	1-9	10-49	50-up
33F071	7760	6.38	5.74	5.10
33F030	7770	6.38	5.74	5.10



3470
3480
3410



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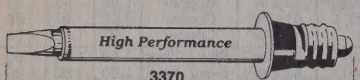

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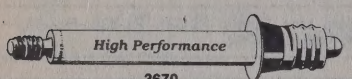

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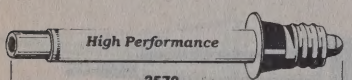


3570
3580
3510

INTERCHANGEABLE HEATERS

Large taper chisel. Tellurium Copper tip. **Type 3310:** Iron-Clad Silver plated tip, 3.92"L, .350"d. **Type 3370:** 3.92"L, .366"D. **Type 3380:** 3.53"L, .366"D.

Stock No.	Type	Temp.	Watts	Each
33F647	3370	700° F	40	7.72
33F646	3380	800° F	45	8.75
33F086	3310	1000° F	50	12.12

Short taper chisel. Tellurium Copper tip. **Type 3410:** Iron-Clad Silver plated tip, 3.56"L, .350"D. **Type 3480:** 3.45"L, .365"D. **Type 3470:** 16"L, 365"D.

Stock No.	Type	Temp.	Watts	Each
33F076	3470	900° F	40	7.67
33F079	3480	1000° F	45	9.88
33F088	3410	1000° F	50	12.08

Type 3570, 3580 & 3510: ½" unit for thread-in tips. 3.56"L, .365"D.

Stock No.	Type	Temp.	Watts	Each
33F081	3570	650° F	40	8.62
33F085	3580	750° F	45	8.47
33F089	3510	850° F	50	9.75

¼" unit for thread-on tips. **Type 3770:** 3.67"L, .365"D. **Type 3780:** .365"L, .375"D. **Type 3710:** 3.45"L, .365"D.

Stock No.	Type	Temp.	Watts	Each
32F977	3770	650° F	40	7.35
33F678	3780	758° F	45	8.40
33F677	3710	850° F	50	9.75

Pyramid tip. **Type 3670:** Tellurium copper, 3.16"L, .365"D. **Type 3680:** Silver plated iron, 3.40"L, .365"D. **Type 3610:** Silver plated, Iron-Clad Copper. 3.56"L, .350"D.

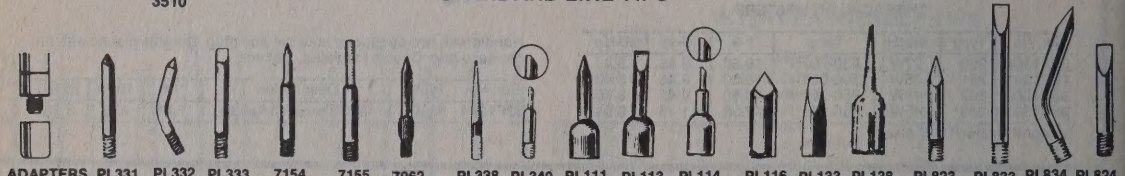
Stock No.	Type	Temp.	Watts	Each
33F072	3670	700° F	40	7.75
33F078	3680	800° F	45	9.97
33F087	3610	1100° F	50	12.15

Type 4045-S: 3/16" unit for thread-in tips. 3.50"L, .365"D.

Stock No.	Type	Temp.	Watts	Each
33F029	4045-S	950° F	45	9.75

Note: All temp. are approximate. Nos. 100 & 101 tip adapters may be used with Nos. 537-S, 1237-S, and 4037-S.

STANDARD LINE TIPS



ADAPTERS 100 101 | PL331 | PL332 332 | PL333 333 | 7154 | 7155 | 7062 | PL338 | PL340 | PL111 111 | PL113 113 | PL114 | PL116 116 | PL133 | PL138 | PL823 823 | PL833 | PL834 | PL824 824

"PL" tiplets are Iron clad tallurium copper, and silver plated. No prefix indicates unplated copper alloy.

Stk. No.	Type	Description	Lgth. x Dia. x Pt.	1-9	10-49	50-Up
23F686	PL338	Tiplet	.930x.135x.050	1.85	1.67	1.48
33F685	PL340	Spade Tiplet	.562x.135x.054	1.85	1.67	1.48
33F679	PL111	Pencil	.750x.132x.015	2.32	2.09	1.86
33F680	111	Pencil	.750x.125x.005	1.15	1.04	.92
33F681	PL113	Chisel	.750x.135x.135	2.32	2.09	1.86
33F682	113	Chisel	.750x.125x.125	1.15	1.04	.92
33F693	PL116	Pyramid	1.060x.322x.015	2.40	2.16	1.92
33F691	116	Pyramid	1.060x.312x.005	1.22	1.10	.98
33F692	PL114	Micro Spade	.530x.135x.056	2.32	2.09	1.86
33F641	PL833	Long Chisel	1.750x.195x.195	2.80	2.52	2.24
33F099	PL834	Tip	1.750x.195x.199	2.80	2.52	2.24
33F642	PL823	Pyramid	1.000x.195x.017	2.08	1.87	1.66
33F643	823	Pyramid	1.000x.187x.005	.97	.87	.78
33F644	PL824	Long Chisel	1.000x.195x.199	2.08	1.87	1.66
33F645	824	Long Chisel	1.000x.187x.187	.97	.87	.78
33F672	PL133	Long Chisel	.750x.312x.150	2.40	2.16	1.92
33F673	PL138	Tapered Needle	.750x.125	2.32	2.09	1.86

Stk. No.	Type	Description	Lgth.xDia.xPt.	Size	1-9	10-49	50-Up
33F093	PL331	Pencil	.870x.135x.015	1/8"	1.85	1.67	1.48
33F094	PL332	Offset Pencil	.970x.135x.015	1/8"	1.85	1.67	1.48
33F095	PL333	Chisel	.870x.135x.135	1/8"	1.85	1.67	1.48
33F083	332	Offset Pencil	.970x.135x.005	1/8"	.80	.72	.64
33F084	333	Chisel	.870x.125x.125	1/8"	.80	.72	.64
33F689	7154	Pencil	.870x.135x.015	1/8"	1.85	1.67	1.48
33F690	7155	Chisel	.870x.135x.068	1/8"	1.85	1.67	1.48
33F038	7062	Precision Pt.	.770x.125x.005	1/8"	3.20	2.88	2.56

TIP ADAPTERS

Stk. No.	Type	Size	Description	1-9	10-49	50-Up
35F3080	100	1/8"	Adapts to thread-on bodies	.77	.69	.62
35F3881	101	3/16"	For standard, DI heaters and 3-wire irons	.77	.69	.62

Modular Soldering Tools

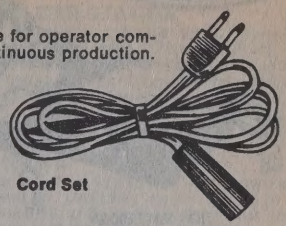
Ungar®

IMPERIAL HEAVY DUTY SERIES

Ideal for reliable, large connection soldering. This dependable tool features fast heat recovery plus patented, heat sink handle for operator comfort . . . even in high-rate, continuous production.

Handle

Heat cartridges



Cord Set

IMPERIAL® CORD SETS

Pastel turquoise flexible vinyl w/molded connector plug. UL listed. 2-wire: wt. 2½ oz. 3-wire: wt. 4 oz., w. NEMA plug.

Stock No.	Type	1-9	10-49	50-Up
32F903	6102 2-wire	7.05	6.35	5.64
32F906	6103 3-wire/grnd.	10.30	9.27	8.24

IMPERIAL® HANDLE

Diameter at grip 0.8". Length 4.7" (including heat sink). Turquoise colored. Rated @ 115V AC/DC. Shipping wt. 1 ounce.

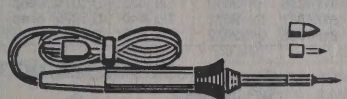
Stock No.	Type	1-9	10-49	50-Up
32F900	6100	4.65	4.19	3.72

IMPERIAL® CARTRIDGE

Made of a temperature resistant stainless steel body and copper alloy heat collector. Threaded end of the collector is designed and engineered to provide maximum heat transfer. All cartridges fit the IMPERIAL PERMA-COOL handle and can be changed at the bench with easy slip-in, twist-lock action. Use on tight, high-density circuitry requiring precision tip temperatures and extreme care in soldering. Ideal for heavy-duty plant service maintenance but light enough for fatigue-free production line use.

Stock No.	Type	Heat Range	Dia.	Width	Weight	1-9	10-49	50-Up
32F914	6202	600-800F	0.363"	25	1.1 oz.	12.57	11.31	10.06
32F913	6201	650-850F	0.363"	35	1.1 oz.	12.57	11.31	10.06
32F912	6200	750-950F	0.363"	45	1.1 oz.	12.57	11.31	10.06
32F966	6203	850-1150F	0.363"	55	1.1 oz.	14.83	13.35	11.86

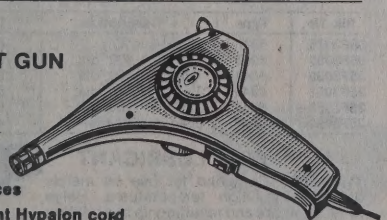
45-WATT ALL-PURPOSE SOLDERING IRON KIT



Model 6010. Features the most popular IMPERIAL components used in production, development and service. Consist of one type 6100 handle, one type 6102 two-wire cord, one type 6200 45-watt heat cartridge. Delivers 750°F. to 950°F. tip temperature. Comes with three multi-purpose MINI-TIP thread-on soldering tips.

Stock No.	Type	1-9	10-49	50-Up
32F971	6010	29.08	26.17	23.26

UNGAR® HEAT GUN



- 3-way switch
- Versatile
- U.L. Listed
- Weighs only 13 ounces
- Oil and heat resistant Hypalon cord

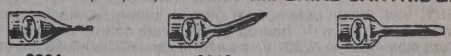
Feather light for greater accuracy and easier handling. Delivers 750°-800°F air flow temperature at nozzle in seconds. Air stream width ⅜". On/Off switch. Hot or cold air setting. Self-standing on work bench. Oil resistant Hypalon cord. Molded glass polyester housing. UL listed. 250 Watts, 120 Volts, AC only. Shipping weight: 18 oz.

Includes 4 baffles, one reducing baffle to reduce air flow at nozzle to .200" and three reflectors for shrink tubing applications. Handles all polyvinyl, olefins, silicone rubber and TFE materials. One reflector ½" L x ¾" dia. for solder sleeves and small tubing. One reflector 1¼" L x ¾" dia. for larger shrinking applications. One adapter to shrink most solder preforms materials, especially low temperature.

35F3074. Model 6966C. Complete, 3 wire cord, NEMA plug.
NET **70.00**

35F3075. Model 6965A. Heat Gun Holder. **NET** **7.73**

TIPS FOR 25, 35, 45, 55 WATT IMPERIAL CARTRIDGE



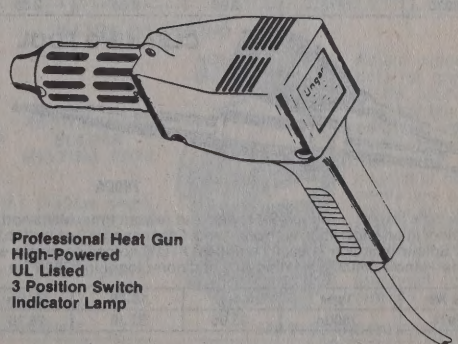
6304 6316 6318

Designed for multileads, joints and microminiature connections. Ideal for intricate printed circuit board work and rework. Long-lasting iron-clad, chrome-plated, pre-tinned except (*) copper alloy. Av. shpg. wt. 3 oz.

Stock No.	Type	Shape	Size	1-9	10-49	50 Up
32F915	6304	Mic-chisel	3/64"×1/2"	3.05	2.75	2.44
32F916	6305	Micro spade	3/64"×1/2"	3.05	2.75	2.44
32F917	6312*	Pencil	1/8"×3/4"	1.43	1.29	1.14
32F918	6313	Pencil	1/8"×3/4"	3.05	2.75	2.44
32F920	6316	Pencil Offset	1/8"×3/4"	3.05	2.75	2.44
32F921	6318*	Long Taper Chisel	1/8"×3/4"	1.43	1.29	1.14
32F923	6324*	Long Taper Pyr.	1/8"×3/4"	1.43	1.29	1.14
32F924	6325	Long Taper Pyr.	1/8"×3/4"	3.05	2.75	2.44
32F926	6331	Screwdriver	1/8"×3/4"	3.05	2.75	2.44
32F927	6333	X-long Taper Pencil	1/8"×3/4"	3.05	2.75	2.44
32F931	6366	Long Taper Chisel	3/16"×3/4"	3.57	3.21	2.86
32F959	6481	Tap. Screwdriver	3/4"×3/32"	3.05	2.75	2.44
32F960	6482	Micro-Spade Stepped	3/32"×1/16"	3.05	2.75	2.44
33F042	6368*	Long Taper Pyr.	3/4"×.187"	1.70	1.53	1.36
33F044	6473*	Long Taper Chisel	3/4"×.375"	1.70	1.53	1.36

NEW #8800 SOLDERING IRON HOLDER
Designed to hold all Ungar soldering irons except Princess Line and 500 series type heaters. Also can be used with Hot Vac Desoldering systems handle, and most soldering irons with 5/16" to 7/16" diameter heater cases. Use with: Standard, Imperial, 3 wire and DI lines. Hot Vac 2000A-4000 and Ungarmatic iron. • Holds irons in proper position • Easily assembled • Attractive functional design • Sturdy • Free Standing • Non Skid • Convenient tip cleaning sponge and tray.

33F687. NET **12.47**



- Professional Heat Gun
- High-Powered
- UL Listed
- 3 Position Switch
- Indicator Lamp

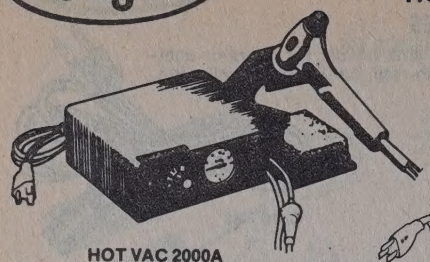
This professional heat gun is ideal for all shrink tubing, solder preforms, solder reflow, epoxy curing, expanding frozen fasteners, etc. Delivers 975°F airflow temperature at the nozzle. 3 wire grounded. 6.7 amps. 800 watts. 120 volts AC only. Air flow 6.9 cfm at 2650 fpm.

81F5289. Model 6977 NET 85.00

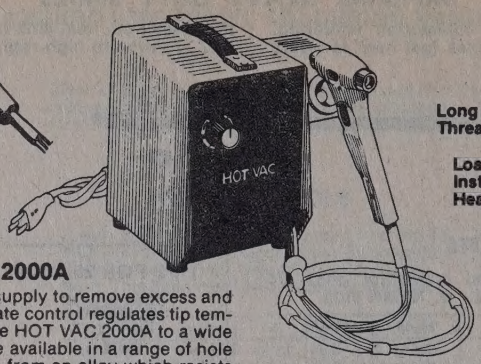
16

Ungar®

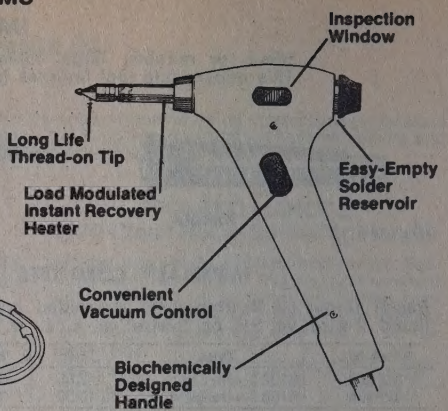
HOT VAC® DESOLDERING SYSTEMS



HOT VAC 2000A



HOT VAC 4000



HOT VAC MODEL 2000A

The HOT VAC 2000A uses normal shop air supply to remove excess and unwanted solder from PC boards. A solid state control regulates tip temperature from 500° to 1000° F and adapts the HOT VAC 2000A to a wide variety of applications. The long-life tips are available in a range of hole sizes from .032" to .089" and are machined from an alloy which resists abrasion and erosion by the solder. The solder reservoir is located in the handle and can be emptied even while the unit is operating. The exhaust is muffled for quiet and can be fitted with a remote exhaust for clean room applications.

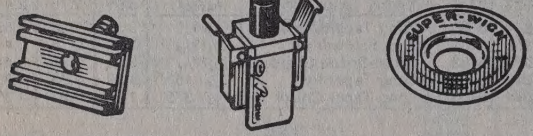
Ungar No. HOT VAC 2000A Desoldering System—
34F1072 ..... 365.00

HOT VAC MODEL 4000

Similar to the Model 2000A, except has built-in vacuum pump that operates only when the handle switch is actuated. A low-noise exhaust system and vibration isolators keep the pump quiet. The case is steel with baked-enamel finish. A convenient handle and a locking device to secure the handle permit easy transporting.

Ungar Model HOT VAC 4000 Desoldering System—
76F1006 ..... 399.00

DIP DESOLDERING KITS



Desolder Tip Spring loaded extractor Desoldering braid

50DK UNGAR Desolder Kit fits UNGAR Controlled Soldering Irons. Includes 95 tip adapter, 6982 spring loaded extractor, 6948 desoldering tip, 5013 Super-Wick Desoldering braid. **Kit 51DK** fits standard 3-wire and DI Line Irons. Includes 100 thread-in ⅛" adapter, 6982 extractor, 6948 Desoldering tip and 5013 Super-Wick.

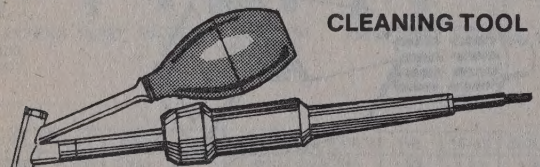
Stock No.	Type No.	1-9	10-49	50-Up
34F1081	50DK	14.40	12.96	11.52
34F1082	51DK	12.95	11.60	10.36

DESOLDERING IRON/CLEANING TOOL

7874 Desoldering Pump One hand operation. Easy to set plunger. Press-release switch. Automatic self-cleaning, no clog replaceable tip. Lightweight anodized aluminum. Low static. Use with 7875 replacement tip.

Stock No.	Type	1-9	10-49	50-Up
81F4029	7874	14.95	13.45	11.95
81F4030	7875	2.95	2.65	2.35

CLEANING TOOL



7800A

De-solder 50% faster . . . reduce PC repair and rework time. Melts and removes solder in one operation with one hand. Other hand is free to lift components. Solder reservoir is easily emptied. #7800 comes complete with #7770 Blue Handle, #4037S Heating Unit and non-clogging #7806 Tip.

Stock No.	Type	1-9	10-49	50-Up
32F974	7800A	35.95	32.36	28.76

REPLACEMENT TIPS

Copper Desoldering iron replacement tips with special liner, prevent sticking/clogging. Fits 7800, 7825.

Stock No.	Type	Hole Dia.	1-9	10-49	50-Up
33F036	7806	.057"	2.08	1.87	1.66
33F034	7812	.033"	2.92	2.63	2.34

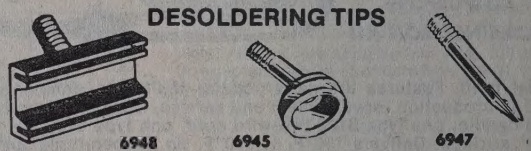
HOT VAC® TIPS

Ungar No.	Dimensions (Ins.) Inside Dia.	Outside Dia.	Depth	Length
2005	.032	.060	.12	.75
2006	.040	.080	.12	.75
2007	.062	.100	.12	.75
2008	.089	.120	.12	.75
2009	.062	.100	.37	1.00
2010	.032	.060	.015	.64
2011	.040	.080	.015	.64
2012	.020	.040	.12	.75

REPLACEMENT ACCESSORIES FOR MODEL 3000

Stk. No.	Type	Description	1-9	10-24	25-Up
33F1840	8800	Free-standing holder	12.47	11.22	9.98
34F1079	2002	Tip cleaning tool	5.62	5.06	4.50
34F1073	2005	Tip .032" I.D. .12" deep			
34F1074	2006	Tip .040" I.D. .12" deep	5.62	5.06	4.50
34F1075	2007	Tip .062" I.D. .12" deep			
34F1076	2008	Tip .089" I.D. .12" deep			
34F1077	2009	Tip .062" I.D. .37" deep			
81F4026	2010	Tip .032" I.D. .075" deep	6.17	5.55	4.94
81F4027	2011	Tip .040" I.D. .075" deep	5.62	5.06	4.50
81F4028	2012	Tip .020" I.D. .16" deep	6.23	5.61	4.98

DESOLDERING TIPS

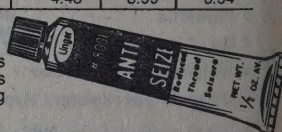


6948 6945 6947

Fits Princess 639 Kit: 6910, 6915, 6918 capsules; Std. Line Heaters: 535-S/3570, 1235-S/3580, 4035-S/3510 w/adapter, 537-S/3770, 1237-S/3780, 4037-S/3710 and 3 Wire Irons: 1270, 1350, 1450.

Stk. No.	Type	Description	1-9	10-49	50-Up
35F3076	6948	Tip-in-line IC's	6.25	5.63	5.00
35F3055	6943	Tip- "To" .600" dia.	5.60	5.04	4.48
35F3056	6944	Tip- "To" .500" dia.	5.60	5.04	4.48
35F3057	6945	Tip- "To" .375" dia.	5.60	5.04	4.48
35F3058	6946	Tip- "To" .280" dia.	5.60	5.04	4.48
35F3059	6947	Lead straightener	4.43	3.99	3.54

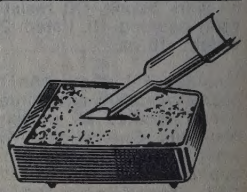
ANTI-SEIZE LUBRICANT



Type 8001. Designed for use on metals operating at high temperatures. Helps reduce seizure and resulting tip and heating unit breakage. Wt. 4 ounces.

Stk. No.	Type	1-9	10-49	50-Up
33F688	8001	2.12	1.91	1.70

KLEEN-TIP SPONGE, TRAY AND REFILL

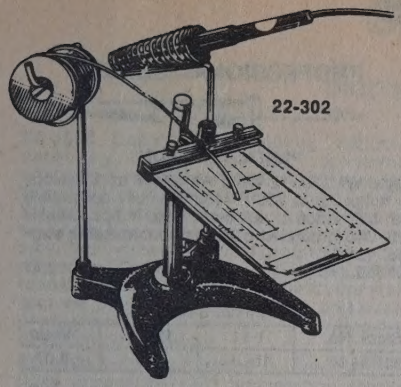


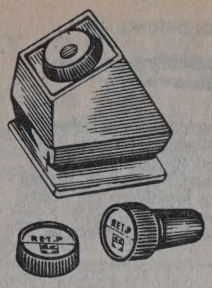
Specially processed Kleen-Tip sponge for removing oxidation and excess solder from tips. Assures proper heat flow and solder wetting. Other materials used for this purpose cause contamination or destory plating.

Stk. No.	Type	Description	1-9	10-49	50-Up
33F683	400	Sponge and tray	3.32	2.99	2.66
33F684	455	Refill Sponge	1.30	1.17	1.04

16

Soldering Equipment





DELUXE SOLDER STATION

Type 22-300. Designed to hold PC board, iron, and solder spool. Time-saving device. Spring-cushion grips for secure positioning of PC board. Solder iron holder accommodates pencil type irons, dissipates heat. Spool takes up to 2" spool sizes. Sturdy die-cast base insures stability. PC boards can be tilted and rotated a full 360° for ease and convenience. Adaptable for right or left-hand use.

34F1021. NET **24.95**

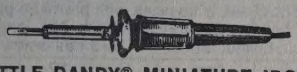
RE-TIP

Type 9482. Cleans soldering tips. Insert hot iron tip into RE-TIP, then withdraw—all contaminants are removed. Uniformly cleans tips up to 1/4" diameter—prevents contaminated solder joints. Prolongs tip life; tips solder faster, longer. With base for use in shop. **Type 9484.** Refill cartridge.

34F1019. RE-TIP base and cartridge. **NET** **6.95**

34F1020. Refill cartridge only (boxed). **NET** **2.95**

AMERICAN BEAUTY SOLDERING IRONS, TIPS, AND AIDS



LITTLE DANDY® MINIATURE IRONS

Type	Lgth.	Wt.	Tip Type	Tip Dia.	Tip Lgth.
3108	6½"	3 oz.	#501	1/8"	2¼"
3110	6½"	3 oz.	#618	3/16"	2¼"
3112	7½"	4¼ oz.	#720	¼"	2¼"

Stk. No.	Type	Description	EACH
35F110	3108	20 watts/flat tip	21.00
32F987	3110	25 watts/flat tip	21.30
35F126	3112	40 watts/flat tip	22.50

PARAGON CLAD TIPS FOR 3108

Stk. No.	Type	Description	EACH
35F111	501	1/8" Chisel	3.20
35F115	505	1/8" Diamond	3.20
35F117	509	1/8" Round, blunt	3.20

LITTLE DANDY HEATING ELEMENTS

Stk. No.	Type	Watts	For Iron	EACH
32F1373	9014	20	3108	10.60
32F1374	9010	25	3110	10.60
32F1375	9012	40	3112	11.40

STANDARD IRONS

Feature long-life elements and plug-in tips. Order replacement tip below.

Stk. No.	Type	Watts	Tip Temp.	EACH
32F980	3125	60	850°F	29.40
33F001	3138	100	855°F	35.40
32F986	3138	150	1010°F	35.40
33F002	3158	200	1000°F	45.00
33F004	3178	300	1000°F	58.70

REPLACEMENT TIPS

Stk. No.	Type	Description	EACH
32F1387	43C	Chisel tip	4.60
32F1388	43D	Diamond tip	4.60

PARAGON CLAD TIPS FOR 3110

32F990	604	1/16 Trnd. Chisel	3.40
32F991	605	1/8 Trnd. Long chis.	
32F992	607	1/8 Trnd. Screwdvr.	
32F995	613	3/32 Trnd. Screwdvr.	
32F996	615	1/16 Trnd. Screwdvr.	
32F997	617	3/32 Screwdriver	

DRI-WICK® DESOLDERING TOOL

Dri-Wick is a specially woven, pure copper stranded desoldering tool. Non-corrosive, non-conductive rosin. **No danger of flux contamination.**

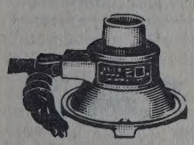
Stk. No.	Type	Pad Size	Width	EACH
35F1281	484-1	.060" max.	.025"	1.65
35F1282	484-2	.060-.125"	.050"	1.65
35F1283	484-3	.125-.190"	.075"	1.65
35F1284	484-4	.190" min.	.095"	1.89
35F1383	484-5	.....	.130"	2.00
35F154	484-6	.....	.200"	1.65

PARAGON CLAD TIPS FOR 3112

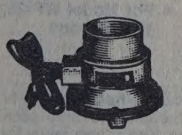
35F127	704	¼" Chisel	3.80
35F131	701	1/8" Turned Screwdvr.	
35F132	710	1/8" Turned Diamond	
35F133	709	¼" Diamond	

MELTING POTS AND ULTRASONIC CLEANERS

ESICO SOLDERING POTS

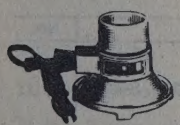


Model 12-200 Watts Ideal for small parts. Inside Dimensions: 1 9/16" dia., 1½" deep. Max. Temp. 750°. Solder cap. ¾ lb. Wt. 4 lbs.



MODEL 37-600 WATTS Inside Dimensions: 3½" dia., 1¾" deep. Max. Temp: 800°. Solder Cap: 5 lbs. Wt. 7¼ lbs. **37T.** 659 Watts. 650° max. temp. With thermostat. Wt. 9⅛ lbs.

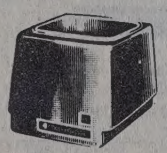
33F321 Model 12. NET 35.10
33F325 Model 37. NET 47.70
33F326 Model 37T. NET 81.00



MODEL 36-250 WATTS Inside Dim: 2½" dia., 1¾" deep. Max. Temp: 750°. Solder cap: 2¼ lbs. Wt. 4⅛ lbs. **36T.** With thermostat 650° max. Wt. 6⅓ lbs.

MODEL 75T-650 WATTS Large capacity pot. Inside. Dim: 4¾" sq., 1¾" deep. Max. Temp: 650°. Solder Cap: 11¾ lbs. Wt. 9⅛ lbs.

33F323 Model 36. NET 37.20
33F324 Model 36T. NET 66.60
33F320 Model 75T. NET 83.10



SOLID-STATE ULTRASONIC CLEANERS

Ultrasonic cleaners are completely self-contained. Ultrasonic scrubbing thoroughly cleans complete units. Units operate on 120 VAC, 60 Hz.

Stk. No.	Type	Dimen.	Tank Size	Cleaning Power	Input	Shpg. Wt. lbs.	NET
35F138	S-30	7¼x7¼x6"	5x5x3"	50W	75W	7	220.00
35F139	S-50	12x7½x9"	5x9x4"	100W	125W	14	360.00
35F140	S-70	14x8½x9"	6x11x6"	150W	185W	17	636.00
32F1381	S-80	20¼x6¼x10½"	19¾x5¾x6"	200W	250W	20	1000.00
32F1382	S-90	12x10¼x9½"	11½x9½x6"	200W	250W	20	920.00

WAAGE SOLDERING POTS

RECTANGULAR SOLDER MELTING POTS

Wide open top area with shallow depth offers maximum dipping efficiency of flat or edge dipped circuit boards. Circuit boards can be dipped manually or the standard Waage Tanks can be easily integrated into a completely automatic assembly system. Automatic control.

550 DEGREES FAHRENHEIT

Stock No.	Type	Cap. Lbs.	Watts	Inner Dim.	Shpg. Wt.	Net Each
60F1508	RSP1-13-1	10	600	4x4"	15	129.00
60F1509	RSP2-13-1	20	1200	4x8"	23	176.00

700 DEGREES FAHRENHEIT

60F1511	RSP7-5-1	70	1600	9x12"	52	403.00

ROUND SOLDER MELTING POTS

Round solder melting pots for melting solder, tin, lead-type metal and babbitt with temperatures up to 1000° F. Melting crucible of heavy cast iron. Replaceable heating elements are clamped to bottom of crucibles for even heat distribution. Furnished with 6', 115 VAC 3-conductor, grounded cordset. Automatic control.

550 DEGREES FAHRENHEIT

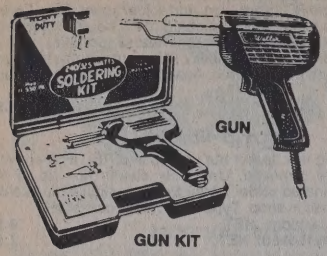
Stock No.	Type	Cap. Lbs.	Watts	Inside Dia.	Inside Dpth.	Net Each
60F1501	MP1A-12-1	1	200	1½	1½	129.00
60F1502	MP4A-12-1	4	300	3	1½	176.00
60F1503	MP10A-12-1	10	500	3½	2½	403.00

16

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Weller

Soldering Tools



GUN KIT

SOLDERING KIT

MODEL D-550PK. Heavy Duty dual heat 240/325 watt gun. Soldering tip, smoothing tip, cutting tip, tip changing wrench. All purpose 60/40 Rosin Coresolder. UL Listed.

Stk. No.	Part No.	1-11	12-47	48-up
33F132	D550PK	34.74	31.20	27.66

HEAVY DUTY GUN ONLY

Stk. No.	Part No.	1-11	12-47	48-up
33F129	D-550	29.86	26.82	23.78

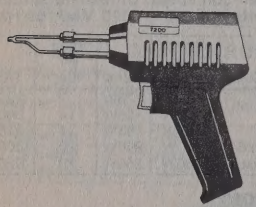
MEDIUM DUTY SOLDERING KIT

MODEL 8200PK. Kit includes: Three copper long life soldering tips, tip changing wrench, flux brush, soldering aid, and all purpose solder. Contains 100/140 watt soldering gun. UL listed. Shpg. wt. 3 lbs.

Stk. No.	Part No.	1-11	12-47	48-up
33F158	8200PK	25.60	23.00	20.39

MEDIUM DUTY GUN ONLY

Stk. No.	Part No.	1-11	12-47	48-up
33F148	8200	21.96	19.73	17.49

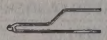


STANDARD LIGHTWEIGHT SOLDERING GUN

Economy model, small, lightweight for fast soldering jobs. Fingertip trigger for instant heat. The gun has been designed so it can be placed on its back when not in use. Available with soldering tip (7235) only. 2 wire cord. UL-listed. Boxed.

Stock No.	Type	W	V	Hz	1-11	12-47	48-up
81F2389	7200	75	120	50/60	15.41	13.85	12.28

KIT: 7200 K
81F2390 NET..... 21.38



REPLACEMENT TIP FOR 7200

Stock No.	Type	Each		
		1-11	12-47	48-up
81F2388	7235	1.60	1.44	1.28

"MARKSMAN" SOLDERING IRON

Model SP-23K. Includes soldering iron, three different pretinned nickel-plated copper tips, soldering-aid tool, 5 ft. 60/40 rosin core solder, and instructions for soldering. Pencil type, feather weight, soldering iron with removable tip. Plastic handle remains cool. Develops up to 750°F. Long reach stainless steel barrel. U.L. Listed. Iron wt. ⅓ lbs. Kit. wt. ⅜ lbs.

Stock No.	Type	Description	1-11	12-47	48-Up
33F183	SP-23K	Kit	12.14	10.91	9.67
33F801	SP-23	Iron Only	8.67	7.79	6.90

TIPS FOR SP-23 SOLDERING IRON 2 PER CARD

Stock No.	Type	Description	1-11	12-47	48-Up
33F993	MT-1	Cone Shaped	1.90	1.70	1.52
33F994	MT-2	Screwdriver			
33F995	MT-3	Chisel			

SOLDERING IRONS PENCIL TYPE

SP-40. 40 Watt pencil type. ¼" dia. plated copper tip. 2 per card. U.L. Listed.

Stock No.	Type	Description	1-11	12-47	48-Up
33F802	SP-40	40 Watt Iron	11.52	10.35	9.18
33F997	MT-10	¼" Chisel Tip	3.49	3.14	2.78

HEAVY DUTY

SP-80. 80 Watt heavy duty pencil type soldering iron. ⅜" dia. plated copper tip. U.L. Listed. Wt. 4 oz.

Stock No.	Type	Description	1-11	12-47	48-Up
33F803	SP-80	80 Watt Iron	17.32	15.66	13.79
33F998	MT-20	⅜" Chisel Tip	3.49	3.14	2.78

EXTRA HEAVY DUTY SOLDERING IRONS

120 V. U.L. listed. SP120 is 120 watts, 11⅜" long. SP175 is 175 watts, 12½" long.

Stock No.	Type	Description	1-11	12-47	48-Up
33F113	SP120	MTG30 Tip	24.55	22.05	19.55
33F114	SP175	MTG40 Tip	29.93	26.88	23.83

REPLACEMENT TIPS

Stk. No.	Type	Description	Each
33F115	MTG30	½" chisel	4.99
33F116	MTG40	⅝" chisel	8.53

PROFESSIONAL SERIES

PENCIL THIN IRON

Model WM120. 12 Watt. Wt. only .7 oz. Develops tip temp. up to 800°F (482°C). Fully compatible with MP series of automatic slide-in tips. Utilizes 120 VAC grounded plug. Has unbreakable stay-cool handle.
33F350. NET 19.47

PHM120 STAND

Stock No.	1-11	12-47	48-up
81F5414	10.14	9.11	8.07

PENCIL IRON

Model WP-25. Light weight soldering iron with 1/16" tip and cord set. 3 tip sizes with premium plating; plastic handle. 25 watts at 115v; 7⅞" long. 7/16" Dia. U.L. Listed. Model WP-25-3 has 3-wire cord.

Stock No.	Part No.	1-11	12-47	48-Up
33F175	WP-25	17.03	15.30	13.57
34F1022	WP-25-3	19.57	17.58	15.59

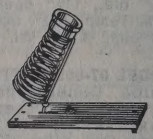
MODELS WP-40/WP-40-3

Same features as Model WP-25, above. Rated at 40 watts. WP-40-3 has 3-wire cord.

Stock No.	Part No.	1-11	12-47	48-Up
34F1023	WP-40	20.93	18.80	16.66
34F1024	WP-40-3	23.61	21.21	18.81

ACCESSORIES FOR MODEL WP-25/WP-40

Stock No.	Part No.	Tip Size	Descrip-tion	1-11	12-47	48-Up
33F176	ST-1	1/16	Screwdriver	2.72	2.45	2.17
33F177	ST-2	3/32	Screwdriver			
33F178	ST-3	⅛	Screwdriver			
34F1025	ST-4	3/16	Screwdriver			
34F1026	ST-5	1/32	Single Flat			
34F1027	ST-6	1/32	Screwdriver			
34F1028	ST-7	1/32	Conical			
34F1029	ST-8	1/16	Narrow Screwdriver			
33F181	KN-60	....	Knurled tip nut	1.25		



SOLDERING TOOL STANDS

- **For Model WP-25, WP-40 Irons**

Model PH25. Bench stand can be free standing or mounted. Aluminum construction. Prevents accidental burns on work surface. Keeps iron ready for soldering.
33F106. NET 7.78

GUN REPLACEMENT TIPS AND PARTS

Stk. No.	Type	Description	Net
33F149	8125	2 plated tips for 8200, 8100B	2.17
33F139	8125N	One 8125 tip and two tip nuts	
33F124	7135	2 copper tips for D-440, 8100, 8100B, 8200, WS-100, WD-135, S-400	
33F140	7135N	One 7135 tip and 2 tip nuts	
33F125	7250	2 copper tips for D-550, 825DA, WS-200, WD-250, S-500	
33F141	7250N	One 7250 tip and 2 tip nuts	
33F135	6110	Cutting tip for D-440, 8100, 8200, 8100B, WS-100, WD-135, S-400, w/Tip nuts.	
33F136	6120	Smoothing tip for D-440, 8100, 8200, 8100B, WS-100, WD-135, S-400	
33F137	6130	Cutting tip for D-550, 8250A, WS-200, WD-250, S-500, w/Tip nuts.	
33F138	6140	Smoothing tip for D-550, 8250A, WS-200, WD-250, S-500 w/Tip nuts.	
33F162	7323	Switch for single-heat models	4.83
33F163	7324	Switch for all dual-heat models	4.83
33F170	8200RH	Replacement handle for 8200	5.43
33F160	D440RH	Replacement handle for D-440	
33F161	D550RH	Replacement handle for D-550	

16

Soldering Stations

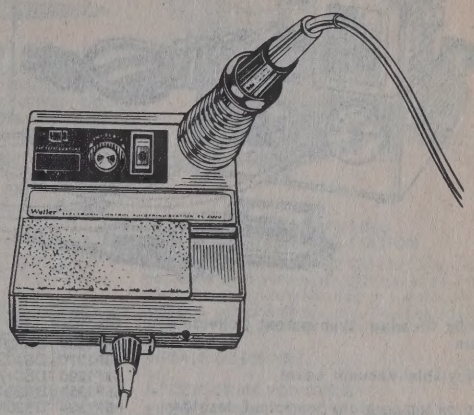
Weller

DIGITALLY CONTROLLED SOLDERING STATION

EC 2000 Capable of handling delicate soldering operations necessary in sophisticated applications, with electronically controlled temperatures selected and locked in by the operator. Temperature settings and readings are shown on LED display. Station is not affected by varying line voltages, voltage spikes, or line noise, nor does it create line noise. Operating safety is provided by the three wire grounding, and the use of non-inductive windings. Circuit breaker provides further safety against overloads. Tip temperature is held constant by platinum sensors located inside the tip. Work is protected from overheating, and production time is not wasted waiting for the tip to return to an optimum temperature.

EC 1000 Soldering station is identical to EC 2000 in all specifications except the LED temperature readout. The EC 1000 is dial controlled.

Stk. No.	Type	1-11	12-47	48-Up
33F1810	EC1000	125.07	112.34	99.60
33F1811	EC2000	170.57	153.21	135.85



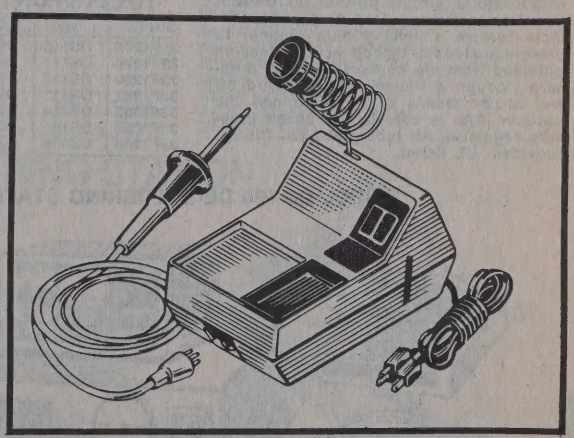
- **Digital Readout**
- **Platinum Sensors Keep Temperatures Constant**
- **Accuracy Not Affected By Age**

Stk. No.	Type	Description	1-11	12-23	24-Up
33F1812	EC1201A	Sold. Iron w/ETA Tip	47.28	42.47	37.65
33F1813	TC204	Iron Holder w/Funnel	2.86	2.57	2.27
33F1814	EC205	Sponges (Pkg. of 10)	1.19	1.07	.94
33F1815	EC208	Heater Assembly	10.69	9.60	8.51
33F1816	EC211	Power Transformer	22.11	19.86	17.61
33F1817	EC212	Circuit Breaker	2.67	2.40	2.13
33F1818	ETA	1/16" Screwdriver Tip	2.89	2.60	2.30
33F1819	ETB	3/32" Screwdriver Tip	2.89	2.60	2.30
33F1820	ETC	1/8" Screwdriver Tip	2.89	2.60	2.30
33F1821	ETD	3/16" Screwdriver Tip	2.89	2.60	2.30
33F1822	ETH	1/32" Screwdriver Tip	2.89	2.60	2.30
33F1823	ETK	3/64" Long Screwdriver	2.89	2.60	2.30
33F1824	ETL	5/64" Long Screwdriver	2.89	2.60	2.30
33F1825	ETO	1/32" Long Conical	2.89	2.60	2.30
33F1826	ETP	1/32" Conical	2.89	2.60	2.30

TEMPERATURE CONTROLLED LOW VOLTAGE SOLDERING STATION

- **15-100 Watt Range**
- **Idle Temperatures of 600°, 700°, 800°F**
- **Lightweight—¾ oz.**

Closed loop, low voltage circuit controls output and temperature. Temperature controlled by changing heat-sensing tip with knurled thumbscrew. Safe for IC soldering. Pencil iron has heat shield, non-burnable silicone rubber cord and plug-in design for easy interchangeability. Power unit with contemporary impact-resistant case, has unitized on/off toggle switch and neon indicator light, non-heatsinking iron holder, storage tray for extra tips, and tip cleaning sponge with receptacle. 3-way 6 ft. long cord. 120 V, 60 Hz, 60 W. Furnished with 1/16" screwdriver tip, 700°F. UL-Listed.



Stk. No.	Type	1-11	12-23	24-Up
33F3309	WTCPN	90.28	81.09	71.90
35F2523*	WTCPZ	103.42	92.90	82.37

(*) WTCPZ same spec. at WTCPN except only switches at zero voltage.

ACCESSORIES

TC201. Replacement Soldering Pencil.

TC202. Power unit only. Includes sponge, iron holder and tip tray.

TC205. Sponge for WTCPN.

Stk. No.	Type	1-11	12-23	24-Up
35F2522	TC201	43.69	39.24	34.79
33F1261	TC202	60.20	54.08	47.95
34F1030	TC205	1.25	1.13	1.00

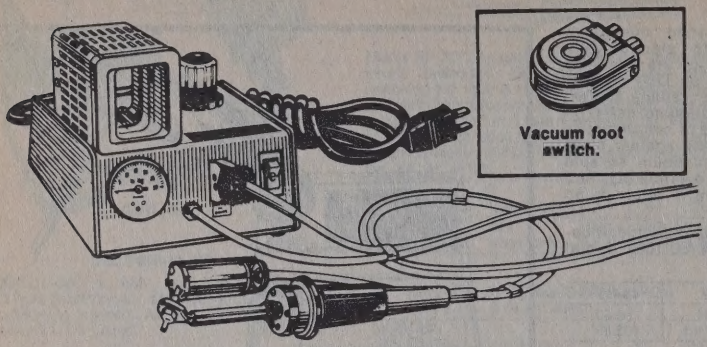
TEMPERATURE SENSING TIPS

Stock Numbers 600° F	700° F	800° F	Description	Style	1-24	25-99	100-Up
35F2525	35F2526	35F2527	1/16" Screwdriver	PTA	3.07	2.76	2.45
35F2529	35F2530	35F2531	3/32" Screwdriver	PTB			
35F2533	35F2534	35F2535	1/8" Screwdriver	PTC			
35F2537	35F2538	35F2539	3/16" Screwdriver	PTD			
35F2541	35F2542	35F2543	1/32" Screwdriver	PTH			
35F2545	35F2546	35F2547	3/64" Screwdriver	PTK			
35F2549	35F2550	35F2551	5/64" Screwdriver	PTL			
35F2553	35F2554	35F2555	3/32" Spade	PTBB			
35F2557	35F2558	35F2559	1/8" Spade	PTCC			
35F3311	35F3312	35F3357	1/16" Spade	PTAA			
35F3351	35F3352	35F3353	3/16" Spade	PTDD			
35F3354	35F3355	35F3356	1/32" Conical	PTP			
35F3358	35F3359	35F3360	1/32" Spade	PTF			
35F3361	35F3362	35F3363	15/64" Screwdriver	PTE			
35F3313	35F3314	35F3364	1/8" Screwdriver	PTM			

See page 632 for solder.

Weller Desoldering Tools

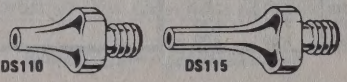
MODEL DS500 DESOLDERING STATION



- **Easily Cleaned, Transparent Collecting Tube**
- **Adjustable Vacuum Level**

Features temperature controlled desoldering iron, lighted on/off power switch, quick connect/disconnect plug and receptacle with plug lock, vacuum gauge, in-line vacuum filter, high efficiency vacuum transducer, air pressure (vacuum) regulator, safety iron holder, air pressure tubing with fittings and an air foot switch. Automatic control of temperature & grounded tip prevent sensitive components from damage. Iron is provided with a burn proof silicone rubber cord and quick connect locking plug. One desoldering tiplet comes with the DS500. Desoldering iron powered by 24 volt transformer within the station cabinet. Transformer's output is wired into a circuit breaker to prevent transformer damage. Iron plug and receptacle feature a locking plug retainer to prevent accidental disconnection. Vacuum obtained from the conversion of air pressure through a transducer, is turned off and on by means of a switch and the vacuum level is adjusted by an air pressure regulator. Air tubing and QC fittings provided. UL listed.

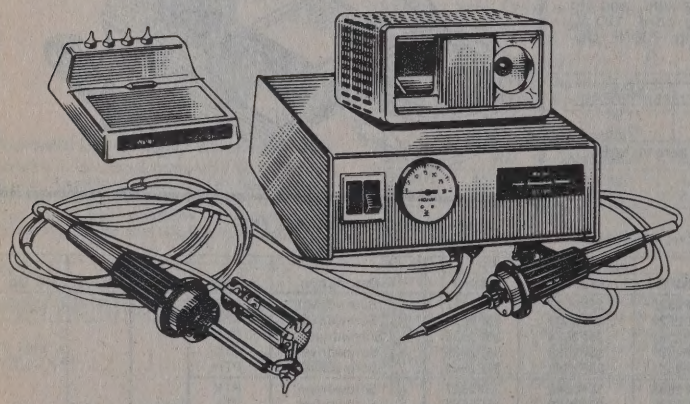
Stk. No.	Type	Description	Each
65F1330	DS500	Complete Unit	436.04
33F1270	DS102	Desoldering Iron	71.28
33F1290	DS217	Desoldering Head	36.94
65F1333	DS204	Collector Tube Filters	.80
65F1334	DS205	In-line Filter	7.43
33F1271	DS103	Collector Tube	4.36
33F1282	DS114	Tiplet	6.76
33F1287	SW60	Temp. Control Switch	12.36
33F1288	HE60	Heater Element	11.09



TIPLETS FOR DS500 & DS100

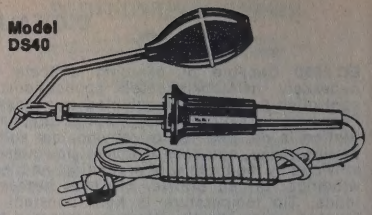
Stk. No.	Type	O.D.	I.D.	L.	Each
33F1278	DS110	.060	.025	.50	5.07
33F1279	DS111	.090	.025	.50	
33F1280	DS112	.076	.036	.50	
33F1281	DS113	.094	.045	.50	
33F1282	DS114	.125	.071	.50	
33F1283	DS115	.060	.025	.75	
33F1264	DS116	.098	.045	.75	

MODEL DS 100 DE-SOLDERING STATION



Power vacuum, especially designed for printed circuit board repair. Closed loop temperature control protects sensitive components. See thru solder collector is easy to clear or replace. Non-burnable cord cord sets. Low voltage tool input for added safety. High impact resistant tool handles and stainless steel barrels. Operates from factory air (30 psi minimum, 130 psi maximum) and line voltage. Complete with foot switch, indicating light/on-off switch, twin safety tool holder, vacuum adjustment and gauge, de-soldering tiplet and sponge holder, five assorted tiplets, and instructions. 120V 60 Hz. UL listed. **REPLACEMENT TIPLETS FOR DS100 SAME AS DS500.**

33F1268. NET 740.18



PROFESSIONAL DESOLDERING/REPAIR TOOL

For servicing printed circuit boards and solid state electronics. Complete tool includes handle, vacuum bulb, desoldering assembly and tip with .063" opening. 40W, 120V, 2 wire cord.
DS40. Desoldering tool with DST4 .063" desoldering tiplet. Wt. ½ lb.

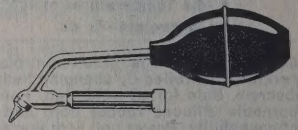
33F1250..... EACH: 1-2 28.72 3-11 38.31
DS40-3 As above with three wire cord. Wt. ¾ lb.
33F1251..... EACH: 1-2 30.82 3-11 41.12

DST SERIES TIPLETS for DS MODELS

- **Replacement for DS40, DS60, and DSTCP.**

Stock No.	Type	Size Hole Dia.	1-11	12-47	48 Up
33F1262	DST1	.038"	2.67	2.40	2.13
33F1263	DST2	.046"			
33F1264	DST3	.059"			
33F1265	DST4	.063"			
33F1267	DST6	.090"			

DSTCP DE-SOLDERING ADAPTOR



Attachment for types **WTCPN** and **WTCPL.** Allows operator to de-solder and re-solder with same tool. Tiplets listed above.
33F103. NET 17.28

DS60 DE-SOLDERING ADAPTOR

Attachment for type **W60** Iron. Allows operator to de-solder and resolder with same tool. Tiplets listed above.
33F104. NET 17.28

AC303P DE-SOLDERING BULB

May be used with any soldering iron. Tip is made of a heat resistant material that will not scratch PC boards.
33F105. NET 5.59

16

Soldering Tools

Weller

SOLDERING TOOL

MODEL GT-7A. Temp. Controlled power head. Long reach, stainless steel barrel. Ejector for quick powerhead changes. Inc. 3/16" chisel pt. 700°F, 150 W. U.L. listed. 7 oz.
Model GT-6B. 1/8" conical pt., 600°F. 150W. 7oz.

Stock No.	Type	Each
35F2560	GT-7A	33.07
35F2561	GT-6B	33.07

REPLACEMENT POWERHEADS

MODEL 7A. 3/16" chisel point, 700°F.
35F2562. NET 20.94
MODEL 6B. 1/8" conical point, 600°F.
35F2563. NET 20.94

TOOL STANDS

Bench Stand

Side Rail Stand

Bench stands have non-sliding cast bases with sponge receptacle and non-sinking spring stand funnel. Side rail stands have spring and funnel only. For irons with barrel diameters 3/8"—15/32"—19/32".

Bench Stand

Stk. No.	Type	Acpts. Mod.	Barrel Diam.	1-11	12-47	48-Up
35F3347	PH60	W60	15/32	10.14	9.11	8.07
35F3345	PH100	W100	19/32	11.39	10.23	9.07
35F106	PH25	WP25				
		WP-40		7.78	6.99	6.20

Side Rail Stand

35F3349	SFA60	W60	15/32	3.89	3.45	3.06

SP60. Sponge for PH60, H100.
35F3319. 1-4...1.05 5-99...95 100-Up....84

TEMPERATURE CONTROLLED LINE VOLTAGE TOOLS

TYPE W-60, W60-3. 15-100 W. range. For high idle rate situations select lower temperature tips for optimum tip and tool life. Includes 700°F, 1/16" screw driver tip, 60W, 120V. 7½" long. UL Listed. Weight: 2½ ounces. **W60-3** has 3 wire cord.

TYPE W-100, W100-3. For medium duty work. 50-159W range. Used for direct line voltage operations. Includes 700°F screwdriver tip. 100W, 120V. 8¼" L. UL Wt. 3½ oz. **W100-3:** 3-wire cord.

Stk. No.	Model	1-11	12-47	48-Up
33F348	W-60	32.53	29.22	25.91
33F3320	W-60-3	35.39	31.79	28.18
33F349	W-100	38.41	34.50	30.59
35F3330	W-100-3	41.22	37.02	32.82

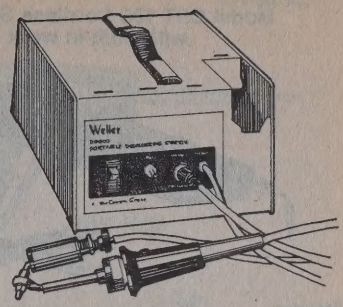
W-60 Replacement Tips (Screwdriver type)

600°F Stk. No.	700°F Stk. No.	800°F Stk. No.	Type	Size	1-24	25-99
35F2564	35F2565	35F2566	CT5A	1/16"		
35F2570	35F2571	35F2572	CT5C	1/16"		
35F2573	35F2574	35F2575	CT5D	3/16"	3.44	3.09
35F2576	35F2577	25F2578	CT5E	1/4"		

PORTABLE TEMPERATURE CONTROLLED IRONS

Type TCP-12: 12 Volt field service soldering pencil rated at 12-14V., 2.5-2.9 Amps. AC/DC, 30-41 Watts. Complete with No. PTD7 700°F 3/16" screwdriver tip, 12' power cord with battery clips. Wt. 1¼ oz., 7½"overall length.

Stock #s	Type No.	1-11	12-47	48-up
34F1033	TCP-12	47.23	42.42	37.61



DS600 PORTABLE DESOLDERING STATION

A self-contained system for 120 volt 60Hz operation. Designed for use in industrial and service applications where portability or suitable air requires a self-contained unit. The desoldering head is temperature controlled to 700°F (371°C).
81F5412. DS 600 NET 381.48

ACCESSORIES FOR DS600

81F5413. DS601 N/S47820 Desoldering iron with 700°F (371°C) head 98.11
33F1271. DS103 N/S 47432 Collector tube with gasket and filter 4.36
33F1272. DS 204 N/S47433 Clean-out tool 4.36

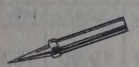
MP KITS ACCESSORIES

Stk. No.	Type	Description	1-11	12-23
33F1652	MP126	650° Pencil	39.30	35.30
33F1653	MP127	750° Pencil	39.30	35.30
33F1296	MP202	Sponge	1.49	1.34

REPLACEMENT TIPS

Stk. No.	Type	Description	1-24	25-99
33F1656	MP131	1/64" conical		
33F1657	MP132	1/32" conical, bent		
33F1658	MP133	1/32" single flat 45°		
33F1659	MP134	3/64" conical, bent	2.97	2.67
35F1660	MP135	3/64" single flat 45°		
35F1661	MP136	1/16" screwdriver		
35F1662	MP137	5/64" screwdriver		
35F1663	MP138	1/4" chisel		

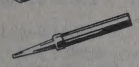
DIGITALLY CONTROLLED SOLDERING STATION



EP 101 Micropoint

EP 102, EP 104 Bent Conical

EP 108 Chisel

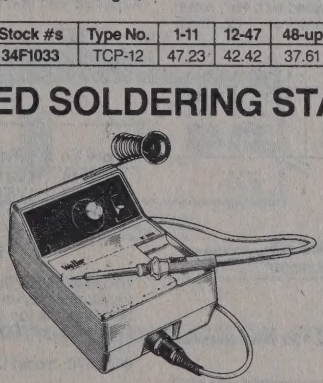


EP 107, EP 106 Screwdriver

EP 103, EP 105 Single Flat

EP SERIES MICROPOINT TIPS

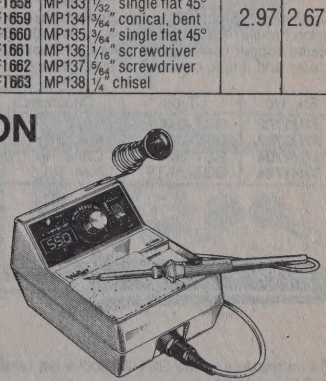
Stock No.	Type	1-4	12-47	48-Up
81F2380	EP101			
81F2381	EP102	2.97	2.67	2.37
81F2386	EP103			
81F2382	EP104			
81F2387	EP105			
81F2385	EP106	2.97	2.67	2.37
81F2384	EP107			
81F2383	EP108			



EC3000 TEMPERATURE CONTROLLED STATION

The professional soldering station that gives accurate temperature control all the time!

The EC3000 soldering station responds automatically to soldering load variations and maintains the temperature you select to within ±10°F.



EC4000 TEMPERATURE CONTROLLED STATION

The professional soldering station that gives accurate temperature control all the time!

The EC4000 soldering station responds automatically to soldering load variations and maintains the temperature you select to within ±10°F.

LED read-out on the EC4000 displays actual tip temperature with a ±1°F resolution.

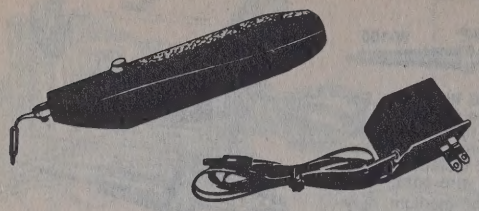
Stock No.	Type	1-11	12-23	24-Up
81F2378	EC3000	125.07	112.34	99.60
81F2379	EC4000	170.57	153.21	135.85

16

DURATEC™ brand

Solder Tools

Model CST 100 Cordless Soldering Iron with built-in work light



Features:

- **COMPACT—just 6" with tip fits easily in a tool box**
- **LIGHTWEIGHT—only 6 oz.**
- **HEAT FAST—approximately 5 seconds**
- **OFF-ON-BUTTON—one finger control**
- **SMALL TIP—for pin-point work**
- **TIP TEMPERATURE—Over 700°F**

Recharges overnight by plugging into 110-120V 60-cycle AC outlet. Solders up to 100 joints (depending on wire size) and can be used while re-charging. Operates on a rechargeable nickel cadmium battery. Recharger included. Extra Tips available.

Stk. No.	Type	Description	1-11	12-47	48-up
37N1700	CST-100	Soldering Iron	40.08	35.15	28.12
37N1701	CST-100-T	Extra Tip	4.90	4.11	3.60

SERIES GST

Low cost tools for General Purpose. Used in shops, homes and farms.
Melts solder in 90 seconds.

GST-25

Lightweight, 3 oz. 120 volts, 25 watts pencil soldering iron. Plain with cool nylon handle. Tip temperature is from 750°-850°F. Furnished with 5/32", nickel plated copper cone tip and z-wire cord set. Kit includes the iron, 1 oz. 50-50 solder and 3 tips, cone chisel and fine point.

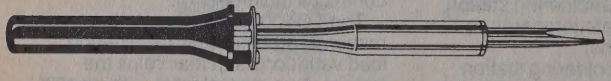
Stk. No.	Type	Description	1-11	12-47	48-up
37N1702	GST-25K	Kit	13.43	11.78	9.42
37N1703	GST-25	Iron Only	9.61	8.43	6.74
37N1704	GST-25-TC	Cone Tip	1.50	1.26	1.10
37N1705	GST-25-TF	Fine Tip	1.50	1.26	1.10

GST-42

Same features as the GST-25 above but rated 42 watts, 120 volts. Supplied with ¼" cone tip.

37N1706	GST-42	Iron	12.43	10.90	8.72
37N1707	GST-42-TC	Cone Tip	2.38	2.00	1.75

GST-60



Same features as the GST-25 above but rated 80 watts, 120 volts. Supplied with ⅜" chisel tip.

37N1707	GST-42-TC	Iron	2.38	2.00	1.75
37N1709	GST-80-TCH	Chisel Tip	4.39	3.68	3.23

Professional Series Pencil Irons SERIES PST

- **Lightweight—Balanced—Comfortable**
- **Molded, unbreakable, cool Polycarbonate Handle**
- **Efficient, versatile, reliable**

PST models are 120 VAC. Shaped and balanced for comfort and designed so tips can be quickly and easily changed without special tools, the PST pencil iron is a precision production tool. A ¾" shorter shaft on the PST-125 allows greater control in high density soldering. The handle remains cool even after hours of operation. Hot spots are eliminated because the handle has no screws to heat up. Furnished with 2- and 3-wire cord sets. Irons are supplied with chisel point iron plated tips.

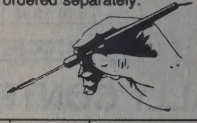
Stk. No.	Type	Description Watts - Wires	Tip Dia. (Shank)	1-11	12-47	48-up
37N1710	PST-125	25 - 2	⅛"	22.32	19.58	15.66
81N2662	PST-125-3	25 - 3	⅛"	24.31	21.33	17.06
81N2664	PST-135	35 - 2	3/16"	25.88	22.70	18.16
81N2663	PST-135-3	35 - 3	3/16"	27.59	24.20	19.36
37N1711	PST-140	40 - 2	¼"	26.28	23.05	18.44
81N2665	PST-140-3	40 - 3	¼"	28.16	24.70	19.76

Replacement tips for PST Series Irons
Highest industrial grade iron plated, super-finished, 50 or more times the life of comparable copper tips.

Stk. No.	Type	Description	1-11	12-47	48-up
37N1712	PST-18-TS	25 W. Screwdriver pt.			
37N1713	PST-18-TCH	25 W. Chisel Point	5.24	4.39	3.85
37N1714	PST-18-TP	25 W. Pencil pt.			
37N1715	PST-14-TS	40 W. Screwdriver pt.			
37N1716	PST-14-TCH	40 W. Chisel pt.	6.70	5.62	4.93

LVST SERIES MINI- PENCIL

LV Mini-Pencils designed for intricate soldering develop solder melt temperatures (421°F) in only 25 to 50 sec. These 6-Volt units are available in 4 models. Weighing less that ¾ oz. with tip, ⅛ the weight of comparable conventional irons. Comes with a 2-wire cord, 4 ft. long, 6.0 watts to 12 watts. Tips are not furnished with iron and must be ordered separately.



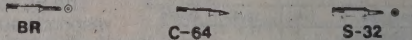
Stock No.	Type	Watts	Idle tip temp.	Each 1-11	Each 12-47	Each 48-up
81N2666	LVST-6	6.0	760			
81N2667	LVST-8	8.0	840	22.69	19.90	15.92
81N2668	LVST-10	10.0	880			
81N2669	LVST-12	12.0	960			

TRANSFORMER: MODEL LVTR

Required for low voltage irons. Conviently pakaged in a metal case, the LVTR transformer features a lighted ON/OFF switch on the terminal face, an iron clip holder on the top and an internal fuse. Voltage: 120VAC, 6VAC output, Fuse: Thermal cutoff. Cordset: 3-wire, 4 ft, long. Unit size: 2¼" × 2¼" × 5". Weight: 1¾ lbs.
81N2670, model LVTR 1-4:37.44 5-up:31.20

LVST TIPS (slide-on Type): LVTP

Iron clad, premium quality. Providing extended tip life, these fine tips are excellent for continuous heavy duty soldering. Each tip is carefully iron plated, finished with nickel-chrome and pre-tinned. For 4.5 W to 12.0 W irons only.



Stock No.	Type LVTP	Description	Dem. in. A	B	C	Each 1-11	Each 12-47	Each 48-up
81N2671	C-64	Conical	1/64	1/64	1/64			
81N2672	S-32	Spade	1/32	1/32	1/32			
81N2673	BR-32	Beveled rounded	1/32	1/32	1/32	5.04	4.22	3.70
81N2674	BR-16	Beveled rounded	1/16	1/16	1/16			
81N2675	BR-332	Beveled rounded	3/32	3/32	1/16			

16

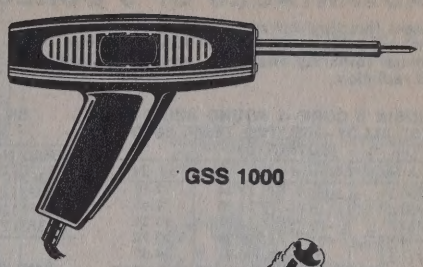
Solder Tools

DURATEC™ brand

DURATEC GSS 1000

Dual wattage element, heats tip quickly and develops tip temperature to 1000 F. Weight less than 10 oz. Solid state circuitry. Hand grip trigger. Slim extended shaft. Tips are interchangeable. Impact resistant housing made of stainless steel. Proven design and components that are serviceable. UL listed.

Stock No.	Type	Description	Price 1-11	12-47	48-up
81N2679	GSS-1000	Gun w/tip	21.75	19.25	15.40
81N2680	GSS-1000K	Gun kit Gun w/3 tips Rosin core solder 50/50 1 oz. tube	35.57	31.20	24.96



GSS 1000

MODEL STS TOOL STAND

STS stands include a porcelainized ceramic base. Aluminum and plated steel iron holder—and sponge. Size: 3½" wide x 6" long x 5⅛" high. Weight: 1 lb.

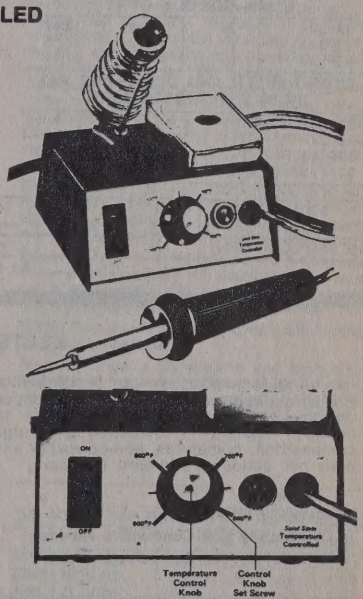
Stock No.	Type	For iron wattages	1-9	12-49	50-up
81N2676	STS-12	12 to 25	15.19	13.33	10.66
81N2677	STS-30	30 to 50	15.19	13.33	10.66
81N2678	STS-55	55 to 100	15.19	13.33	10.66

MODEL STS TOOL STAND

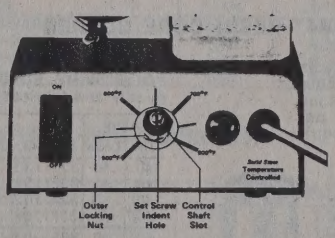
SOLID STATE TEMPERATURE CONTROLLED SOLDER STATION

Duratec STC-L4685 console all metal housing 5"w x 4"d x 2¼"d with toolholder sponge tray. Voltage: 110-120VAC, 60Hz. Input cordset 3-wire with NEMA plug, 4.5 ft. long. Solid state control circuit zero voltage switching. Control accuracy rated at ±10 F @ idling temp. Turn Knob temp. dial 460 F to 850 F. Lighted rocker switch.
81N2681 type STC-L4685 . . . . . NET 133.75

Replacement heating element with male plug connector, 50W, 120VAC
81N2682 type STC-H-EL . . . . . NET 26.95

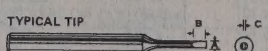


Lock-in Temperature Setting
Concealed locking behind the dial locks in any temperature from 460°F to 850°F. Resettable.



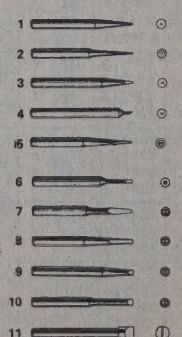
TIPS FOR SOLDERING STATION STS-L4685

Iron clad. Premium quality. Providing extended tip life, these fine tips are excellent for continuous heavy duty soldering. Each tip is carefully iron-plated, finished with nickel-chrome and pre-tinned. Tips should not be filed. Screw on type.



Tips Shown 1/2 Size

Stock No.	Type STC-TP	Description	Dimensions (ins.) A	B	C	Reach	1-11	12-47	48-up
81N2683	1	Conical	1/32	1/32	1/32	5/8	6.22	5.22	4.58
81N2684	2	Long Conical	1/32	1/32	1/32	1	6.22	5.22	4.58
81N2685	3	Screwdriver	1/32	1/16	1/32	5/8	6.22	5.22	4.58
81N2686	4	Beveled Round	1/32	1/16	1/32	5/8	6.22	5.22	4.58
81N2687	5	Long Screwdriver	3/64	1/16	1/32	1	6.22	5.22	4.58
81N2688	6	T. D. Screwdriver	1/16	1/8	1/32	5/8	6.22	5.22	4.58
81N2689	7	Screwdriver	1/16	3/32	1/32	5/8	6.22	5.22	4.58
81N2690	8	Long Screwdriver	5/64	7/16	1/32	1	6.22	5.22	4.58
81N2691	9	Chisel	3/32	1/8	1/32	5/8	6.22	5.22	4.58
81N2692	10	Chisel	1/8	1/8	1/32	5/8	6.22	5.22	4.58
81N2693	11	Chisel	3/16	3/16	1/32	3/4	6.22	5.22	4.58



16

ERSIN Multicore SOLDERS

Soldering Material

ADVANTAGES OF 5 CORES

- **Instant flux flow for rapid wetting.**
- **Eliminates flux voids common to single cores.**
- **Minimal soldering dwell time, heat conduction, and radiation.**

WIRE CORE SOLDERS WITH ROSIN FLUX

Manufactured with multiple, independent cores of high grade Ersin rosin flux. Combination of 5 core construction, purity of metals and fluxing activity insures fast wetting on partially oxidized surfaces.

ROSIN 5 CORE—1 POUND REELS 63/37 ALLOY—MELTING TEMP. 361°F (EUTECTIC)

Stock No.	Gauge	1-10	11-24
33F315	16	13.44	12.10
33F316	18	14.06	12.65
33F317	20	14.84	13.36
34F1115	21	15.28	13.75
35F1013	22	16.24	14.62
60/40 ALLOY—MELTING TEMP. 370°F			
34F1116	14	12.72	11.45
33F228	16	12.96	11.66
33F230	18	13.58	12.22
34F1117	19	14.00	12.60
33F231	20	14.36	12.92
34F1118	21	14.80	13.32
34F1119	22	15.76	14.18
HALF POUND REELS—FINE GAUGES 63/37—ROSIN 5 CORE			
33F339	22	9.56	8.60
33F340	24	12.18	10.96
33F341	28	16.24	14.62
60/40—ROSIN 5 CORE			
33F344	24	11.88	10.69
33F345	28	15.94	14.35
33F346	32	19.04	17.14

ECONO-REELS AND DISPENSER PAK SN 60 WITH ROSIN CORE

33F246	EZ100	18	14 Ft.	2.39
33F247	PC115	22	21 Ft.	2.39
33F248	SR120	19	40 Ft.	3.79
34F1131	ER220	19	100 Ft.	5.49

SN 62 (LMP) EUTECTIC 354°F 62 Tin, 36 Lead, 2 Silver

Stock No.	Gauge	1-10	11-24
33F310	16	29.90	26.91
33F311	18	30.34	27.31
34F1120	20	31.00	27.90
33F312	22	32.40	29.16

HMP (HIGH MELTING POINT) 565°F 5 Tin, 93.5 Lead, 1.5 Silver

33F314	18	17.58	31.64
35F1012	22	19.82	17.84

SAVBIT—REDUCES TIP WEAR

Activated rosin core solder. Multiplies life of soldering tips. Reduces solution of fine wires and thin films. Substitute for standard tin/lead alloys.

Stock No.	Gauge	1-10	11-24
33F240	16	12.20	10.98
33F241	18	12.82	11.54
33F238	20	13.60	12.24
35F1014	22	15.00	13.50

HIGH PURITY BAR SOLDER—1 LB. BARS

Stock No.	Alloys	1-10	11-24
35F1011	63/37	12.20	10.98
35F1010	60/40	11.72	10.55
34F1121	50/50	9.92	8.93
34F1122	40/60	8.40	7.56

XERSIN CORE—60/40

- **Flux that eliminates cleaning**

Now available a non-acid flux that eliminates cleaning. Meets MIL-P-28809 (cleaning spec.) w/o removal. Reduces fumes 60-80%. Compatible with and as effective as activated rosin.

Stk. No.	Gauge	1-10	11-24
33F1850	16	13.60	12.24
33F1851	18	14.26	12.83
33F1852	21	15.54	13.99
33F1853	22	16.54	14.89

WATER SOLUBLE FLUX CORED SOLDER

Use in touch up and assembly operations where cleaning is to be done with a water wash system. **HYDRO-X**

Stock No.	Alloy	Gauge	1-10 Price	11-24 Price
81F2870	60/40	18	14.13	12.72
81F2871	60/40	21	15.39	13.86

SOLDER CREAM OXIDE FREE

Pre-alloyed solder and rosin flux mixture. Available in 25 gram syringes for controlled accuracy. Conforms to QQ-S-571e and is QPL.

Stock No.	Type	Alloy	1-10	11-24
34F1127	XM-27298	60/40	7.74	7.55
34F1128	XM-27330	62/36/2AG	11.00	10.50
34F1129	XM-27328	96/4AG	18.60	17.65
34F1130	XM-HMP	5/93.5/1.5AG	11.00	10.50

STANDARD WIRE GAUGE	10 swg.	14 swg.	16 swg.	18 swg.	19 swg.	20 swg.	21 swg.	22 swg.	24 swg.	28 swg.	32 swg.	34 swg.
DECIMAL EQUIVALENT	.125	.080	.064	.048	.040	.036	.032	.028	.022	.014	.0108	.009

All solder sold in 1 lb. spools, unless otherwise indicated.

KESTER "44" RESIN CORE SOLDER

Litton **KESTER SOLDER**

Featuring fast-acting, instant wetting flux. Makes soldering faster and provides a stronger, longer lasting bond. Flux residue is immune to fungus growth, resistant to oxidation and organic decomposition, completely non-corrosive and electrically non-conductive. 3.85% flux core.

- **Instant Wetting Action**
- **Electrically Non-Conductive Residue**
- **Completely Non-Corrosive Residue**

Alloy					1-10		11-24		25-Up	
Tin	Lead	Stk. No.	Dia.	GA	1-lb.	5-lb.	1-lb.	5-lb.	1-lb.	5-lb.
40	60	33F205	094	13	9.84	....	9.35	....	8.36	.....
40	60	33F219	094	13	....	48.80	....	46.35	.....	41.50
50	50	33F207	093	13	11.88	....	11.29	....	10.10	.....
60	40	33F221	093	13	13.92	....	13.22	....	11.83	.....
40	60	33F213	062	16	10.04	....	9.54	....	8.53	.....
50	50	33F215	062	16	12.08	....	11.48	....	10.27	.....
50	50	33F216	062	16	....	60.10	....	57.10	.....	51.10
60	40	33F217	062	16	14.12	....	13.41	....	12.00	.....
60	40	33F218	062	16	....	70.30	....	66.80	.....	59.75
63	37	33F1117	062	16	14.72	....	13.98	....	12.51	.....
60	40	33F1119	050	18	14.34	....	13.62	....	12.19	.....
60	40	33F1120	050	18	....	71.40	....	67.85	.....	60.70
63	37	33F1121	050	18	14.92	....	14.17	....	12.68	.....
60	40	33F1123	040	19	14.54	....	13.81	....	12.36	.....
63	37	33F1125	040	19	15.14	....	14.38	....	12.87	.....
60	40	33F223	031	21	15.20	....	14.44	....	12.92	.....
60	40	33F224	031	21	.....	60.56*	.....	57.52	.....	51.48
63	37	33F1127	031	21	15.78	.....	14.99	.....	13.41	.....
60	40	33F1129	025	23	16.04	.....	15.24	.....	13.63	.....
63	37	33F1131	025	23	16.64	.....	15.81	.....	14.14	.....

*33F224 supplied in 4 lb. spools.

SOLID WIRE SOLDERS—Equal to flux core solders in purity, quality and fabrication, always uniform in diameter and alloy.

Alloy					1-10		11-24		25-Up	
Tin	Lead	Stk. No.	Dia.	GA	1-lb.	5-lb.	1-lb.	5-lb.	1-lb.	5-lb.
40	60	33F1133	125	11	9.72	....	9.23	....	8.26	.....
40	60	33F1134	125	11	....	48.30	....	45.90	....	41.05
40	60	33F1102	062	16	10.04	.....	9.54	....	8.53	.....
50	50	33F1104	125	11	11.50	.....	10.93	....	9.78	.....
50	50	33F1105	125	11	....	57.20	.....	54.35	.....	48.60
50	50	33F1106	062	16	12.08	.....	11.48	.....	10.27	.....
60	40	33F1108	062	16	14.12	.....	13.41	.....	12.00	.....
60	40	33F1110	031	21	15.20	.....	14.44	.....	12.92	.....

BAR SOLDER—Uniform distribution of tin-lead alloy in bar provides for more efficient and easy application. Freedom from oxide is virtually assured.

Alloy		Stk. No.	1-10	11-24	25-49
40% Tin	60% Lead	33F1100	9.14	8.68	7.77
50% Tin	50% Lead	33F598	11.08	10.53	9.42
60% Tin	40% Lead	33F599	13.14	12.48	11.17
63% Tin	37% Lead	33F1101	13.70	13.02	11.65

SOLDERING FLUXES—Use on all metals except aluminum. Kester Soldering Fluxes remain stable even under extreme conditions. **1544:** Evaporating foam flux. **1587:** 50% solid content.

Formula No.	Stk. No.	Pints	Stk. No.	Qts.	Stk. No.	Gals.
1544	33F1135	4.00	33F1136	6.00	33F1137	17.26
1587	33F1141	4.00	33F1142	6.00	33F1143	17.26

PRINTED CIRCUIT TV-RADIO SOLDER

Stock No.	Alloy	Dia.	GA.	Each (1 oz. coil)
33F200	60/40	.050	18	1.03

16

Resin Core Solder

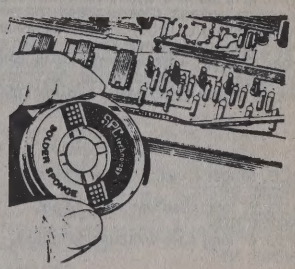
DURATEC™ brand

A specially processed solder containing extremely low levels of impurities. Duratec solder provides improved wetting, shallower fillets, fewer rejects, easier inspectability and consistent results.

Alloy		Type				1-10		11-24		25-UP	
Tin	Lead	Stk. No.	TLR	Dia.	Ga.	1 Lb.	5 Lb.	1 Lb.	5 Lb.	1 Lb.	5 Lb.
40	60	**81N1585**	4013-1	.093	13	7.89		7.06		6.23	
50	50	**81N1586**	5013-1	.093	13	9.48		8.46		7.49	
60	40	**81N1587**	6013-1	.093	13	11.08		9.91		8.75	
40	60	**81N1588**	4016-1	.062	16	8.08		7.23		6.38	
50	50	**81N1589**	5016-1	.062	16	9.67		8.65		7.64	
50	50	**81N1590**	5016-5	.062	16		48.05		43.00		37.95
60	40	**81N1591**	6016-1	.062	16	11.29		10.10		8.91	
60	40	**81N1592**	6016-5	.062	16		56.15		50.25		44.35
63	37	**81N1593**	6316-1	.062	16	11.74		10.51		9.27	
60	40	**81N1594**	6018-1	.050	18	11.46		10.25		9.05	
60	40	**81N1595**	6018-5	.050	18		57.00		51.00		45.00
63	37	**81N1596**	6318-1	.050	18	11.91		10.66		9.41	
60	40	**81N1597**	6019-1	.040	19	11.65		10.42		9.20	
63	37	**81N1598**	6319-1	.040	19	12.10		10.83		9.56	
60	40	**81N1599**	6021-1	.031	21	12.22		10.93		9.65	
60	40	**81N1600***	6021-4	.031	21		48.64		43.52		38.40
63	37	**81N1601**	6321-1	.031	21	12.67		11.34		10.01	
60	40	**81N1602**	6023-1	.025	23	12.96		11.59		10.23	
63	37	**81N1603**	6323-1	.025	23	13.41		12.00		10.59	

*Supplied in 4lb. spools

SOLDER SPONGE for any de-soldering job



Solder Sponge is the answer to the de-soldering needs and problems which you may have because Solder Sponge is vacuumized.

Solder Sponge is produced by utilizing space-age technology. The copper braid is de-oxydized and coated with a smooth flux layer by using the vacuumization production technology. Compare the flaky surface coating of competitive products and the smoothness of the flux coating of Solder Sponge. The better the coating the better the behavior. For his vacuumization process patents are applied for in many countries, including USA, England and Japan. The sophisticated vacuum technique produces an effective capillary action between the molten solder and the wick.

Solder Sponge meets all soldering quality specifications set worldwide by critical electronic associations. Such standards exclude harmful and corrosive chlorides content in the flux coating.

Solder Sponge is made with very soft chemicals because of a vacuum manufacturing technique, and is noncorrosive. Contains practically no chlorides or halogens and has a long shelf life.

Solder Sponge affectively removes solder leaving no corrosive residue.

Solder Sponge is an effective and economical means of de-soldering available today for use in military, industrial and commercial applications.

SOLID WIRE SOLDER (SAME HIGH QUALITY AS OUR RESIN CORE SOLDER)

Alloy		Type				1-10		11-24		25-UP	
Tin	Lead	Stk. No.	TLS	Dia.	Ga.	1 Lb.	5 Lb.	1 Lb.	5 Lb.	1 Lb.	5 Lb.
40	60	**81N1604**	4011-1	.125	11	8.38		7.50		6.62	
40	60	**81N1605**	4011-5	.125	11		41.60		37.25		32.85
40	60	**81N1606**	4016-1	.062	16	8.68		7.77		6.86	
50	50	**81N1607**	5011-1	.125	11	9.84		8.81		7.77	
50	50	**81N1608**	5011-5	.125	11		48.95		43.80		38.65
50	50	**81N1609**	5016-1	.062	16	10.39		9.30		8.21	
60	40	**81N1610**	6016-1	.062	16	12.12		10.85		9.57	
60	40	**81N1611**	6021-1	.032	21	13.15		11.76		10.38	

SPECIAL OXIDE FREE BAR SOLDER—UNIFORM HIGH QUALITY SOLDER IN 1 LB BARS

Alloy	Stk. No.	Type	1-10	11-24	25-UP
40% Tin 60% Lead	**81N1612**	TLS-40-BAR	7.13	6.38	5.63
50% Tin 50% Lead	**81N1613**	TLS-50-BAR	8.61	7.70	6.80
60% Tin 40% Lead	**81N1614**	TLS-60-BAR	10.18	9.11	8.04
63% Tin 37% Lead	**81N1615**	TLS-63-BAR	10.62	9.50	8.39

60/40 RESIN CORE ECONOMY REEL AND DISPENSER

Stk. No.	Type TLR	Dia.	# Feet	1-10	11-24	25-UP
81N1616	6018-014	.050	14	2.06	1.96	1.86
81N1617	6021-022	.032	22	2.06	1.96	1.86

You Can Depend on NEWARK for Everything In Industrial Electronics

SOLDER CREAM—8 OZ JARS

Duratec Creams are a Homogeneous Mixture of Solder Alloy Powder Flux, and a Gelling Agent

- **Controlled Application**
- **No Additional Fluxing Needed**
- **No Waste**
- **No Mess**
- **No Bubbling**
- **Controlled Viscosity**

Stk. No.	Type	Alloy	1-10	11-24
81N1583	TLC-6008	Tin/Lead 60/40 Silver Bearing	14.94	12.45
81N1584	SBL-9608	96.5/3.5	32.58	21.72

Stk. No.	Type	Width	EACH 1-24	25-99	100-Up
			5 FOOT SPOOLS		
81N1561	B-02	.025	1.65	1.85	1.08
32N1120	B-05	.050	1.65	1.35	1.08
32N1121	B-08	.075	1.65	1.35	1.08
32N1122	B-10	.100	1.89	1.54	1.23
81N1562	B-15	.150	2.00	1.74	1.40
81N1563	B-19	.190	1.65	1.35	1.08
			25 FOOT SPOOLS		
81N1564	B-02-25	.025	6.06	5.05	4.04
81N1565	B-05-25	.050	6.06	5.05	4.04
81N1566	B-08-25	.075	6.36	5.30	4.24
81N1567	B-10-25	.100	7.11	5.93	4.74
81N1568	B-15-25	.150	9.30	7.75	6.20
81N1569	B-19-25	.190	10.44	8.70	6.96
			50 FOOT SPOOLS		
81N1570	B-02-50	.025	11.25	9.38	7.50
81N1571	B-05-50	.050	11.25	9.38	7.50
81N1572	B-08-50	.075	11.88	9.90	7.92
81N1573	B-10-50	.100	13.41	11.18	8.94
81N1574	B-15-50	.150	17.73	14.78	11.82
81N1575	B-19-50	.190	20.34	16.95	13.56
			100 FOOT SPOOLS		
81N1576	B-02-100	.025	21.24	17.70	14.16
81N1577	B-05-100	.050	21.24	17.70	14.16
81N1578	B-08-100	.075	22.35	18.63	14.90
81N1579	B-10-100	.100	25.44	21.20	16.96
81N1580	B-15-100	.150	26.76	22.30	17.84
81N1581	B-19-100	.190	34.20	28.50	22.80

PLIERS & CUTTERS

The exceptional strength and performance of Xcelite pliers and cutters are the result of forged alloy steel construction, precision machining, and scientific proportioning. Handles are designed to fit the hand comfortably and to provide maximum leverage. Cleanly milled and perfectly aligned jaws grip tightly and surely while easy cutting is assured by hand-honed, mated cutting edges. For extra working comfort all models have permanent, red plastic-coated "Cushion-Grip" handles except Combination Slip Joint pliers.

LONG NOSE PLIERS

41CG. Midget 4″ without side cutters.
35F223. NET 8.23
51CG. 6″ long nose with side cutters.
35F224. NET 9.49
52CG. 6″ long nose without side cutters.
35F225. NET 7.62

NEEDLE NOSE PLIERS

56CG. 6″ long slim jaws.
35F229. NET 10.04
57CG. 5½″. Fine serrated jaws. Spring.
35F230. NET 9.92
87CG. 5½″. Fine serrations. 1 13/16″ nose.
34F1011. NET 10.34
90CG. 4½″. Spring. 3/64 × 1/16″ point.
34F1014. NET 11.69
91CG. 6″. Spring, fine serrated jaws.
34F1007. NET 10.74

CHAIN NOSE PLIERS

72CG. 5″. Thin chain nose. Beveled jaws.
35F242. NET 9.50
162CG. 4″ long for fine close work.
34F1006. NET 8.90
77CG. 4½″ slim for subminiature elec.
34F1009. NET 9.50

CUTTING AND LOOPING

94CG. 6″ long for cutting and forming.
34F1012. NET 12.34

DIAGONAL PLIERS

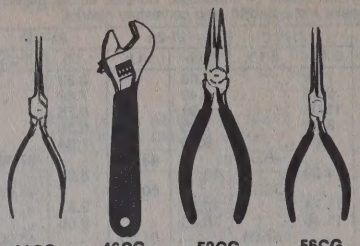
54CG. Midget 4″ for close work.
35F219. NET 8.47
55CG. 5″ plier for most cutting needs.
35F220. NET 9.13
64CG. 4″ long for fine wires in close.
35F238. NET 11.37
66CG. 6″ all purpose diagonal plier.
35F221. NET 9.60
67CG. 7″ pliers for heavy duty cutting.
35F222. NET 9.40
98CG. 4″ slim round nose design.
34F1015. NET 9.17
110CG. 4″ long. Stainless steel.
34F1008. NET 21.73
106CG. 4½″ Round nose, general use.
34F1010. NET 9.70
108CG. 4½″ Tapered nose, back clearance.
34F1013. NET 13.21
109CG. 4″ Fine tapered nose.
34F1016. NET 13.93

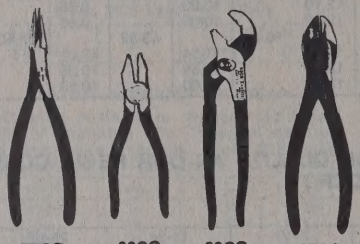
DIAGONAL CLOSE CUTTING PLIERS

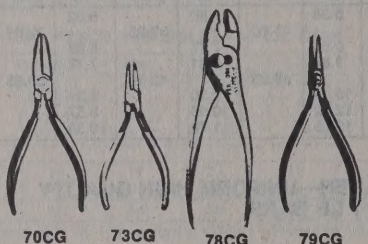
74CG. 4″ Fine tapered nose. Sharp edge.
35F236. NET 11.71
84CG. 4″ Full flush cutting plier.
35F237. NET 12.37
95CG. 5″. Thin pointed nose. Electronic.
35F239. NET 11.71

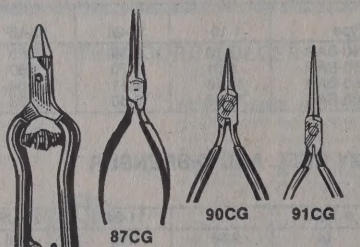
SPECIAL PURPOSE PLIERS

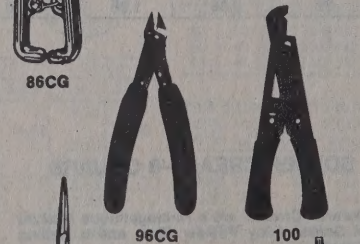
58CG. 6″ electronic plier. Cutting edge.
35F226. NET 11.62
59CG. 8″ long reach. Electrician's pliers.
35F227. NET 11.12

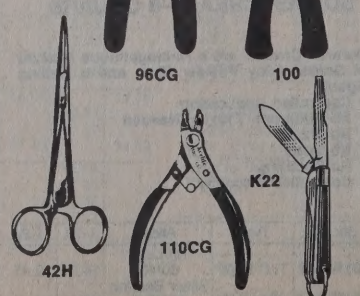

41CG. 46CG 52CG 56CG


59CG 60CG 63CG 67CG


70CG 73CG 78CG 79CG


87CG 90CG 91CG


86CG 96CG 100


42H 110CG K22

UTILITY PLIERS

50CG. 5″ midget slip joint. Open adj-½″.
35F231. NET 7.62
53CG. 7″ all purpose. Max. opening 1 1/16″.
35F232. NET 6.96
63CG. 10″. Rib lock. Max opening 1½″.
35F233. NET 8.90

SIDE CUTTING PLIERS

60CG. 6″. Serrated top and bottom jaws.
35F234. NET 9.72
68CG. 8″. Leverage for heavy wire cutting.
35F235. NET 12.09

FLAT NOSE PLIERS

70CG. 5″. For gripping. No cutter.
35F240. NET 9.08

ROUND NOSE PLIERS

71CG. 4½″. Carefully rounded. Fine point.
35F241. NET 9.35

SPECIAL ELECTRONIC PLIERS

69CG. 5″. Fine point. 5/16″ edge.
35F243. NET 12.41
73CG. 4½″. Cutter at tip. Cuts 45°.
35F244. NET 15.13
79CG. 5″. Bent thin pliers. 60° angle.
35F245. NET 13.08

WIRE STRIPPERS

100. Adj. screw stop for dif. wire sizes. Cushion grips. Handles solid and stranded wire. Hardened with ground blades.
35F246. NET 3.56

101-S. Same as 100 exc. spring handles.
35F247. NET 4.51

103-S. Cam stop adj. for dif. wire sizes. Cam won't move. Fine for industrial use.
35F248. NET 5.54

SNIPS

96CG. Snips cut flush up to 14AWG.
35F585. NET 6.80
97CG. Identical to 96CG but including special clip which holds cut-off wires.
34F586. NET 9.52
86CG. 6½″ Shears. Cut light sheet metal. Coil spring and latch. Cushion handle.
35F250. NET 12.09

SLIP JOINT PLIERS

75C. 5″. Chrome plated plier in small size.
35F252. NET 4.39
76C. 6″. Chrome plated for general use.
35F253. NET 4.63
78C. 8″. Chrome plated for heavy use.
35F254. NET 5.54

ADJUSTABLE WRENCHES

44CG. 4″ length. ½″ opening.
35F255. NET 9.07
46CG. 6″ length. ¾″ opening.
35F256. NET 9.17
48CG. 8″ length. 15/16″ opening.
35F257. NET 10.39

STAINLESS STEEL "SEIZERS"

Stk. No.	Type	Description	1-11	12-47	48-Up
34F370	42H	6″ straight nose	12.91	11.60	10.28
34F371	43H	6″ curved nose	13.28	11.93	10.57
34F373	32H	5″ straight nose	12.49	11.22	9.95

ELECTRICIAN'S KNIFE K22. Knife and screwdriver. Utility tool.
35F251. NET 10.07

Professional Hand Tools

XCELITE®

Xcelite nutdrivers feature steel shafts and precision-machined, cold-drawn, case-hardened sockets with bright finish. Firm grip plastic handles are color-coded for easy size identification.

HOLLOW SHAFT NUT DRIVERS

Ideal for use where nuts must be installed or removed over protruding bolts. Finely-tempered and finished steel. (•) Volume control wrench. Shpg. wt. 6 oz.

Stk. No.	Type	Nut Size	Handle	1-11	12-47	48-Up
34F318	HS-6	3/16"	black	2.62	2.36	2.09
34F319	HS-8	1/4"	red	2.62	2.36	2.09
34F320	HS-10	5/16"	amber	2.62	2.36	2.09
34F321	HS-11	11/32"	green	2.77	2.49	2.21
34F322	HS-12	3/8"	blue	2.77	2.49	2.21
34F323	HS-14	7/16"	brown	3.57	3.21	2.85
34F324	HS-16	1/2"	red	3.57	3.21	2.85
34F325	HS-18*	9/16"	orange	3.57	3.21	2.85

SOLID SHAFT NUT-DRIVERS

Most popular sizes. 6" long over all.

Stk. No.	Type	Nut Size	Handle	1-11	12-47	48-Up
34F300	6	3/16"	black	2.29	2.06	1.82
34F301	7	7/32"	brown	2.29	2.06	1.82
34F302	8	1/4"	red	2.29	2.06	1.82
34F303	9	9/32"	orange	2.29	2.06	1.82
34F304	10	5/16"	amber	2.29	2.06	1.82
34F305	11	11/32"	green	2.44	2.19	1.94
34F307	14	7/16"	brown	3.12	2.81	2.49
34F308	16	1/2"	red	3.12	2.81	2.49

HANDLES

Stk. No.	Type	Description	Lght.	1-11	12-47	48-Up
34F398	99-1	1 1/16" dia.	4 1/8"	2.07	1.86	1.65
35F3111	99-3	1 1/16" dia.	2"	1.97	1.77	1.57
33F1150	99-1-R	Rev. Ratchet		14.28	12.83	11.37
33F1151	99-4-R	Handles, Black		14.28	12.83	11.37

NUT DRIVER SHAFTS

35F3112	99-6	3/16"	3 5/8"	1.97	1.77	1.57
35F3113	99-7	7/32"	3 5/8"	1.97	1.77	1.57
35F3114	99-8	1/4"	3 5/8"	1.97	1.77	1.57
35F3115	99-S8	1/4"	1 3/8"	1.55	1.40	1.24
35F3116	99-9	9/32"	3 5/8"	1.97	1.77	1.57
35F3117	99-10	5/16"	3 5/8"	1.97	1.77	1.57
35F3118	99-S10	11/32"	1 3/8"	1.55	1.40	1.24
35F3119	99-11	11/32"	3 5/8"	2.05	1.85	1.64
35F3120	99-12	3/8"	3 5/8"	2.05	1.85	1.64
35F3122	99-14	7/16"	3 5/8"	2.64	2.37	2.10
35F3123	99-16	1/2"	3 5/8"	2.64	2.37	2.10

ALLEN HEX SHAFTS

35F3124	99-20	.050"	4"	1.79	1.61	1.42
35F3125	99-21	11/16"	4"	1.79	1.61	1.42
35F3126	99-22	5/64"	4"	1.79	1.61	1.42
35F3127	99-23	3/32"	4"	1.79	1.61	1.42
35F3128	99-764	7/64"	4"	1.79	1.61	1.42
35F3129	99-24	1/8"	4"	1.79	1.61	1.42
35F3130	99-964	9/64"	4"	1.79	1.61	1.42
35F3131	99-25	5/32"	4"	1.79	1.61	1.42
32F3132	99-26	3/16"	4"	1.79	1.61	1.42

REAMER

35F3133	99-38	1/8"-3/8"	4 1/8"	5.06	4.55	4.03

SLOTTED SCREWDRIVER SHAFTS

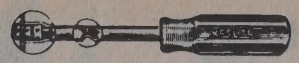
35F3135	99-250	1/4"	3 7/8"	1.97	1.77	1.57
35F3136	99-811	3/16"	3 7/8"	1.97	1.77	1.57

PHILLIPS SCREWDRIVER SHAFTS

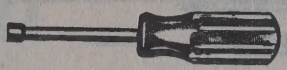
35F3137	99-821	#1	3 7/8"	1.97	1.77	1.57
35F3138	99-822	#2	3 7/8"	1.97	1.77	1.57

EXTENSIONS

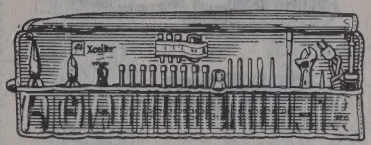
35F3139	99-X5	4"	4"	2.71	2.43	2.15
35F3140	99-X10	7"	7"	2.92	2.63	2.33



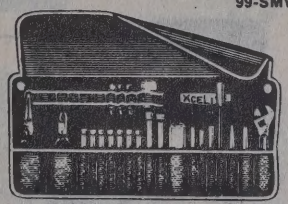
Hollow Shaft Nut Driver HS Series



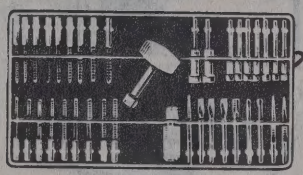
Solid Shaft Nut Driver



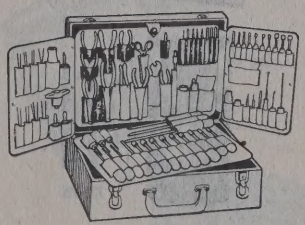
99-SMW

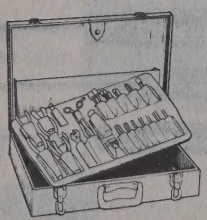


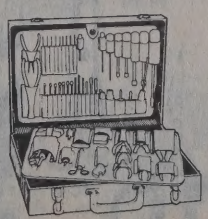
99SM



99MP







TECHNICIAN/SERVICEMAN'S AND FIELD ENGINEER'S TOOL KIT

SERIES 99 SERVICE KITS

Series 99 service kits and sets are made up of various screwdriver, nutdriver and other blades which can be used interchangeably in series 99 handles. All blades are high carbon steel with highly polished finish except Bristol and Allen Hex types, which are precision formed, cold drawn, case hardened steel. Plastic handles have patented spring device that holds blades firmly, yet permits quick, easy insertion and removal. Regular handles accommodate all blades, single and reversible.

99-SMW. 27 piece kit contains 99-1 (Regular) and 99-3 (Stubby) handles, nine regular nutdrivers (99-6 thru 99-16), three stubby nutdrivers (99-S8, 99-S10, 99-S12), two slotted screwdrivers (99-811, 99-250), two Phillips screwdrivers (99-821 and 99-822), one reamer (99-38), extension blade (99-X10), 6" long nose cushion grip plier (52CG), 5" diagonal cushion grip plier (55CG), 6" cushion grip adjustable wrench (46CG), plastic-coated canvas case (99-SMK). Plus WP25 soldering iron with 1/16" screwdriver tip, ST3 1/8" screwdriver tip, No. 100 wire stripper/cutter. and 99SMWK plastic-coated canvas case.

34F1005. NET. 104.14

THE SERVICEMAN'S COMPLETE KIT. Kit 99SM. 24 piece set contains 6" longnose, 5" dia. pliers, 6" adj. wrench, handles 99-1, 99-3, nutdrivers 99-6 thru 99-16 stubby models 99-S8, S10, S12. Phillips blades 99-821, extension. 99 × 10. slotted blades 99-811, 99-250, reamers 99-38. Canvas pouch.

34F388. NET. 79.50

99PS-60. Bristol Multiple Spine socket screwdrivers. Handle 99-1 blade 99-X5 and 9 bristol blades, two 4-flute and seven 6-flute type. .048", .060", .069", .072", .076", .183". All 4" long. Clear plastic stand up case. Shpg. wt. 1½ lbs.

34F340. NET. 21.44

99MP. 39 piece kit contains all the most popular Series 99 tools. 99-1 (regular) and 99-4 (tee) handles, ten regular nut drivers (99-6 to 99-16), nine Allen Hex type screwdrivers (99-20 to 99-26), nine Bristol Multiple Spline screwdrivers (99-61 to 99-69), three slotted screwdrivers (99-811, 99-250, 99-312), two Phillips screwdrivers (99-821, 99-822), reamer (99-38), and extension blade (99-X5).

34F223. NET. 92.31

TECHNICIAN/SERVICEMAN'S AND FIELD ENGINEER'S TOOL KIT

Choice of three sturdy, spacious and attractive attaché style tool cases to meet virtually every need. Each an ideal assortment and arrangement of Xcelite's quality, professional hand tools neatly mounted in pockets on removable, vinyl covered pallets and trays, plus generous space for individualized selection of test instruments, parts boxes. Weller soldering gun and iron, Xcelite measuring tapes, and other tools. Roomy file pocket in lid for service manuals, circuitry diagrams, and literature. Dovetailed, solid wood frame.

MODEL TC-100/ST TOOL KIT

53 tools including pliers, wrenches, snips, screw and nut drivers, 31 Series 99 interchangeable screw and nut drivers, reamers, handles and 2 sets of specialized screw and nut drivers. Leather grain case with wood frame, brass hardware and padded handle. Includes case.

35FX215 . . . . . 441.36
32F216. TC-100/MT Case only. Net 127.81

MODEL TC-200/ST TOOL KIT

10 assorted snips, pliers, wire cutters, wrenches, etc. plus 27 interchangeable Series 99 screw and nut drivers. Case also provides ample room for meters, parts, other tools, etc. File pocket for literature. Durahyde case with wooden frame, brass finished hardware. Includes case.

35F217. NET. 224.96
35F218. TC-200/MT. Case only. NET 71.23

MODEL TC-150/ST TOOL KIT

25 assorted tools. 24 Series 99 screws and nutdrivers, soldering iron and solder, 2 measuring tapes.

34F581. NET. 356.10
34F582. TC-150/MT. Case only. 115.23

16

SCREWDRIVERS

FOR SLOTTED SCREWS

All blades are AISI 6150 chrome vanadium steel finished in bright nickel chrome with amber plastic handles. (*) have ½" dia. handles. (†) have 1⅜" dia. stubby handles. Avg. wt, 8 oz.

Stk. No.	Type	Blade Size	1-11	12-47	48-Up
34F276	S-141†	¼x1¼"	2.45	2.21	1.96
34F203	S-3163	3/16x3"	2.24	2.01	1.78
34F204	S-3164	3/16x4"	2.49	2.24	1.98
34F205	S-3166	3/16x6"	2.71	2.43	2.15
34F206	S-3168	3/16x8"	3.14	2.82	2.50
34F209	S-144	¼x4"	3.41	3.06	2.71
34F210	S-146	¼x6"	3.41	3.06	2.71
35F1426	S-5164	5/16x4"	3.32	2.99	2.65
34F213	S-5166	5/16x6"	4.61	4.14	3.67
34F217	S-388	⅜x8"	5.11	4.59	4.07
34F275	S-3161	3/16x1¼"	1.74	1.56	1.38
34F216	S-3812	⅜x12"	6.21	5.58	4.95
34F217	S-148	¼x8"	3.57	3.21	2.85
34F214	S-5168	5/16x8"	4.61	4.14	3.67

ROUND BLADES

34F250	R-3322*	3/32x2"	1.09	.98	.86
34F251	R-3323*	3/32x3"	1.22	1.10	.97
34F252	R-3324*	3/32x4"	1.29	1.16	1.02
34F254	R-182†	⅛x2"	1.29	1.16	1.02
34F253	R-183*	⅛x3"	1.29	1.16	1.02
34F255	R-184†	⅛x4"	1.74	1.56	1.38
34F256	R-186†	⅛x6"	1.89	1.70	1.50
34F257	R-188†	⅛x8"	2.04	1.83	1.62
34F258	R-1810†	⅛x10"	2.14	1.92	1.70
34F259	R-5323	5/32x3"	1.59	1.43	1.26
34F260	R-5324†	5/32x4"	1.59	1.43	1.26
34F261	R-5325†	5/32x5"	1.74	1.56	1.38
34F263	R-3163	3/16x3"	2.20	1.98	1.76
34F264	R-3164	3/16x4"	2.52	2.27	2.01
34F265	R-3166	3/16x6"	2.74	2.46	2.18
34F266	R-3168	3/16x8"	2.97	2.67	2.37
34F267	R-31610	3/16x10"	3.41	3.06	2.71
34F269	R-144	¼x4"	2.91	2.61	2.31
34F270	R-146	¼x6"	3.14	3.82	2.50
34F271	R-148	¼x8"	3.39	3.05	2.70
34F272	R-1410	¼x10"	3.57	3.21	2.85
34F273	R-5166	5/16x6"	3.57	3.21	2.85
34F274	R-5168	5/16x8"	3.79	3.41	3.02
34F277	R-181*	⅛x2"	1.10	.99	.88

TORX SCREWDRIVERS

Stk. No.	Type	Blade Dia.	Blade Lt.	1-11
33F1800	XTD-10/XTD-10V	3/16"	3"	3.31
33F1801	XTD-15/XTD-15V	3/16"	3"	
33F1802	XTD-20/XTD-20V	3/16"	3"	
33F1803	XTD-26/XTD-25V	3/16"	3"	
33F1804	XTD-27/XTD-27V	¼"	8⅝"	3.66
33F1805	XTD-30/XTD-30V	¼"	8⅝"	

Screwdriver For Torx® Head Screws

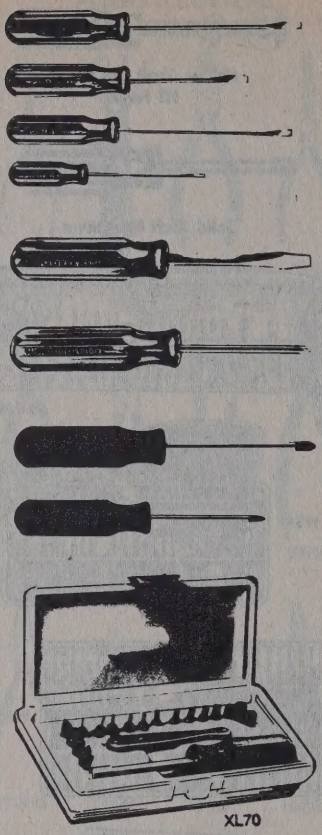
WISS SHEARS AND SCISSORS

TC-1. Wiss Thread Clips, sharp points, nickel plated, jaws held open by spring.
34F1000. NET. 13.25

TC-5. Wiss Thread Clips, blunt points, nickel plated, 4⅝" long.
34F1001. NET. 13.25

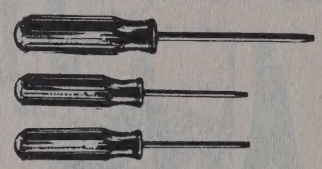
175-E. Wiss Electricians Scissors, sharp points, scraper and file on back of blade.
34F1003. NET. 13.50

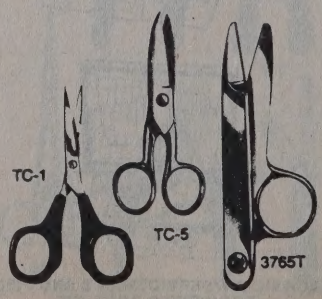
3765T. Wiss Contura-Lite needle point shears, polished stainless steel, 4¾"L.
34F1004. NET. 11.25



XL70

XL-75





TC-1 TC-5 3765T

PHILLIPS SCREWDRIVERS

Same as slotted screw drivers except where noted. (Plastic handles: (*) pocket clip (†) stubby type. Avg. wt. 5 oz.

PHILLIPS—REGULAR

Stk. No.	Type	Point Size	Blade Size	1-11	12-47	48-Up
34F290	X-101	1	3"	2.14	1.97	1.74
34F291	X-102	2	4"	2.92	2.63	2.33
34F292	X-103	3	6"	4.07	3.66	3.25
34F293	X-104	4	8"	5.29	4.76	4.22
34F294	X-108	1	6"	2.76	2.48	2.19
34F295	X-1010	1	10"	3.57	3.21	2.85
34F296	X-1020	2	10"	4.04	3.63	3.22
34F287	SX-101†	1	1 7/16"	2.03	2.07	1.84
34F288	SX-102†	2	1 5/16"	2.62	2.36	2.09
34F289	P12-S*	0	2"	1.42	1.28	1.13

PHILLIPS—SUPER THRU-TIP

Bright nickel chrome blades with black oxide tips for longer wear all equipped with black (UL) handles.

Stk. No.	Type No.	Point Size	Total Length	1-11	12-47	48-Up
35F1433	XST-100	0	4⅛"	1.99	1.79	1.58
35F1434	XST-101	1	6⅛"	2.76	2.48	2.19
35F1435	XST-102	2	8⅛"	3.51	3.15	2.79

DUAL PURPOSE SCREWDRIVERS

Handy Screwdrivers with reversible blades. Type CR1 is for 3/16" and No. 1 Phillips screws; Type CR2, ¼" and No. 2 Phillips screws; Overall length 7¼".

Stk. No.	Type	Blade Size	1-11	12-47	48-Up
34F298	CR1	3/16"	4.79	4.31	3.82
34F299	CR2	¼"			

SCREWDRIVER SETS

XL70. 19 piece midget reversible rachet screwdriver set. Ideal for all work involving allen hax head type, phillips and slotted screws. All driver bits ¼" hex shank. Allen hex sizes: .050, 1/16, 5/64, 3/32, 7/64, ⅛, 9/64, 5/32, 3/16, 7/32, ¼, 5/16. Phillips screw bit sizes ¼ and 3/32. Adapter bit, reversible rachet, spinner-extension and heavy plastic case.
35F200 . . . . . 32.63

OFFSET RATCHET SCREWDRIVER SET

XL-75. 5 piece set. 3/16" and ¼" slotted screw bits. #1 and #2 Phillips screw bits. 3-3¾" reversible ratchet. ¼" hex shank on all driver bits. In plastic see through pouch.
35F1436. NET. 10.08

Quality hot drop forged cutlery steel.

		1-11	12-47	48-Up
XL-70	Offset Ratchet Screwdr. Set	32.63	29.30	25.96
XL-75	Offset Ratchet Screwdr. Set	10.08	9.05	8.01

MINI—SCREWDRIVER SET

M-60. Six piece slotted and Phillips with case. 00 Phillips, .040, .050, .070, .080, .100 and torque amplifier handle.
35F206. NET 6.28

Kit PS-88. Slotted blade sizes are: 3/32", ⅛", 5/32", 3/16", and ¼" Phillips Nos. 0, 1 and 2 points. Overall length 3½". Shpg. weight 6¾ oz.
34F375. NET. 13.51

Professional Hand Tool Sets

XCELITE

HAND TOOL SETS

Hand tool sets features include steel shafts, cold drawn. Case hardened sockets with bright finish. Firm grip color-coded plastic handles.

Kit 600. Combination Screw driver-Nut-driver Set. Two hex openings in handle, 1/4 and 7/16" serve as nutdrivers. Includes SBI blade. Fits slotted or Phillips head screws. Wt. 3 oz.

35F1421. NET 5.06

CK-20. Number 25 handle with two sets of blades. RB1 and RB2 with No. 25 handle. Packaged in clear plastic pouch with zip-top closure. Shpg. wt. 6½ oz.

35F1423. NET 7.57

Kit CK23. Has plastic handle and three blades, choice of six tips: #1, 2 and 3 Phillips tips and 3/16", 1/4" and 5/16" slotted blades. In plastic zipper case.

35F1424. NET 10.30

Kit PS-120. Ten nutdrivers of 3/32", 1/8", 5/32", 3/16", 1/4", 9/32", 5/16", 11/32", 7/32", 3/8". Tool is 3½". Shipping wt. 9¾ oz.

34F336. NET 17.03

Kit HS-6-18. Kit contains ten hollow shaft nutdrivers with hex openings 3/8", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2", and 9/16". Packaged in a sturdy, plastic case. Shpg. weight 2 lbs.

34F376. NET 29.35

99 PR. Contains 99-1, nutdrivers 99-6 to 99-16, 99-811, 99-250, 99-281 and 99-822 in pouch, 24 oz.

34F395. NET 34.59

"TRAY BIEN" NUTDRIVER SETS

Nutdrivers have carbon steel shafts. Case hardened sockets. Plastic (UL) handles color coded. Features lightweight plastic case. Wall mounting holes. Compact, easily stacked.

Model 127TB. Solid shaft nutdriver set. Hex openings range from 3/16" to 3/8" in 1/32" steps.

34F366 ..... 16.33

Model 147TB. Hollow shaft nutdriver set. Hex openings of 1/4" to 1/2".

34F368 ..... 20.54

COMPACT NUTDRIVER SETS

Kit. 99 PS-50. Contains nutdrivers 99-6 to 99-12; Phillips screwdrivers 99-821 and 822; extension 99-X5; slotted blades 99-811 and 99-250; and handle 99-1. In plastic case. Shpg. wt. 1 lb.

34F341. NET 27.02

Kit PS-7. Two Hex nutdrivers of 1/4" and 5/16"; two slotted screwdrivers with blades of 3/16" and 3/32"; and two Phillips screwdrivers, types #0 and #1. Torque amplifier and workbench carrying case. Wt. 6 oz.

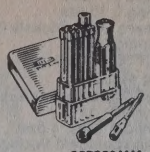
34F335. NET 10.52

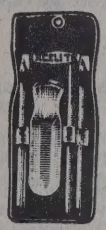
NUTDRIVER/SCREWDRIVER COMBINATION

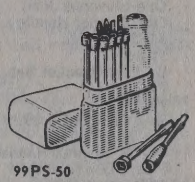
Kit PS-130. 10 pieces. Screw/nut driver set. 1, 2 Phillips. 1/8, 3/16, 1/4. Nutdrivers 3/16, 1/4, 5/16, 11/32, 3/8

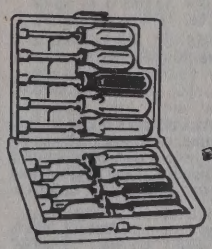
35F207. NET 17.62

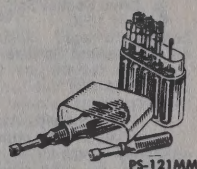
KIT 600

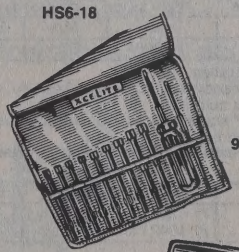

99PS51MM

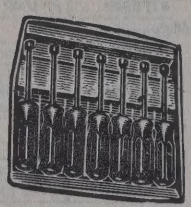

CK23

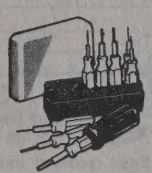

99PS-50

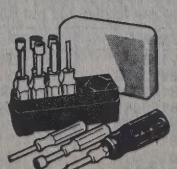

4-13 mm
HS6-18


PS-121MM


99 PR


"TRAY BIEN"
NUTDRIVER SETS


PS-89


PS-7
PS-89
PS-120
PS-130

METRIC HAND TOOL SETS

Metric hand tool sets are particularly useful in the assembly and servicing of foreign equipment. Blades, shafts and shanks are bright finish with firm grip plastic handles.

METRIC NUTDRIVERS
10 PC. NUTDRIVER SET

Contains 4MM through 13MM all with 31.75 mm. depth shaft hole. Black handles in rolled kit.

Stk. No.	Type	1-11	12-47	48-Up
34F189	4-13mm.	30.25	27.19	24.05

99PS51MM. 12-piece, 4MM-13MM hex opening, 2MM-7MM thread dia. Plastic case.

35F209. NET 29.11

METRIC HEX SOCKET SCREW SETS

No. 99PS-41MM METRIC HEX SOCKET SCREWDRIVER SET. Includes seven metric Allen Hex type blades (99-71 mm thru 99-77 mm in MM sizes 1.27, 1.5, 2, 2.5, 3, 4, 5). 99-X5 extension blade, 99-1 handle and see-thru case.

34F621. NET 21.13

No. 99 PS-41 MMBP METRIC BALLPOINT HEX SOCKET SCREWDRIVER SET. Includes 7 screwdriver blades (99-71 MMBP thru 99-77 MMBP in MM sizes 1.27, 1.5, 2, 2.5, 3, 4, 5). 99-X5 extension blade, 99-1 handle and see-thru case.

34F622. NET 26.27

No. PS-90MM METRIC HEX SOCKET SCREWDRIVER SET. Contains eight hex type blades 89MM, 1.27MM, 1.5MM, 2MM, 2.5MM, 3MM, 4MM, 5MM), torque handle and case.

34F623. NET 14.28

No. PS-121MM METRIC NUTDRIVER SET. Contains ten drivers (hex sizes 3MM, 3.5MM, 4MM, 4.5MM, 5MM, 5.5MM, 6MM, 7MM, 8MM, 10MM) torque handle, and case.

34F624. NET 21.03

ALLEN HEX SET

Kit 99-PS-40. Includes 99-1 handle; Allen hex screwdriver blades 99-20 thru 99-26 and 99-764 and 99-964; four inch ext. blade 99-X5I. Shpg. wt. 12½ oz.

34F339. NET 21.44

Type PS-89-8 midget Allen hex type screwdrivers. In sizes .028", .035", .050", 1/16", 5/64", 3/32", 7/64", 1/8". "Piggyback" torque amplifier handle slips over top of midget tool handles.

34F1432. NET 12.61

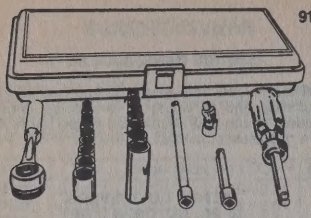
BALLPOINT ALLEN HEX SET

99PS40BP. Nine drivers. .050; 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16. 99-x5 Extension. Regular 99-1 handle. Standup, see-thru plastic case.

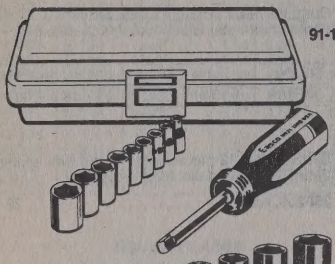
35F206. NET 32.26

16

Hunter/Easco® Socket Sets & Wrenches



91-111



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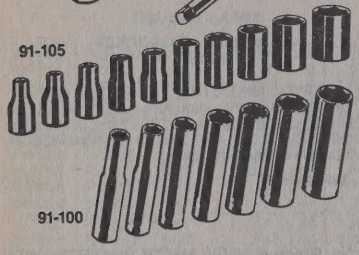
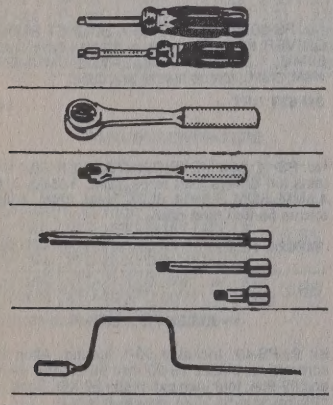


91-105

91-100

1/4" Drive Tools

Designed and built for speed and efficiency. Heat treated and tempered alloy steel, for long life, dependable performance. Chrome plated and highly polished for attractive appearance and rust resistance.



1/4" Drive Sockets

6 Point Standard

Six Point Sockets are precision broached. Use on hex nuts and bolts.

Stock No.	Type	Size	Each
81F3954	51 1105	5/32"	1.09
81F3955	51 1106	3/16"	1.09
81F3956	51 1107	7/32"	1.09
81F3957	51 1108	1/4"	1.09
81F3958	51 1109	9/32"	1.09
81F3959	51 1110	5/16"	1.09
81F3960	51 1111	11/32"	1.09
81F3962	51 1112	3/8"	1.09
81F3961	51 1114	7/16"	1.09
81F3963	51 1116	1/2"	1.09

1/4" Drive Socket Sets

7 Piece
1/4" Drive Deep Socket Set (carded)
Type 91 100C
Weight 10 ozs.
Seven Deep Sockets (1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2)
Storage Tray
81F3942. Net.....13.99

22 Piece
1/4" Drive Socket Set
Type 91 111
Weight 2 lbs. 4 ozs.
Nine Standard Sockets (3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2)
Seven Deep Sockets (1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2)
Two Socket Extensions
One Ratchet
Plastic Box (11 1/2" × 5 1/4" × 1 7/8")
One Universal Joint
One Spinner Handle
81F3939. Net.....42.99

11 Pc.
1/4" Drive Socket Set
Type 91 101
Weight 1 lb.
Nine Standard Sockets (3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2)
One 6" Spinner Handle
Plastic Box (7 1/2" × 4" × 2")
89F3940. Net.....13.99

10 Piece
1/4" Drive Socket Set
Type 91 105C
Weight 6 ozs.
Ten Standard Sockets (5/32, 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2)
81F3941. Net.....8.98

1/4" Ratchet
71 1105: Double pawl mechanism allows ratchet to operate in a clearance of only 5.1°. Diamond knurled handle for non-slip grip. Built-in knurled spinner for quick operation. Heat treated and chrome plated. Exceeds government specifications.

Stock No.	Type	Size	Each
81F3946	71 1105	5 1/4"	12.29

Flex Handle

Stock No.	Type	Size	Each
81F3947	71 1306	5 3/4"	5.59

Spinner Handles
Use these handy tools to convert your 1/4" drive sockets into nutdrivers.
71 1208: 1/4" square recess in handle permits use as extension bar.
71 1947: Features a flexible shaft to clear obstructions.

Stock No.	Type	Size	Each
81F3948	71 1208	6"	4.69
81F3949	71 1947 Flex	6"	7.29

Extensions

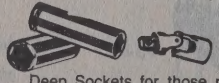
Stock No.	Type	Size	Each
81F3950	71 1248	1 1/2"	1.89
81F3951	71 1203	3"	1.89
81F3952	71 1206	6"	2.45

Speeder
6" Sweep

Stock No.	Type	Size	Each
81F3953	71 1923	15"	9.99

Universal Joint

Stock No.	Type	Size	Each
81F3973	71 1708	1/4"	7.49



6 Point Deep

Deep Sockets for those recessed and hard-to-reach nuts or bolts. Broached the length of the socket to give full nut run capability.

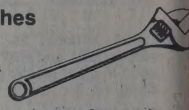
Stock No.	Type	Size	Each
81F3964	51 1206	3/16"	1.85
81F3965	51 1207	7/32"	1.85
81F3966	51 1208	1/4"	1.85
81F3967	51 1209	9/32"	1.85
81F3968	51 1210	5/16"	1.89
81F3969	51 1211	11/32"	1.89
81F3970	51 1212	3/8"	1.95
81F3971	51 1214	7/16"	1.95
81F3972	51 1216	1/2"	1.95

Easco:

All EASCO sockets and wrenches are made in the USA to last a lifetime. All...Meet Federal Specifications for torque strength.

- Are manufactured from selected high quality alloy steel.
- Are heat treated oil quenched and tempered to a uniform hardness.
- Are nickel chrome plated to resist rust and corrosion.
- Have chamfered ends to allow sockets to slide easily over nuts.
- Are backed by a no-nonsense guarantee that assures you satisfaction.

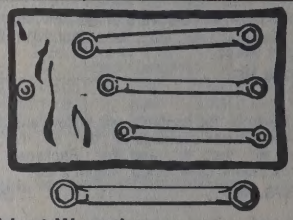
Adjustable Wrenches



- Hot Drop Forged
- Chrome Alloy Steel
- Precision Ground Jaws
- Accurately Milled Knurl
- Heat Treated
- Triple Chrome Plated to resist rust & corrosion
- Exceed Government Specification GGG-W-631B

Ideal for Home Shop, Auto & Industries

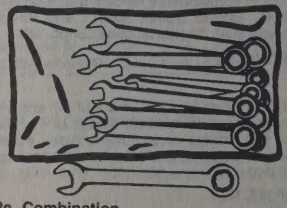
Stock No.	Type	Size	Each
81F3983	68 506	6"	5.59
81F3984	68 508	8"	6.29
81F3985	68 510	10"	8.19



Midget Wrenches

4 Pc. Midget Box End Wrench
Type 92 210
6 point openings. Plastic hang-up pouch. SIZES: 3/16" × 13/64", 7/32" × 15/64", 1/4" × 9/32", 5/16", 11/32".
81F3945. Net.....5.24

8 Pc. Open End Ignition Wrench Set
Type 92 160
Cold Forged, Heat Treated, Chrome Plated and Polished. 15° angle heads one end, 80° angle other end. With hang-up plastic pouch. SIZES: 7/32", 15/64", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16".
81F3941. Net.....11.49

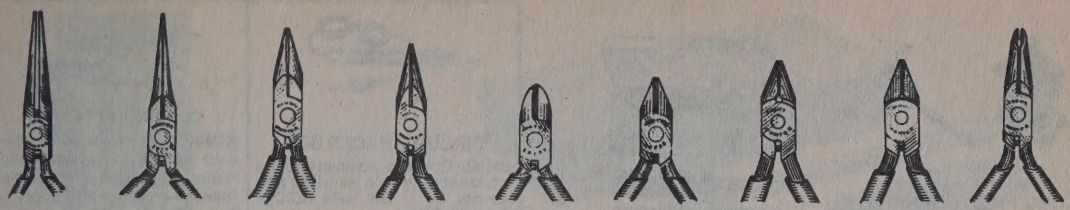


10 Pc. Combination Midget Wrench Set
Type 92 310
12 point openings. One box end head and one offset, open end head. With hang-up plastic pouch. SIZES: 5/32" × 3/16", 3/16" × 5/32", 13/64" × 7/32", 7/32" × 15/64", 15/64" × 1/4", 1/4" × 9/32", 9/32" × 5/16", 5/16" × 11/32", 11/32" × 3/8", 3/8" × 7/16".
81F3943. Net.....13.10

Precision Pliers and Cutters

FOR PRODUCTION APPLICATIONS

Hunter/Easco®



20114 | 20115 20105 | 20150 | 20160 | 20197 | 20195 | 20186 | 20184 | 20190

SUPER THIN 4¾" NEEDLE NOSE. Smooth jaws, radius edged for precision bending, reaching, clamping and forming. Delicate needle nose allows access to remote areas. Ideal for guiding leads through high density areas.
34F755 Type 20114. NET.....11.72

SUPER THIN—EXTRA LONG—6" NEEDLE NOSE. Smooth jaws, radius edged, similar to 20114 but longer. Extra long "delicate" needle nose allows access to remote areas.
34F756 Type 20115. NET.....12.66

EXTRA LONG 5¾" NEEDLE NOSE. Serrated jaw radius edged. For precision pulling, clamping and holding. Serrated jaws for firm grip.
35F3469 Type 20105. NET.....11.99

NARROW CHAIN NOSE. Serrated jaw, radius edged for precision looping, twisting, and bending. Serrated jaw for extra grip. 4¾" L.
34F166 Type 20150. NET.....11.05

NARROW CHAIN NOSE. Same as 20150 except with smooth jaws. 4¾" L.
34F1107 Type 20160. NET.....11.05

SEMI-FLUSH CUTTING. Regular head design for #20(.032") soft copper or smaller. 4⅛".
34F169 Type 20197. NET.....12.86

FULL FLUSH CUTTING. Our most popular cutter. Slim taper nose design plus full flush cut at extreme tip combine to make the ideal production cutter. Recommended for #20(.032") soft copper wire or smaller. Perfect for P.C. board and related high density applications where clearance is a factor. 4¼" L.
34F465 Type 20195. NET.....13.26

SEMI-FLUSH CUTTING. Taper nose and tip cutting. This cutter is larger than the 20195 for durability and longer life. Recommended for #18(.0403") and smaller copper wire. Ideal where density allows a larger head profile. 4¾".
34F168 Type 20186. NET.....13.73

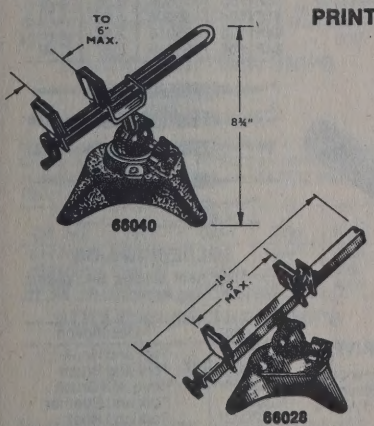
FULL FLUSH CUTTING. Similar to 20186 but with ground thin taper jaw and full flush cutting. For #20(.032") or smaller copper wire. Increased size over 20195 for durability and reduces operator fatigue. Ground head allows extra clearance in confined areas. 4¾" L.
34F1108 Type 20184. NET.....13.73

TIP DYKE-SEMI-FLUSH CUTTING. For those tight spots. Cuts at extreme tip and has alignment pin to keep the cutter blades aligned. For nickel ribbon size. .010" x .030" and smaller. Also #22 (.0253") and smaller copper wire 4¾" L.
34F468 Type 20190. NET.....21.00

MULTI-PURPOSE TOOL

5 IN 1 MULTIPURPOSE TOOL. Plier-Needle nosed and serrated. Cutter—Cut front, shear cut style, cutting edges hand ground. Crimper—Handles solderless terminal types including non-insulated, insulated for #10 thru #24 wire. Stripper—6 wire stripping holes for stripping AWG solid wire in gauges #12-22, and stranded wire #14-24. Screw Cutter—Cuts 6 most common screw sizes, 4-40, 5-40, 6-32, 8-32, 10-32, 10-24.
30F502 Type 25504. NET.....9.57

PRINTED CIRCUIT BOARD HOLDERS AND VISES



Type 66018 Std. vertical mount panavise. Can be used with 66004 vacuum base positioner.
34F1099. NET.....17.41

Model 66040 WIDE OPENING VERTICAL VISE. Designed for positioning or holding electrical and electronic products in assembly and repair. Has replaceable neoprene jaws that open to a full 6 inches. Base is five pound cast iron, has rubber feet. Permanently-locked in mounting pin with ⅜-24 threaded end. Spring loaded so that it may be adjusted to correct tension to hold weight. Vise is chrome plated heavy gauge steel wire. Crank handle allows quick change from one position to another. Shpg. wt. 10 lb.
34F345. NET.....48.90

Type 66002 PANA VISE-VERTICAL HEAD. Bench type vise (66018) on Pana Positioner (66004). 2¼" capacity, jaws 2½" wide. Shpg. wt. 3.5 lbs.
34F766 NET.....30.81

Type 66004 PANA POSITIONER ONLY. Pivots 360° on any tangent to a hemisphere. Achieves any compound angle. For use with all fixtures shown. Wt. 3 lbs
34F449. NET.....16.68

Type 66014 NYLON JAWS. Special Nylon jaws to hold small circuits. For use with pana vise.

Stk. No.	Type	1-9	10-49	50-Up
34F344	66014	5.29	4.73	4.26

Type 66028 QUICK ADJUST VISE. Includes 66006 positioner, 66064 base and 66024 vise. Quick adjust design allows jaw to change position. Jaw opening 9". 5 lb. base. Shpg. wt. 13 lbs.
34F917. NET.....64.31

Type 66064 HEAVY DUTY BASE. For use with 66004 positioner. Cast Iron with rubber non-marring feet.
34F1110. NET.....19.89

Type 66054 DELUXE PC HOLDER. 6" wide. For use with 66004 positioner and 66064 base. Turns work 360°. Shpg. wt. 1.8 lbs.
34F448. NET.....23.58

16

Special Purpose Tools

METRIC T HEX WRENCH KIT

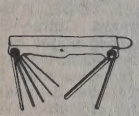
Steel blades hardened and tempered. Plastic dipped cushion grip handles are color coded metric blue. Contains: 2.5, 3, 4, 5, 6 mm ×6″ blades packes in heavy duty vinyl kit. Not a roll up kit.

34F158. TYPE 11225. NET . . 10.04

MASTER "T" WRENCH STAND

Metal Stand plus 10 drivers at 3/32, 7/64, 7/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8″ × 6″, all with cushioned grip for max. torque.

30F509. TYPE 11445. NET . . 18.28



"SMITTY" HEX WRENCHES

FOLD UP, COMPACT HEX KEY SET

10181. 3″ handle, 2″ blade. SIZES .050″, 1/16″, 5/64″, 3/32″, 7/64″, 1/8″, 9/64″, 5/32″.

10182. 6″ handle, 3″ blade. SIZES 5/64″, 3/32″, 7/64″, 1/8″, 9/64″, 5/32″, 3/16″, 7/32″, 1/4″.

10191. 4″ handle, 3″ blades. SIZES 5/64″, 3/32″, 7/64″, 1/8″, 9/64″, 5/32″, 3/16″, 7/32″, 1/4″.

10197. 6″ handle, 4″ blades. SIZES 2, 2.5, 3, 4, 5, 6, 8 mm.

10198. 6″ handle, 4″ BLADES. SIZES 1.5, 2, 3, 4, 5, 6, 8 mm.

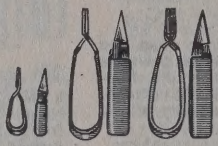
Stk. No.	Type	1-	10-49
34F540	10181	2.34	2.09
34F1102	10182	4.95	4.43
34F763	10191	3.54	3.17
34F363	10197	5.02	4.49
34F364	10198	3.54	3.17

50182

PRECISION KNIFE SET

50182. 10 assorted blades and three handles in plastic case. Wt. 5 oz.

Stk. No.	Type	1-9	10-49
30F508	50182	7.10	6.35

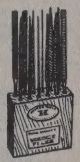


HEAT SINKS

63506 1¼″L. Tweezer nose. 63504 Med. duty. 63502 Heavy duty. Plastic handle.

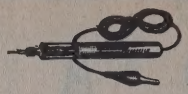
Stk. No.	Type	1-9	10-49
34F491	63502	3.21	2.87
34F492	63506	1.33	1.19
34F493	63504	1.94	1.73

SWISS NEEDLE FILES



For 12 different functions—including electronics, instrument repairs, tool makers, pattern makers. **58310** Plastic roll-up kit. 12 files. **58315** Deluxe, 12 files in stand.

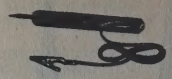
Stk. No.	Type	1-9	10-49
30F525	58310	18.55	16.65
30F529	58315	19.62	17.57



CIRCUIT TRACER SET

80102. Contains complete probe set, low voltage lamp neon light plus resister. Up to 500 volts AC/DC. Shpg. wt. 2 lbs.

Stk. No.	Type	1-9	10-49
34F748	80102	12.05	10.79

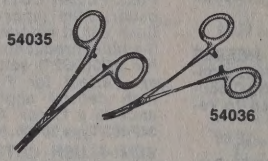


CONTINUITY TESTER

KD2647. For checking in powered circuits, fuses, relays, etc. Batteries included. Alligator clip. Point on probe for tight spots. ½ lb.

Stk. No.	Type	1-9	10-49
34F721	KD2647	4.01	3.59

TWEEZERS



55002. Dumont Style 4¼″ narrow tweezer. Stainless steel.

55004. Dumont Style, 4¼″. Needle points. Stainless steel.

55006. Dumont Style, 4¼″. Curved points. Stainless steel.

55016. Boley Style, 4¼″. Fine points, Carbon steel plated.

55018. Boley Style, 4¼″, extra slim fine points, Carbon steel plated.

Stk. No.	Type	1-9	10-49
34F735	55002	5.15	4.61
34F1103	55004	5.35	4.79
34F1104	55006	5.35	4.79
34F1105	55016	2.41	2.15
34F1106	55018	2.67	2.39

STAINLESS STEEL SCISSOR CLAMPS

Serrated jaws hold like vise. Absorbs, dissipates heat. Soft plastic grips. Curved blades except (**) straight.

Stk. No.	Type	Size	1-9	10-49
34F746	54035**	5″	6.43	5.75
34F747	54036	5″	6.43	5.75
30F503	54037**	6″	7.36	6.59
30F519	54038	6″	7.36	6.59

SCREW HOLDING

SCREWDRIVERS

Drive or remove screws in inaccessible areas. Non-mag blds. Blade dia. 1/8″ for 00-2 screws except (†) is 3/16″ for 3-6 screws.

Stk. No.	Type	Length	1-9
34F458	30130	4″	8.84
34F459	30135	7″	9.37
34F460	30150†	8¼″	9.57
34F461	30155†	11¼″	9.71

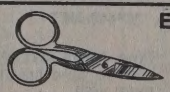
SOLDERING AIDS

Non-mag steel blades. Blk. plastic handle 8″ long except (†) 6″. Wt. 10 oz.

Type	Description
62002	Fork and Hook
62004	Fork and Brush
62006	Knife and Brush
62008	Fork and Reamer
62022†	Fork and Hook
62024†	Fork and Reamer

Stk. No.	Type	1-9	10-49
34F724	62002	2.00	1.79
34F725	62004	2.00	1.79
34F726	62006	2.00	1.79
34F727	62008	2.00	1.79
34F728	62022	1.33	1.19
34F729	62024	1.33	1.19

MAKE NEWARK
YOUR DEPENDABLE ONE-STOP SOURCE
FOR EVERYTHING
IN INDUSTRIAL ELECTRONICS



ELECTRONIC SHEAR

Electrician's Shear. For cutting any soft thin gauge metal or wire. Forged Steel and heavy nickel plated complete with deburring ridges. 5″ long overall with 2″ blade.

Stk. No.	Type	1-9	10-49
30F523	53015	8.70	7.79

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

METRIC TOOLS & SNIPS

Hunter/Easco®

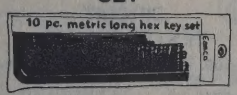
7-PC. METRIC OPEN END WRENCH SET

15° angle one end 80° angle other. Both end openings same size. Drop forged, heat treated, chrome plated. Plastic pouch.
81F3988 NET 6.86

METRIC 6 POINT STANDARD

Stk. No.	Type	Size	1-Up
81F3974	516104	4mm	.95
81F3975	516105	5mm	.95
81F3976	516106	6mm	.95
81F3977	516108	7mm	.95
81F3978	516108	8mm	.95
81F3989	516109	9mm	.95
81F3980	516110	10mm	.95
81F3981	516111	11mm	.95
81F3982	516112	12mm	.95

10-PC. METRIC LONG HEX KEY SET



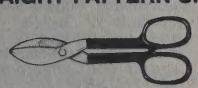
Includes sizes: 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm in a vinyl pouch.
81F3987 NET 3.99

AVIATION PATTERN SNIPS

Several pivot pts combine to bring a compound cutting action. Ideal for continuous cutting tasks on metal, plastic, wire, cloth, etc. Cutting edge lt.: 1⅜". Overall lt.: 10".

Stk. No.	Type	Blade Style	Color	1-Up
81F4000	23100C	Left	Red	8.66
81F4001	23101C	Straight	Yellow	8.66
81F4002	23102C	Right	Green	8.66

STRAIGHT PATTERN SNIPS



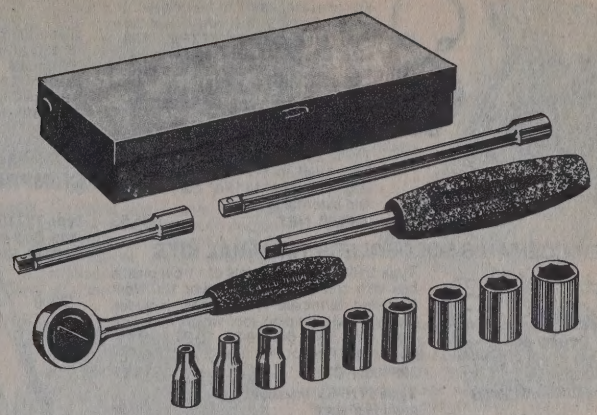
For straight cuts on sheet metal, screening chicken wire, linoleum, canvas, gaskets and other materials.

Stk. No.	Type	Overall Lt.	Cutting Edge	1-Up
81F4003	23103C	7"	2"	5.73
81F4004	23104C	10"	2¼"	6.79

CIRCULAR PATTERN SNIPS

For circular cutting of sheet metal, screening chicken wire, linoleum, canvas, gaskets and other material.

Stk. No.	Type	Overall Lt.	Cutting Edge	1-Up
81F4005	23106C	7"	2"	5.79
81F4006	23107C	10"	2¼"	7.06

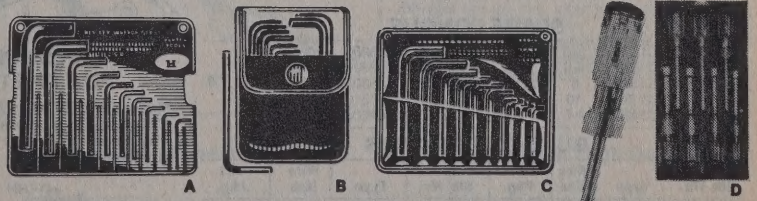


14-PIECE ¼" DRIVE METRIC SOCKET SET

Nine ¼" drive sockets—4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm and 12mm. One ¼" drive ratchet, two socket extensions, one spinner handle. Includes 6½ × 2⅝ × 1⅛" metal box.
81F3986. 91153 NET 22.66

8-PIECE ¼" DRIVE METRIC SOCKET SET

Eight standard sockets—4mm, 5mm, 6mm, 7mm, 8mm, 9mm, 10mm, 11mm. Includes 4¼ × 1 × 1⅛" storage tray. Wt. 7 oz.
81F3989. 91150C NET 7.32



A. METRIC L-TYPE SET

13070. 10 sizes: 1.27mm, 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm.

Stock No.	Type	1-9	10-49	50-Up
34F144	13070	4.68	4.19	3.77

B. METRIC HEX WRENCH KIT

Type 5026. Kit of 9 metric wrenches sized 0.9mm to 3.2mm. Complete with plastic carrying case.
30F240. NET 4.23

D. NUT DRIVERS/HOLLOW SHAFT

For hexagonal nuts and bolts. Hex sizes: 3/16, 1/4, 5/16, 11/32, 3/8, 7/16, 1/2. Includes pouch.
81F4468. 40902 NET 13.33

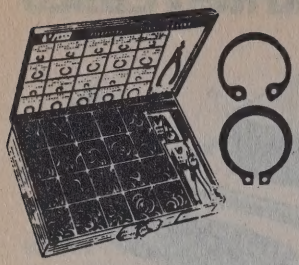
C. LONG AND SHORT ARM COMBO KIT

13025. "L" key set. 11 short arm and 11 long arm clearly identified heavy duty natural finish keys in a heavy vinyl protective kit. Sizes are: short arm .05, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, and 1/4; long arm 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 5/16, and 3/8.
30F1344. NET 10.31

C. SHORT ARM SET

13015. 13-piece short arm "L" key set in heavy duty vinyl case. Natural finish heavy duty keys. Sizes: 1/20, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.
30F1343. NET 2.54

16

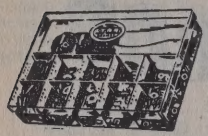


SNAP RING KITS

For use in lab, maintenance dept. or shop. Compartmented metal box with hinged cover. **TYPE 1550.** Contains 109 internal snap rings up to 1" dia. in 10 most popular sizes, 112 external snap rings to ⅞" dia., plus internal and external ring pliers. Wt. 8 lbs.
35F1265. NET 35.09

TYPE 2100. 66 internal snap rings from 1 1/16" to 1 5/8" dia., 60 external rings from 15/16" to 1 7/16" dia., internal and external pliers.
29F260. NET 45.53

SERVICEMAN'S SOLDERLESS TERMINAL KITS



2195-63

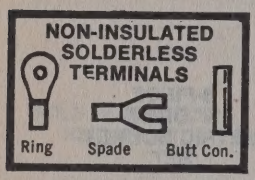
Type 2195-63. Kit consists of 11-bin plastic box with crimping tool and over 150 Non-Insulated terminals in 10 sizes. Includes Model 1963 crimping tool which cuts bolt sizes 4-40, 5-40, 6-32, 8-32, 10-24, and 10-32. Case: 8¾ × 6 × 1¾". Shpg. wt. 2 lbs.
30F900. NET 16.97

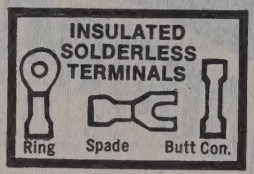
Type 6175-63. Insulated
65F1112. NET 16.97

4900-63

Type 4900-63. Kit contains 500 insulated single-grip terminals in 20 different types and sizes, and includes Type 1963 crimping tool and bolt slicer for correct application of terminals. Terminals and tool are housed in sturdy metal box with hinged cover. Custom molded inserts hold contents in orderly fashion. Box has handy location and specification chart in cover.
35F1266. NET 65.86

Type 5000-63. Similar to Type 4900-63 except contains 100 non-insulated solderless single-grip terminals (50 each of 20 different types and sizes).
29F261. NET 65.86





RING TONGUE

Stk. No.	Type	Stud Size	100 Pkg.	Stk. No.	Type	Stud Size	100 Pkg.
47F2097	C11205	5-6	5.99	47F2179	C61205	5-6	10.74
47F2169	C11208	8		47F2180	C61208	8	
47F2170	C11210	10		47F2181	C61210	10	

SPADE TONGUE

47F2174	C13206	5-6	5.99	47F2185	C63206	5-6	10.74
47F2175	C13306	4-6		47F2186	C63306	4-6	
47F2176	C13308	8		47F2187	C63308	8	
47F2177	C13310	10		47F2188	C63310	10	
47F2178	C14206	4-6		47F2189	C64206	4-6	

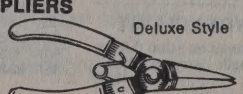
BUTT CONNECTORS

Stk. No.	Type	Wire Size	100 Pkg.	Stk. No.	Type	Wire Size	100 Pkg.
47F2190	C17202	22-18	5.99	47F2195	C67202	22-18	11.81
47F2191	C17302	16-14		47F2196	C67302	16-14	

FEMALE TABS

Stk. No.	Type	Wire Size	100 Pkg.	Stk. No.	Type	Wire Size	100 Pkg.
47F2194	C18302	18-14	6.29	47F2199	C68302	18-14	11.42

SNAP RING PLIERS



Type 21. Internal type.
35F1263. NET 5.36
Type 22. External type.
35F1264. NET 5.36

Type 210. Int. type with spring.
47F2112. NET 6.53
Type 220. Ext. type with spring
47F2113. NET 6.53

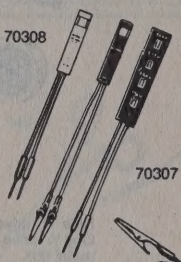
WIRE PLIERS

Type 19730. Crimps insulated and non-insulated solderless terminals, 22 to 8 gauge wire. Crimps ferrule on coax cable. Also 7 and 8 mm ignition terminals. Cuts bolt sizes 4-40, 6-32, 8-32, 10-24, 10-32. Stripping dies handle 22 to 8 gauge cable. Measuring guides for strip length and bolt length. Cushion grip.
47F2095. Wt. 1.5 lbs. **NET** 13.49

COMPOUND ACTION CRIMPING TOOL

Type T1710. Crimps insulated terminals to meet or exceed MIL-SPEC pull-out tests. Built-in terminal locator.
29F262. Shpg. Wt. 1½ lbs. **NET** 134.40

70308



TWIN LEAD TESTERS

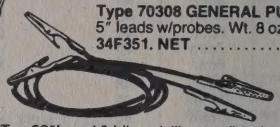
Type 70306 LOW VOLTAGE. 5 to 50 volt range. Neon lamp live circuit indicator. 4½" leads w/alligator clips. Wt. 8 oz.
34F349. NET 4.58

70307

Type 70307 MULTI-VOLT. Combination of glow lamps show voltage tested: 110-220-277-460 volts. Wt. 12 oz.
34F350. NET 7.38

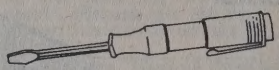
Type 70308 GENERAL PURPOSE. Tests 90-250V 5" leads w/probes. Wt. 8 oz.
34F351. NET 2.18

70306



TEST LEAD POUCHED SET

Type TK600. Two 32"L, red & blk., w/alligator clips, leads.
47F2165. Shpg. Wt. 1 lb. **NET** 3.42



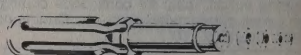
CIRCUIT TESTER/DRIVER

Type TK-500. Precision screwdriver tests 80-300 volt circuits. 4½" long.
47F2163. NET 2.26

PROBE TYPE TESTERS

Type 70008 CONTINUITY TESTER. Tests circuit continuity. 7¾" long.
47F2166. NET 6.41

Type TK-550 6-24 VOLT TESTER. Indicates presence of 6-24V current. 7¾" long.
47F2164. NET 5.76

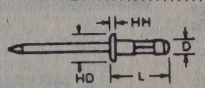


PROFESSIONAL POW'RIVETER

Model 175002. Streamlined head for tight areas. 2-pos. stroke adjustment. 3 nosepieces for ⅛", 5/32", 3/16" rivets.
35F1452. NET 62.44

SELF-ADJUSTING NUT DRIVER

Type SA-711. Does the work of four nut drivers. Adjusts itself automatically to ¼", 5/16", ⅜" or 7/16" hex size—just press and turn. Tempered steel sockets; breakproof, shockproof, Comfordome handle.
35F1274. NET 8.53



POW-RIVETS

Superior clamp-up "bubble" action for positive fastening every time. Sealed stem for waterproof, dustproof applications. Low profiile.

Type D	L	Grip Range	HD	HH	Stk. No.	100/ Pkg.	Type MB Stk. No.	Price per Pkg. of 1000 1-9	Price per Pkg. of 1000 10-Up
425 ⅛	.400	To .250	.215	.044	35F1454	2.28	35F1458	34.37	30.93
528 5/32	.470	To .280	.255	.057	35F1455	2.28	.....	.....	.....
631 3/16	.530	To .312	.349	.070	35F1456	2.28	.....	.....	.....
650 3/16	.720	To .500	.340	.070	35F1457	2.28	.....	.....	.....

47F2115. D400 Assortment of 25 Pow' Rivets 2.28

HEAT SINK FORCEPS

Self-clamping pincer 6" tempered stainless steel. Finely serrated jaws. 3 position ratchet lock. Wt. 2.6 oz.

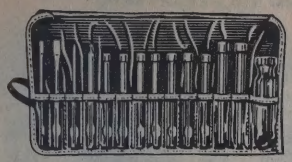
Stk. No.	Type	Shape of Tip	Each
47F2099	70296	Straight	10.74

16

Tool Kits and Tools

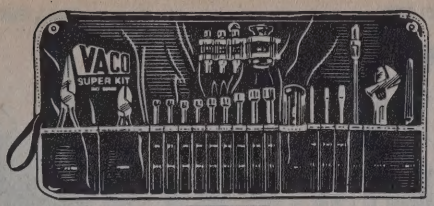
VACO

VACOMBO SUPER KITS



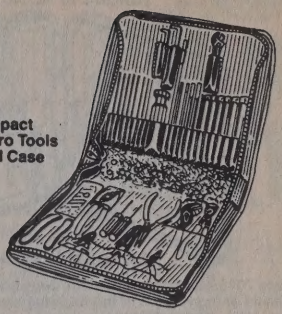
VACOMBO KIT

Type 90000. Contains: Std. handle 3/16" and 1/4" reg. blade drivers. #1 and #2 Phillips driver. Nut drivers: 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2". Pouch measures 12 3/4"L x 7"W.
34F354. 2 lbs. NET 26.71



SUPER KIT

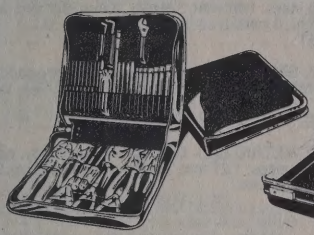
Type 90500R. Contains same tools as **Type 90000** (except #2 Phillips blade), plus 6" needle-nose pliers w/side cutter; 5" diagonal cutter, 6" adj. wrench; stubby handle; stubby nutdrivers: 1/4", 5/16, 3/8", 10" extension.
35F1462. Shpg. wt. 2 lbs. NET 74.62



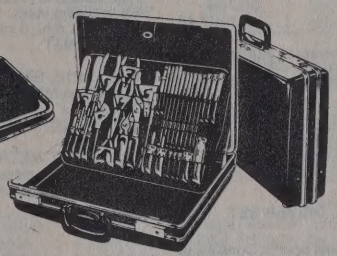
- Compact
- 36 Pro Tools
- Vinyl Case

Type 70390. Compact assortment holds 36 popular professional tools. Includes interchangeable 90-series handle and screwdriver, nutdriver and hexdriver blades. Plus pliers, electrical tools, and offset and regular screwdrivers. Zippered vinyl case is tough and lightweight. Measures 12 1/2" by 10 1/4" by 1 3/8". Wt. 8 lbs.
65F1111. NET. 202.67

SUPER CASE



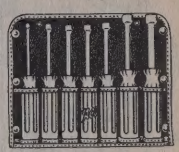
70260. Contains: Continuity Tester. 100-500V Circuit Tester. Twin Lead Tester. Neon Tester Screwdriver. Crimping Tool w/Bolt Slicer. Wire Stripper and Cutter. Measuring Tape. Hex Key Wrench Set. Phillips and Reg. Offset Drivers. 3-in-1 Tapping Tool. Spring Tool. Snap Ring Plier. One Phillips and 3 Reg. Screw Launchers. 6" Adj. Wrench. Ratchet Box Wrench. Two Rev. Screwdrivers. 12 Professional Screwdrivers. 7 Hollow Shaft Nut Drivers. 7 Professional Pliers.
34F352. NET. 376.18



Type 70380. Contains: 45 of the most popular professional tools. Plus a terminal service kit, with crimping tool. Includes interchangeable 90-series screwdriver, nut-driver, and hexdriver blades and handles. Pliers, screwdrivers and electrical tools all in a sturdy molded wooden case. Measures: 18 3/4" x 13 7/8" x 4 5/8". Wt. 12 lbs.
65F1110. NET. 320.36

NUT DRIVER KIT

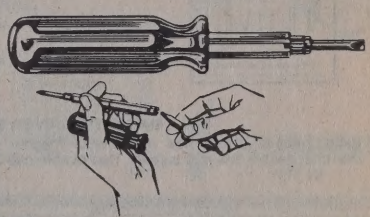
Type K-7. Stand-up, hang-up kit for workbench or tool box. Contains S6, S8, S10, S11, S12, S14, and S16 nut drivers.
47F2159. NET. . . 22.63



HEX KEY SET

Type 90900. Contains 9 hex key blades, size in inches: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, and one full size handle. Complete with 9" by 7" carrying pouch. Wt. 1 lb.
34F348. NET 17.65

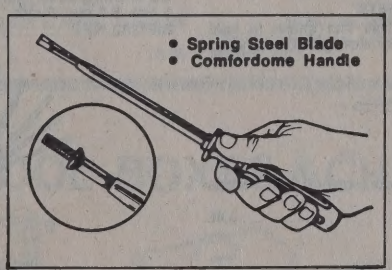
4-IN-1 SCREWDRIVER



SURE-GRIP SCREW LAUNCHERS

Holds, starts and drives screws and superb gripping power and non-slip action. Split-blade wedges into screw slot by simple manipulation of adjusting sleeve. *specially ground tip for miniature screws.

Stk. No.	Type	Blade	Lgth.	EACH
47F2161	K-21*	1/8 x 3"	5 3/4"	3.47
35F1250	K-23	1/8 x 3"	5 3/4"	3.05
35F1251	K-28	1/8 x 8"	10 3/4"	3.71
35F1252	K-34	3/16 x 4"	7 1/2"	4.45
35F1253	K-36	3/16 x 6"	9 1/2"	4.50
35F1254	K-38	3/16 x 8"	11 1/2"	4.63
35F1255	K-44	1/4 x 4"	7 5/8"	4.63
35F1256	K-46	1/4 x 6"	9 5/8"	4.82
35F1257	K-48	1/4 x 8"	11 5/8"	4.94



- Spring Steel Blade
- Comfordome Handle

70341. Handy, versatile screwdriver w/interchangeable, snap-in blades. Supplied w/four different tips on two interchangeable reversible blades - #1 Phillips x 3/16" slotted and #2 Phillips x 1/4" slotted. Blades fit snugly into hex machined shaft; shaft snaps into full sized Comfordome® handle. Instructions incl.
34F353. EACH 6.23

PHILLIPS SCREW LAUNCHERS

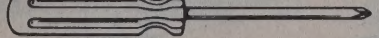
For holding, starting and retrieving cross slot screws. One tip size fits all sizes of screws. *has pocket clip.

Stk. No.	Type	Length	1-5
47F2162	K-14*	5"	5.01
35F1260	K-16	7"	4.94
35F1261	K-19	9"	5.15

3-PIECE SCREW LAUNCHER KIT

Type SK-234. Includes 1/8" x 3", 3/16" x 4" and 1/4" x 6" screw launchers in red and white self-closing pouch. Essential for the serviceman, mechanic or homeowner. 8 oz.
35F1262. NET. 12.22

PHILLIPS SCREWDRIVERS



Precision-milled, oil-tempered, Chrome-Vanadium steel blades for all Phillips cross-slot screws. Wt. 4 oz.

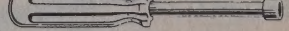
STANDARD TYPE

Stk. No.	Type	Point	Length	NET
34F355	P01	0	5 1/4"	1.90
34F356	P1	1	6 1/2"	2.47
34F357	P2	2	7 5/8"	3.12
34F358	P3	3	10"	4.22
34F359	P4	4	12 1/2"	4.79

STUBBY TYPE

34F360	P5	2	3 7/8"	2.71
34F361	P6	1	3"	2.47

HOLLOW SHAFT NUT DRIVER



Extra hard tempered sockets, hollow shafts, polished nickel chrome finish. Color-coded Comfordome shockproof handles.

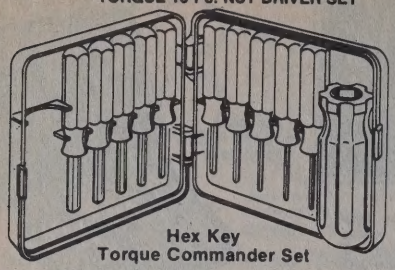
3" SHAFT LENGTH

Stk. No.	Type	Hex	Length	NET
47F2141	S6	3/16"	6 5/8"	2.58
47F2142	S7	7/32"	6 5/8"	2.61
47F2143	S8	1/4"	6 5/8"	2.58
47F2144	S9	9/32"	6 5/8"	2.61
47F2145	S10	5/16"	6 5/8"	2.58
47F2146	S11	11/32"	6 5/8"	2.58
47F2147	S12	3/8"	6 5/8"	2.58
47F2148	S14	7/16"	7"	3.24
47F2149	S16	1/2"	7"	3.24

16

Nut Drivers and Hex Wrench Sets

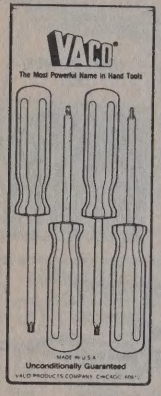
TORQUE 10 Pc. NUT DRIVER SET



Hex Key Torque Commander Set

Type 70103 Commander Set. In "New Look" plastic hang-up box. Consists of handle and one each of the following sizes: 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8" nut drivers.
81F1324. NET 17.46

Type 70110 Combination Set. Screw drivers and nut drivers in sturdy plastic box. Consists of handle and one each of the following: 1-TP-1, 2-TP-2 genuine Phillips; 1/8", 3/16" and 1/4" straight slot; nut drivers, 3/16", 1/4", 5/16", 11/32" and 3/8".
81F1325. NET 20.20



TORX 4 Pc. BULL DRIVER SET

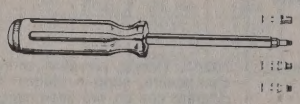
Type 70431. In handy compact pouch. Consists of one of each of the following sizes: T15, T20, T25 and T30.
81F1322. NET 15.55

TORX 5 Pc. SCREWDRIVER SET

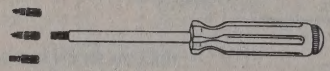
Type 70433. Most popular sizes. Consists of one each of the following: T15, T20, T25, T27 and T30.
81F1321. NET 16.20

4-IN-1 MAGNETIC DRIVER SETS

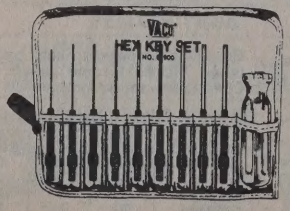
Each versatile driver has a powerful magnet built into shank to hold interchangeable bits and screws. Removable cap for storing bits in handle.



Type 70035. Slotted and Phillips. Most popular set, consists of #1, #2 Phillips and 3/16", 9/32" slotted.
81F1320. NET 8.46



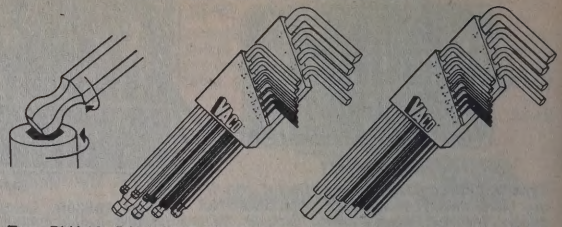
Type 70427. Torx Drivers. Consists of most popular torx bits, one each of the following: T15, T20, T25 and T30.
81F1323. NET 13.23



ODD BALL HEX KEY KIT

Type 90040. In handy vinyl pouch 9" × 7" wide. Consists of one each of the following: Standard handle, .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32" and 3/16".
81F1326. NET 30.19

BALL END AND STD. HEX KEY SETS



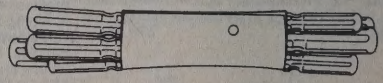
Type BLK-12. BALL END. Handy key caddy consists of one each of the following sizes: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4" and 5/16".
81F1329. NET 23.50

Type BLMK10. METRIC BALL END. Handy key caddy consists of one each of the following sizes: 1.27 mm, 1.5 mm, 2 mm, 2.5 mm, 3 mm, 4 mm, 4.5 mm, 5 mm, 5.5 mm, 6 mm.
81F1327. NET 22.20

Type LLK12. STANDARD END. Long arm in key caddy, consists of one of each of the following sizes: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", and 5/16".
81F1330. NET 9.00

Type LMK10. METRIC END. Long arm in key caddy, consists of one of each of the following sizes: 1.27 mm, 1.5 mm, 2 mm, 2.5 mm, 3 mm, 4 mm, 4.5 mm, 5 mm, 5.5 mm, 6 mm.
81F1328. NET 8.25

POUCHED BALL END HEX DRIVER SETS

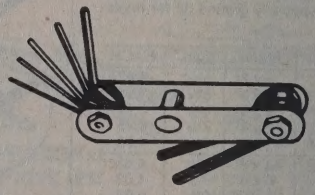


Pouch folds up for convenient storage and portability

Available in handy roll up vinyl pouch sets. Standard (inch) in yellow and metric in red. Part numbers and Hex sizes printed on pouch.

Type HBLK12. BALL END STANDARD. 12 Piece Set consists of one of each of the following sizes: .050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16".
81F1331. NET 35.00

Type HBLKMIO METRIC BALL END. 10 Piece Set consists of one of each of the following sizes: 1.27 mm, 1.5 mm, 2 mm, 2.5 mm, 3 mm, 4 mm, 4.5 mm, 5 mm, 5.5 mm, 6 mm.
81F1332. NET 29.90

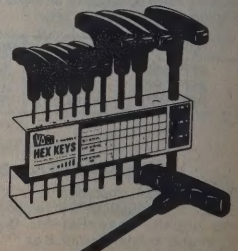


FOLDING HEX KEY WRENCH SETS

Type HK17. POPULAR SIZE SET. Consists of the following sizes: .050", 1/16", 5/64", 3/32", 1/8", 5/32", and 3/16".
81F1333. NET 3.77

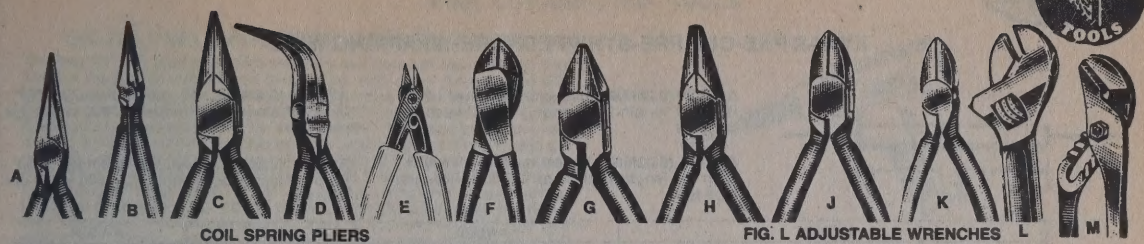
Type 70147. LARGE SIZE SET. Consists of the following sizes: 1/8", 5/32", 3/16", 7/32", 1/4", and 5/16".
81F1334. NET 10.98

T-HANDLE HEX KEY WRENCH SET



Type 70152. 10 piece set with popular sizes. With bench or wall stand for easy hanging. Consists of the following sizes: 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32", 1/4", 5/16" and 3/8".
81F9201. NET 24.61

Tools & Accessories



COIL SPRING PLIERS

Stk. No.	Type	Fig.	Handle Color	Description	1-11	12-Up
34F009	D301-6C	A	Yellow	6⅝" long nose plier	7.13	6.20
34F095	D321-4½C	C	Pink	4¾" long nose plier	7.36	6.40
34F113	D322-4½C	C	Pink	4¾" long nose plier	8.48	7.37
34F228	D317-5C	C	Yellow	5¼" chain nose plier	7.79	6.77
34F229	D327-5½C	A	Blue	5 13/16" slim nose plier	8.94	7.77

NON-COIL SPRING PLIERS

34F016	D302-6	D	Yellow	6¼" curved nose plier	9.45	8.22
34F114	D314-8	B	Yellow	8" long nose plier	7.74	6.73

COIL SPRING CUTTERS

34F012	D203-6C	—	Yellow	6⅝" long nose side cutters	8.88	7.72
34F018	D202-5C	K	Red	5½" narrow nose oblique	7.80	6.78
34F019	D202-6C	K	Red	6 1/16" narrow nose oblique	7.98	6.94
34F020	D210-6C	K	Red	6 1/16" Semi-flush oblique cutter	8.42	7.32
34F021	D210-5C	K	Red	5½" Semi-flush oblique cutter	8.29	7.21
34F231	D209-4C	G	Red	4 3/16" ptd. nose, semi flush cutting, oblique cutter	7.82	6.80
34F091	D224-4½C	H	Red	4⅝" semi-flush transverse end cutter	8.75	7.61
34F093	D257-4C	J	Red	4 3/16" semi-flush cutting oblique cutter	7.67	6.67
34F126	D229-5C	—	Red	5" semi-flush cutting, wire gripping oblique cutter	11.05	9.61

NON-COIL SPRING CUTTERS

34F117	D228-8	F	Red	8" hi-lever oblique cutter	7.60	6.61

LIGHTWEIGHT FLUSH CUTTER

Type D275-5. Shears wire up to No. 14 AWG. Figure E above. Minimizes fly-off. Has steel hold-open spring. 5" long.
34F045. NET 3.55

FIG. L ADJUSTABLE WRENCHES

Drop forged, chrome plated with yellow plastic handle.

Stk. No.	Type	Description	1-11	12-Up
34F129	D500-4	½" capacity x 4"	6.82	5.93
34F037	D500-6	¾" capacity x 6"	6.90	6.00
34F038	D500-8	1 5/16" capacity x 8"	7.62	6.63
34F039	D500-10	1⅛" capacity x 10"	9.82	8.54
34F040	D500-12	1 5/16" capacity x 12"	13.32	11.58

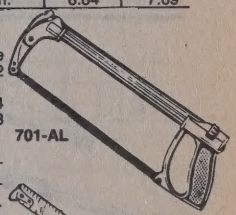
FIG. M TYPE 502—PUMP PLIERS

Jaws are positioned and locked into place for desired size opening by engaging a tongue in proper groove. With yellow plastic handles. Av. shpg. wt. 2 lbs.

Stk. No.	Type	Length	Max. Cap.	1-11	12-Up
34F235	D502-6	6 in.	1 in	5.88	5.11
34F097	D502-10	10 in.	1¾ in.	7.77	6.76
34F098	D502-12	12 in.	2⅛ in.	8.84	7.69

HACK SAW

Storage chamber provided for six extra blades inside of tube. Frame is die cast zinc. Length of blade is 12 in.
34F180 Type 701-AL. NET 1-11 ..... 10.44
12-Up 9.08



HACK SAW BLADES-CARBON STEEL

Stk. No.	Type	Length	Teeth	1-11	12-Up
34F182	1224C	12 in.	24T	.24	.21

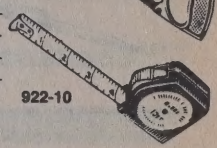
HIGH-SPEED STEEL BLADES

34F185	1224HS	12 in.	24T	.79	.69

TAPE RULE

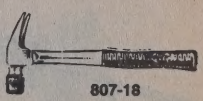
Control knob for easy operation. Black numerals on yellow blade.

Stk. No.	Type	Length	Width	1-11	12-Up
34F187	922-10	10 ft.	¾ in.	8.63	7.50
34F188	922-12	12 ft.	¾ in.	8.99	7.82



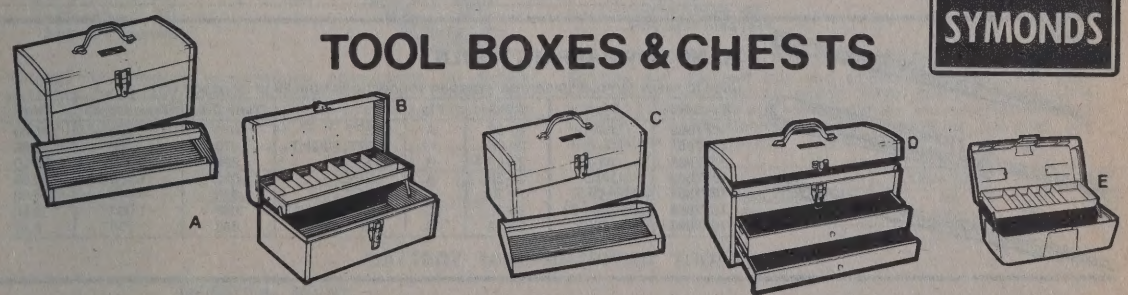
ELECTRICIAN'S HAMMER

Type 807-18. 1" dia. 14" long. 2 lb.
34F046. NET 15.11



TOOL BOXES & CHESTS

SYMONDS



TYPE 9119 All Purpose Tool Box 18" long, 7½" high, 7½" deep. Cubic Capacity 1012". Lift-out tray. Color: Charcoal gray; enamel finish. Wt. 7-1/6 lb.
80W729. NET A 32.62

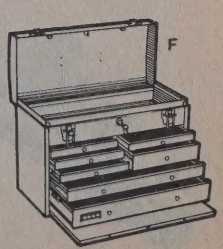
TYPE 515 All Purpose Tool Box 16" long, 7½" high, 7½" deep. Cubic Capacity 900". Lift-out tray. Color: Charcoal gray; enamel finish. Wt. 6½ lb.
80W728. NET B 20.57

TYPE 920 Mechanic's Tool Box 18" long, 9" high, 8" deep. Cubic Capacity 1296". Lift-out tray. Color: Charcoal gray; enamel finish. Wt. 10 lbs.
80W726. NET C 37.62

TYPE MT-20 Mechanic's Drawer Box 20" long, 10¼" high, 8½" deep. Cubic Capacity 1743". 2 Drawers 18¼" long, 2⅜" high, 7½" deep. Color: Charcoal gray; enamel finish. Wt. 16 lbs.
80W733. NET D 67.08

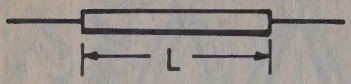
TYPE 1300 Plastic Tackle Box. 13½" x 6⅞" x 5⅜". No metal construction. 1 large cantilever tray w/6 compartments. Wt. 20 lbs.
80W744. NET E 4.83

TYPE 57 Seven Drawer Machinist Chest. Overall dimensions 20" x 13½" x 8¼". All drawer depths are 7½". Wt. 31.0 lb.
80W735. NET F 185.08



Wire Wrapping Tools

KYNAR PRE-CUT PRE-STRIPPED WIRE-WRAPPING WIRE



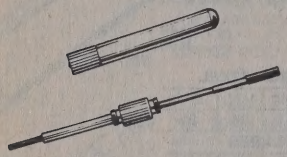
AWG 30 (0.25MM). Insulation diameter .0195". Strip off length both ends 1". 500 wires per package.

AWG28 (0.32MM). Insulation diameter .023". Strip off length both ends 1". 500 wires per package.

AWG26 (0.40MM). Insulation diameter .027". Strip off length both ends 1". 500 wires per package.

AWG24 (0.5MM). Insulation diameter .030". Strip off length both ends $17/16$". 500 wires per package.

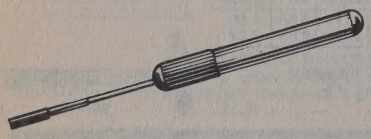
"L" Inches	AWG30 Stock No. Blue	White	Yellow	Red	Net	AWG28 Stock No. Blue	Yellow	Net	AWG26 Stk. No. Blue	Net	AWG24 Stk. No. White	Net
1.0	10F7667	10F7640	10F7622	10F7649	5.93	10F7631	67F884	6.38	10F7595	6.99	10F7558	11.20
1.5	10F7668	10F7641	10F7623	10F7650	6.30	10F7632	67F885	6.84	10F7596	7.56	10F7559	11.96
2.0	10F7669	10F7642	10F7624	10F7651	6.70	10F7633	10F7588	7.30	10F7597	8.11	10F7560	12.38
2.5	10F7670	10F7643	10F7625	10F7652	7.08	10F7634	10F7589	7.77	10F7598	8.67	10F7561	13.29
3.0	10F7671	10F7644	10F7626	10F7653	7.45	10F7635	10F7590	8.20	10F7599	9.24	10F7562	14.33
3.5	10F7636	10F7645	10F7627	10F7618	7.82	67F880	10F7591	8.67	10F7554	9.78	10F7563	15.01
4.0	10F7637	10F7646	10F7628	10F7619	8.20	67F881	10F7592	9.12	10F7555	10.34	10F7564	16.05
4.5	10F7638	10F7647	10F7629	10F7620	8.60	67F882	10F7593	9.57	10F7556	10.92	10F7565	17.07
5.0	10F7639	10F7648	10F7630	10F7621	8.97	67F883	10F7594	10.03	10F7557	11.45	10F7566	17.88
INSULATED WIRE												
100'ROLL	10F7567	10F7570	10F7601	10F7604	4.44	10F7607	10F7610	4.92	10F7613	5.29	10F7616	7.89
500'ROLL	10F7568	10F7571	10F7602	10F7605	12.64	10F7608	10F7611	15.62	10F7614	16.77	10F7617	25.52
1000'ROLL	10F7569	10F7600	10F7603	10F7606	20.44	10F7609	10F7612	25.64	10F7615	28.12	10F7618	45.44



HAND WRAPPING — UNWRAPPING TOOL

One tool that does the job of two. Switch from wire-wrapping to unwrapping in only seconds by changing cap from one end to the other. For use where occasional wraps are required where power wrapping tools are not practical. Compact and convenient.

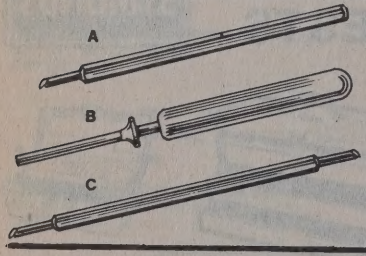
Stock No.	Type HW-UW	AWG	Insul. Dia.	Wrap Term. Dia.	Wrap Term. Deep	Unwrap Term. Dia.	Unwrap Term. Deep	Net
10F7523	-18-19	18-19GA	—	.075	1.000	.075	.750	39.97
10F7524	-20	20GA	—	.075	1.000	.070	.750	30.25
10F7525	-224	22-24GA	—	.075	.807	.070	.750	30.25
10F7526	-26	26GA	—	.075	.750	.070	.750	29.49
10F7527	-26SM	26GA	.031	.046	.750	.038	.625	36.32
10F7528	.30	30GA	.027	.036	.750	.038	.625	36.32



HAND WRAPPING TOOLS

Carefully designed to produce perfectly wire-wrapped connections. For use where occasional wraps are required or where power wrapping tools are not practical. Compact and convenient.

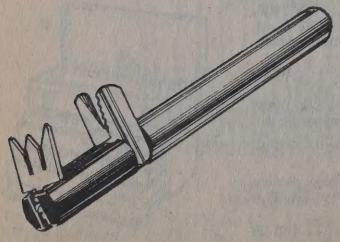
Stock No.	Type	AWG	Term. Dia	Term. Depth	Net
10F7529	HW-18-19	18-19 GA	.075	1.000	27.64
10F7654	HW-20	20 GA	.075	1.000	20.77
10F7655	HW-224	22-24 GA	.075	.807	19.61
10F7656	HW-224 LH	22-24 GA	.086	1.000	20.77
10F7657	HW-26	26 GA	.075	1.000	19.61
10F7658	HW-26 SM	26 GA	.040	.750	24.27
10F7659	HW-30	30 GA	.036	.750	24.27



HAND UNWRAPPING TOOLS

Used to easily remove solderless wrapped connections from 20 to 32 gauge wire.

Stock No.	Type	AWG	Fig.		Term Dia.	Term. Depth	Net
10F7660	UW-1	20-26	A	LEFT	.070	.750	11.85
10F7661	UW-2	20-26	C	LEFT, RIGHT	.070	.750	9.66
10F7662	UW-4	20-26	B	LEFT	.086	2.360	8.20
10F7663	UW-8	20-26	A	LEFT	.070	1.500	9.66
10F7664	UW-093R	24-32	A	LEFT	.038	1.000	6.62
10F7665	UWD-93-93	24-32	C	LEFT, RIGHT	.038	1.000	9.66
10F7666	UW-2832C	28-32	B	LEFT, RIGHT	.038	.750	9.45



WIRE CUT-AND-STRIP TOOLS

For easy, clean stripping of wires for wire wrapping. Biomechanically designed for maximum efficiency. Ideal for field work. Place up to four wires in the stripping slot with ends extended beyond the hardened steel cutting blades, press tool and pull to cut wires to perfect wire-wrapping length. Stripping blade is easily replaceable. Length 6.75".

Stk. No.	Type	AWG	Adjustable	Blade	NET
10F7573	ST-100	22-24 ga.	$15/16$"—$19/16$"	Dbl.	10.63
10F7574	ST-100-24	24 ga.	$15/16$"—$19/16$"	Sin.	
10F7575	ST-100-26	26 ga.	$15/16$"—$11 1/16$"	Sin.	
10F7576	ST-100-28	28 ga.	$7/8$"—$1 1/8$"	Sin.	13.96
10F7577	ST-100-30	30 ga.	$7/8$"—$1 1/8$"	Sin.	

16

Wire Wrapping Tools

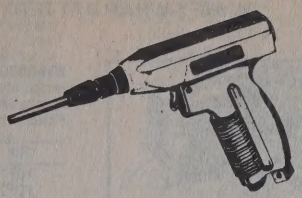
WIRE CUT-AND-STRIP TOOLS

OK-729 PNEUMATIC WIRE WRAPPING TOOL

The new OK-729 pneumatic wire-wrapping tool from OK Machine and Tool Corp. is the lightest available—a mere 11 oz. (300 gm)—yet is packed with heavy duty features. The uniquely compact tool is perfectly balanced and features precision steel drive components enclosed in a reinforced Lexan* housing for maximum performance and reliability. An especially effective new muffler, a positive indexing mechanism with adjustable stop location, and a 6 ft. (2 m) flexible air hose round out the features of the new tool. The tool is available in 2 versions: "Standard" at 4,500 R.P.M. and "CSW" with higher torque and a lower 3,000 R.P.M. speed for cut/strip/wrap applications. Designed to operate at 80-100 PSI (6-7ATU) OK-729 is fully rated for "heavy duty" applications on wire as large as AWG 18 (1.0mm) yet its unique light weight and balance make it ideal even for the most delicate 30 AWG (0.25mm) work.

*Lexan™ GE

81F456 NET. $203.67



REPLACEMENT BATTERIES

Rechargeable size "C" NiCad batteries for wire-wrapping tools. Each tool requires two batteries (not included). **10F7530RB-20.** NET. (Per set of 2) 14.19

BATTERY CHARGER

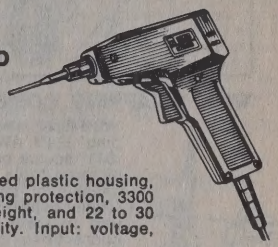
For "C" size NiCad batteries.

Stk. No.	Type	Volts	NET
10F7493	BC-3-115	115 VAC	19.38
10F7674	BC-3-230	230 VAC	

ELECTRIC POWERED WIRE-WRAPPING TOOLS

(See below for bits and sleeves)

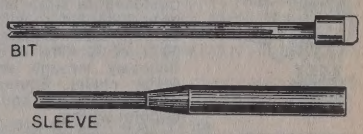
Features specially reinforced plastic housing, back force for overwrapping protection, 3300 rpm speed, 12.7 ounce weight, and 22 to 30 AWG wire size compatibility. Input: voltage, 110VAC; current, 5 amps.



Stk. No.	Type	Back Force	NET
10F7587	EW-8	No	112.35
10F7488	EW-8-BF	Yes	122.63

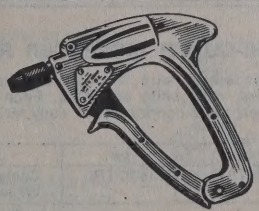
WIRE WRAPPING BITS AND SLEEVES

Wire AWG	Bit Type	Stock No.	Net	Use Sleeve	Stock No.	Net	Insul. Dia.	Terminal Dia.	Terminal Depth	Term. Dia. Min.	Term. Dia. Max.
22	KB22	**10F7512**	15.74	P2224	**10F7519**	5.93		.075	.750	.054	.073
22-24	KB224	**10F7513**						.075	.807	.054	.073
24	KB24	**10F7514**	15.74	P2426	**10F7520**	5.93		.075	.750	.055	.074
26	KB26	**10F7515**						.075	1.000	.058	.073
26	WB26SM	**10F7516**	21.78	P26LN	**10F7521**	13.58	.031	.040	.750	.023	.038
28	WB28SHM	**10F7517**	21.78	P3032	**10F7522**	13.58	.030	.036	.750	.031	.034
30	SB30MSH-B	**10F7518**					.027	.036	.750	.031	.034



MANUAL WIRE-WRAPPING TOOLS

(See above for bits and sleeves)

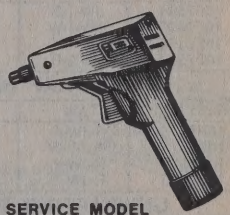


Designed to produce wire-wrapped connections by merely squeezing the trigger. Makes full use of bits and sleeves designed for electric and air powered wire-wrappers, both regular and modified. Accepts wire size 22 to 30 AWG.

Stk. No.	Type	Housing	NET
10F7585	G-100/R3278	Aluminum	69.96
10F7586	G-200/R3278	LEXAN	43.37

BATTERY WIRE-WRAPPING TOOLS

(See above for bits and sleeves)



INSTALLATION AND FIELD SERVICE MODEL

Accepts any standard bits and sleeves for 22-30 AWG wire. Features positive indexing, strong LEXAN housing, and 8 ounce weight. Able to unwrap when batteries are reversed. Uses 2 standard "C" size rechargeable NiCad batteries. Batteries, bits and sleeves not included.

Stk. No.	Type	Back Force	NET
10F7489	BW-928	No	63.58
10F7490	BW-928-BF	Yes	67.39

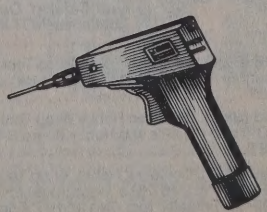
16

BATTERY WIRE-WRAPPING TOOLS

INDUSTRIAL MODEL

Accepts wire size 22 to 30 AWG. Available in reversible or non-reversible models. Uses rechargeable nickel cadmium (NiCad) battery, self contained in the handle of the tool. Ideal for installations and field service, or small production jobs. Available with back force for overwrapping protection.

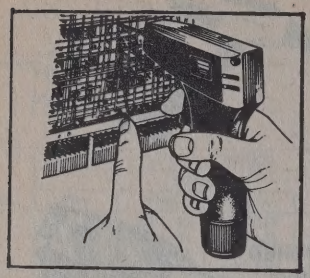
(See above for bits and sleeves)



Stk. No.	Type	Back Force	Unwrap.	NET
10F7491	BW-520	No	No	143.49
10F7492	BW-520-BF	Yes	No	153.23
10F7672	BW-520-U	No	Yes	165.00
10F7673	BW-520-BF-U	Yes	Yes	175.27

Hand Wrapping Tools

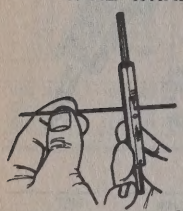
HOBBY-WRAP BATTERY POWERED WRAPPING TOOL



BW-2630 is battery powered wire wrapping tool designed for wire-wrapping onto standard DIP socket terminals. Includes sleeve for producing preferred "modified" style wrap. Prevents overwrapping and is carefully designed for serious amateurs. Operates on rechargeable "C" size batteries (not supplied). Pistol grip design of ABS, positive indexing mechanism. Weight 11 oz.

Stk. No.	Type No.	Description	NET
10F7500	BW-2630	For AWG 30 Wire	23.71
10F7501	BW-2628	For AWG 26-28 Wire	46.39
10F7502	BT-30	Replacement Bit for AWG 30 Wire	4.53
10F7503	BT-2628	Replacement Bit for AWG 26-28 Wire	9.17
10F7530	RB-20	Two Ni-Cad Batteries	13.06

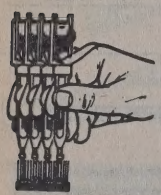
WIRE WRAPPING COMBINATION TOOL

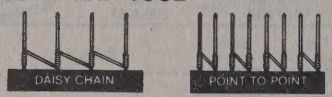


WSU-2224 wire wrapping tool. For wrapping 22-24 AWG wire (.030 x .060" and .045" square posts. This unit does the job of three tools. It wraps, unwraps and is capable of stripping wire because of a unique built-in stripping blade. Takes minutes to learn to use and makes perfect connections in seconds without solder. Compact and inexpensive.

10F7534 ..... 15.63

JUST WRAP TOOL





Designed to wrap 30 AWG wire without prior stripping or slitting of wire insulation on .025" square posts. Tool holds 50 ft. of 30 AWG wire and will wire continuously through any number of pins (daisy chain). Equipped with a built-in wire cutoff and is equally suited for point-to-point wiring.

Stock No.	Type	Description	NET
10F7504	JW-1-B	Tool & 50' Blue Wire	17.23
10F7505	JW-1-W	Tool & 50' White Wire	
10F7506	JW-1-Y	Tool & 50' Yellow Wire	
10F7507	JW-1-R	Tool & 50' Red Wire	

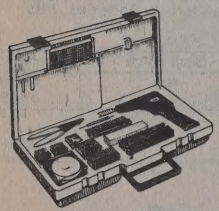
JUST WRAP REPLACEMENT ROLLS

Stock No.	Type	Description	NET
10F7508	R-JW-B	Blue Wire 50'	3.55
10F7511	R-JW-W	White Wire 50'	
10F7510	R-JW-Y	Yellow Wire 50'	
10F7509	R-JW-R	Red Wire 50'	

UNWRAPPING TOOL FOR JUST WRAP

Stock No.	Type	Description	NET
10F7549	JUW-1	Unwrapping Tool	4.09

WIRE WRAPPING KITS



Type WK-5. Complete kit for most wrapping applications. Consist of: BW-630 Battery Tool, WSU-30M Hobby Wrap Tool, CON-1 PC Edge Connector, EX-1 Dip/IC Extractor Tool, INS-1416 DIP/IC Insertion Tool, TRS-2 PC Card Guides & Brackets, MS-20 Mini-Shear with Safety Clip, 14, 16, 24 and 40 DIP PIN Sockets, WWT-1 Terminals, WD-30 TR Tri-color Wire Dispenser, M-PCB-1 Hobby Board, Product Catalog. Operates on "C" size NI CAD Batteries (NOT INCLUDED).

81 F 457 NET 86.35

Type WK-2B (Blue). Contains: Hobby Wrap Tool WSU-30, 50 ft Roll Wire, Pre-stripped wire 1" to 4" lengths (50 wires per pack) stripped 1" both ends.

81 F 458 NET 15.07

Type WK-3B (Blue). Contains: Hobby Wrap Tool WSU-30, Roll of wire R-30B-0050, 2-14 DIP's, 2-16 DIP's and Hobby Board H-PCB-1.

81 F 459 NET 19.39

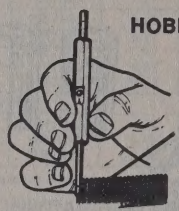
Type WK-4B (Blue). Contains: Hobby Wrap Tool WSU-30M, Wire Dispenser WD-30-B, 2-14 DIP's, 2-16 DIP's, Hobby Board H-PCB-1, DIP IC Insertion Tool INS-1416, DIP IC Extractor Tool EX-1 and PC Edge Connector CON-1.

81 F 460 NET 30.19

Type JWK-6. Contains: Just Wrap Tool, 50 feet each of Blue, White, Yellow and Red rolls of wire and Unwrapping Tool JUW-1.

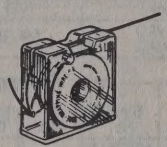
10 F 7548 NET 29.11

HOBBY WRAP WSU-30M



WSU-30M performs complete wire-wrapping functions for 30 AWG wire onto standard .025 inch square DIP Socket Posts. Unwraps and strips 30 AWG wire nick-free. Makes a "modified" style wrap in approximately 1½ turns on insulated wire and wire wraps are in addition to bare wire for purposes of added mechanical stability. Designed for serious amateur. Compact. All metal construction for years of dependable service.

10F7535 ..... 9.17



Tri-Color Dispenser

Contains 3 rolls of 30 AWG wire in one dispenser, one red, one white and one blue. Has a built-in plunger that cuts wire to desired length. This refillable dispenser also has a built-in Stripper capable of stripping 1" of insulation.

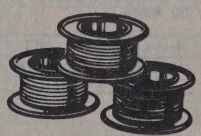
Stock No.	Type	NET
10F7537	WD-30-TR1	9.17

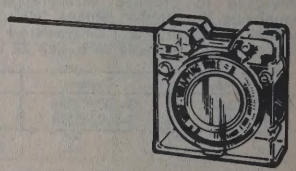
TRI-COLOR DISPENSER REPLACEMENT ROLLS

Replacement wire for tri-color dispenser consists of all three colors, red, white and blue. Each roll is 50' long and is silver plated solid conductor for easy stripping.

Stock No.	Type	Description	NET
10F7542	R-30-TRI	Contains all 3 colors Red, White & Blue	7.01

WIRE DISPENSER





For single wire dispensing. Can hold up to 50' of AWG 30 wire with built-in plunger that cuts wire to desired length. Has built-in stripper for stripping 1" of insulation.

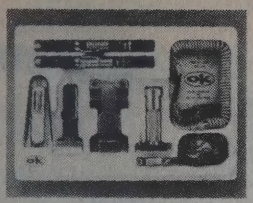
10F7538	WD-30-B	Blue Wire	5.93
10F7539	WD-30-Y	Yellow Wire	
10F7541	WD-30-W	White Wire	
10F7540	WD-30-R	Red Wire	

WIRE DISPENSER REPLACEMENT ROLLS

AWG 30 wire replacing wire for wire dispenser. All wire is 50' silver plated, solid conductor for easy stripping.

10F7543	R-30-B-0050	Blue Wire	3.77
10F7544	R-30-Y-0050	Yellow Wire	
10F7546	R-30-W-0050	White Wire	
10F7545	R-30-R-0050	Red Wire	

Insertion and Extractor Tools



Kit contains:
A Digital Logic Probe and Pulser. The digital logic probe PRB-1 and logic pulser PLS-1 are compatible with DTL, TTI, CMOS, MOS, and microprocessors, using a 4 to 15V power supply. These are fast, simple-to-use, cost-effective tools to complete the digital trouble-shooter's tool bag. Designed to test and analyze both static and dynamic conditions of logic circuitry. Both are circuit powered and feature high impedance, input overlaod protection, and replaceable tip and cord.

PRB-1 DIGITAL LOGIC PROBE
10 nsec pulse response.
Open circuit detection.
Pulse stretching
Automatic thresholds
Finger-tip indicators
Power supply overvoltage protection

PLS-1 DIGITAL LOGIC PULSER
Multimode—single pulse or pulse train
Automatic level sensing
Automatic current limiting
Automatic output voltage
Low output impedance
Finger-tip pushbutton

WK-8 CIRCUIT TROUBLESHOOTING KIT

B IC Insertion and Extraction Tools. kit includes DIP IC extractors and inserters to handle all ICs from 14 to 40 pins. TOols that engage conductive surfaces are CMOS safe and include grounding lugs where needed. Kit includes extractors EX-1 for 8-24 pin devices, EX-2 for 24-40 pin devices. MOS-1416 for 14-16 pin devices. MOS-2428 for 24-28 pin devices, and MOS-40 for 36-40 pin devices.

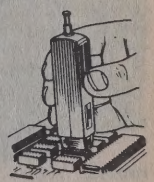
C WRS-1 Wrist Strap
This personal grounding strap is an essential part of static proofing the electronic work station for assembly workers and laboratory personnel. The strap is easily attached to the operator with a bead chain and to an anti-static work surface with the battery clip. Protects sensitive components from any static charge generated by the operator. Built into the flexible wire wrist strap is a 1 megohm resistor to prevent shock hazard to the operator.
81F461WK-8 . . . . . 151.15

DIP/IC INSERTION TOOL

- **Inserts both 14 and 16 pin IC package into sockets or predrilled boards.**
- **Easy one-hand operation.**
- **Built-in pin straightener.**

Model 1416. DIP Insert Tool features precision parts for long life and is easy to use. Narrow profile permits tool to work on densely spaced patterns, while unique insertion mechanism assures accuracy. Simply insert IC, rock it on the straightening saddle, and push down on the tool. Also automatic ejector delivers the IC ready to be placed in the insertion end for installation in your board or socket.
10F7499 . . . . . 4.27

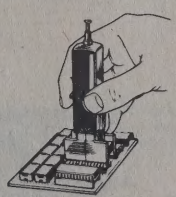
MOS & CMOS SAFE INSERTION TOOL WITH PIN STRAIGHTENER



- **Durable chrome plated ABS construction.**
- **Easy one-hand operation.**
- **Pin straightener built into handle.**

Model MOS-1416 DIP Insertion Tool. Inserts both 14 and 16 pin IC packages into sockets or predrilled boards. Tool includes a remarkable pin straightener built into handle. Simply insert the IC, rock it on the straightening saddle and push down on the tool. An automatic ejector delivers the IC ready to be placed in the insertion end for installation in board or socket. Ground strap may be easily attached for highly sensitive MOS & CMOS IC's. Precision parts for long life and easy operation. Narrow profile permits tool to work on densely spaced patterns.
10F7498. NET 9.67

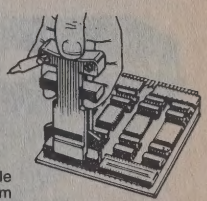
IC INSERTION TOOL



- **Handles all MOS, CMOS, and regular 24 and 28 pin IC's.**
- **Chrome plating.**
- **Aligns bentout pins.**

Model MOS 2428. Insertion tool aligns bentout pins by simply rocking IC on straightening saddle. For accurate and instant insertion simply press tool over IC to pick up then place tool onto the socket and depress the plunger. Heavy chrome plating throughout for reliable static dissipation. Tool includes terminal lugs for attachment of ground strap.
10F7497 . . . . . 9.67

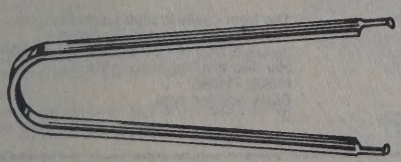
28-40 PIN IC EXTRACTOR



- **Self-adjusting.**
- **Easy to use.**
- **Chrome plated.**

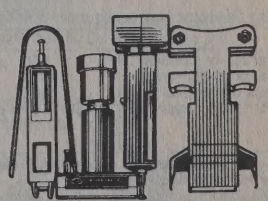
Model EX-2. CMOS safe and self-adjusting while gently lifts IC from socket or board using uniform pressure applied simultaneously at both ends of the IC. It's designed for easy one-hand operation and is heavily chrome plated for reliable static dissipation. Features attaching terminal lug for ground strip (strap not included). Extracts all 28-40 pin DIP IC's having standard .600" body widths, including MOS and CMOS devices.
10F7494. Net 10.75

DIP EXTRACTOR



EX-1 Extractor. Ideal for hobbyist or lab engineers. One piece spring steel construction gives years of dependable use. It extracts all LSI, MSI and SSI devices from 8 to 24 pins.
10F7547. Net 2.11

WK-7 IC INSERTION KIT

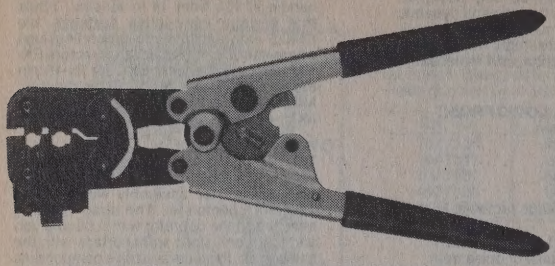


Kit includes DIP IC extractors and inserters to accommodate all IC's from 14-40 pins. Tools that engage conductive surfaces are CMOS safe and include grounding lugs where needed. Kit includes extractors EX-1, for 14-16 pin devices, EX-2 for 24-40 pin chips, MOS-1416, MOS-2428 and MOS-40 for 14-16, 24-28 and 36-40 pin IC's respectively.
10F7495. Net 37.75

16

BESTOOL™ brand Crimping Tools

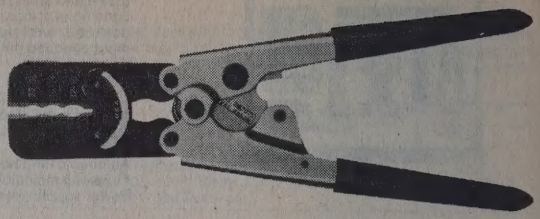
INSULATED TERMINAL CRIMP TOOLS



Full Cycle Insulated Terminal Crimp Tool

This two cavity, four jaw, full cycle tool is designed to crimp both the conductor and insulation portion of insulated terminals or splices in a wide range of wire sizes. Ratchet handle assembly, coupled with a unique locator and jaw design, assures consistent, reliable terminations throughout the extended operational life of the product.

Capacity: ..... Crimps red and blue insulated terminals and splices in wire sizes 22-14 in the front cavity. Crimps yellow insulated terminals and splices in wire sizes 12-10 in the rear cavity.
Locator and Wire Stops: ..... Orients the terminal properly to assure consistent terminations.
Jaws: ..... The conductor and insulation crimping jaws are 4150 thru-hardened steel, machined and gaged to industry specifications. Jaws are supplied with black oxide finish. Nests are identified by wire sizes and are color-coded for fast, easy identification.
Ratchet: ..... Ratchet assures a complete crimp cycle prior to release and is adjustable to compensate for wear after extended operation.
Handles: ..... Handles are 1051 thru-hardened steel, nickel plated, with black grips.
Overall Length: ..... 9".
81N5432 NET ..... Type CTR-100 ITD **99.95**

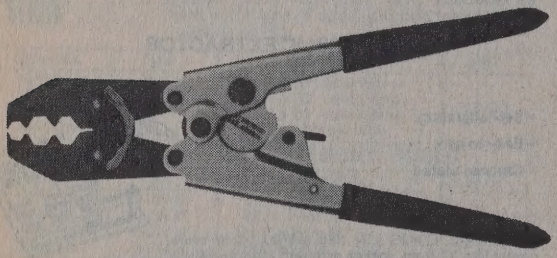


Full Cycle Insulated Terminal Crimp Tool

This three cavity, two jaw, full cycle tool is designed to crimp the conductor portion of insulated terminals or splices in a wide range of wire sizes. Ratchet handle assembly with locator jaw design assures reliable terminations.

Capacity: ..... Crimps red insulated terminals and splices in wire sizes 22-16 in the front cavity. Crimps blue insulated terminals and splices in wire sizes 16-14 in the middle cavity. Crimps yellow insulated terminals and splices in wire sizes 12-10 in the rear cavity.
Jaws: ..... The jaws are 4150 thru-hardened steel, machined and gaged to industry specifications. Jaws are supplied with a black oxide finish. Nests are identified by wire sizes and are color-coded for fast, easy identification.
Ratchet: ..... Ratchet assures a complete crimp cycle prior to release and is adjustable to compensate for wear after extended operation.
Handles: ..... Handles are 1051 thru-hardened steel, nickel plated, with black grips.
Overall Length: ..... 9".
81N5433 NET ..... Type CTR-100 IT **63.95**

COAXIAL CONNECTOR CRIMP TOOLS



Full Cycle Coaxial Crimp Tool

FOR MIL-M22520/5 COAXIAL CONNECTORS

This rachet controlled three cavity crimp tool is designed to provide consistent reliable hex crimp terminations on a wide range of coaxial connectors. A unique ratchet release mechanism is provided to allow removal of an incorrectly placed connector or crimp ring prior to completing the crimp cycle.

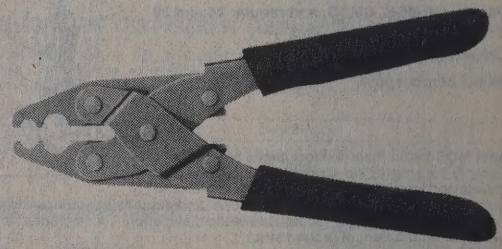
Crimp Capacity: Hex configurations in the following dimensions

	CTR 100 BNC-1	CTR 100 BNC-2
End cavity (contact)	.068	.068
Center cavity (braid)	.213	.178
Back cavity (braid)	.255	.324
R/U Cable sizes*	55 58 141 142 223 303 400 69 62 140 120	122 174 179 180 187 188 195 8281

*Match specifications of previous tools used or coax connector manufacturer recommended cavity size.

Jaws: Jaws are high carbon thru-hardened alloy steel supplied with a black oxide finish numbered for fast easy identification. Handles: Handles are high carbon thru-hardened steel, nickel plated supplied with black grips. Ratchet: The patented ratched assembly assures consistent terminations. Adjustability for extended use and a unique release mechanism assures trouble-free operation. Overall length: 9".

STOCK NO.	TYPE	PRICE
81N5435	CTR-100-BNC-1	69.95
81N5436	CTR-100-BNC-2	69.95



Parallel Action Coaxial Crimp Tool

This economical, rugged two cavity tool will crimp loose piece crimp rings utilized on coaxial connectors. Durable parallel action. Molded handle for positive non-slip grip.

Crimp capacity: ..... The front cavity is .260 diameter. The rear cavity is .429 diameter.
Jaws: ..... Jawsare high carbon thru-hardened alloy steel.
Handles: ..... Handles are high carbon steel.
Finish: ..... Nickel Plated.
Grips: ..... Black cushion type.
Overall Length: ..... 8".
81N5434 NET ..... Type CT-100F **18.95**

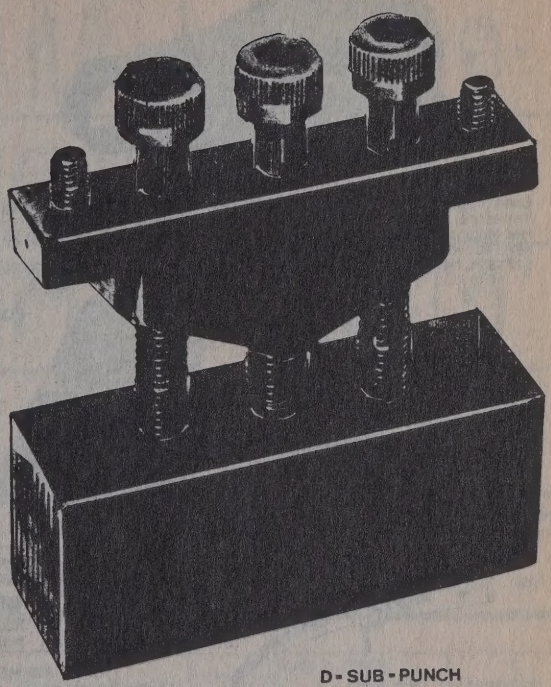
MAKE NEWARK
YOUR DEPENDABLE ONE-STOP SOURCE
FOR EVERYTHING
IN INDUSTRIAL ELECTRONICS

MODEL D-SUB-PUNCH

BESTOOL™ brand

(For mounting 25 pin sub-miniature, RS232 Standard)

- **Accurate punch-out conforms to plug or receptacle.**
- **Mounting holes accurately located and prick-punched.**
- **Minimal burr on rear of panel.**
- **Burr free on panel front.**
- **Supply of adhesive backed templates included with kit.**
- **All necessary screws and wrenches provided with kit.**
- **Quality built punch/die set can be re-ground to sharpen.**



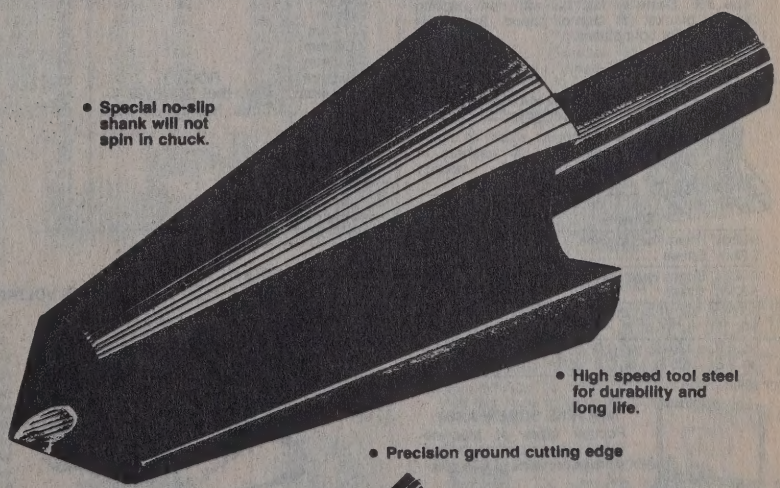
D-SUB-PUNCH

This Panel Punch provides a suitable hole for mounting the 25 pin sub-miniature plug or receptacle commonly utilized in devices employing RS232 Standard digital data transmission. The punch is designed for those connectors equivalent to TRW Cinch Connector Types DB-25P and DB-25S. The Punch/Die unit itself is machined of D-2 tool steel, hardened, and cutting edges are ground. Punch and Die are drawn together by 3 bolts which are tightened in a predetermined sequence. Adhesive templates which are provided with the kit locate these 3 bolt holes. Before the hole is completely cut, two hard point screws are tightened to both mark and prick punch the receptacle mounting screw holes. After the operation is completed the slug is ejected from the die by use of two cap screws. All fasteners are socket headed and allen wrenches are provided. The thickness capacity is 22 gauge to 16 gauge in both steel and aluminum.

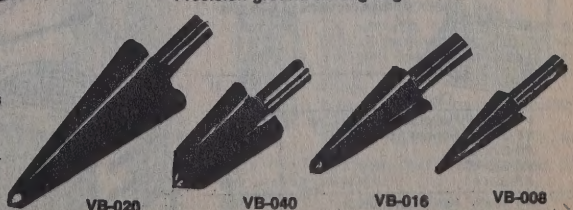
81N2660 ..... $163.95

VARI-BIT MULTI-HOLE DRILLS

- Drills clean, quick holes in steel up to 1/16" thick, non-ferrous metals, plastic, Formica, plywood, PC Boards, etc.
- Can be used in any industrial hand power tool, or on pedestal drilling machines.
- A range of sizes on one tool—the further the tool advances, the bigger the hole, replacing an index full of drills.
- Reasonable accuracy can easily be obtained by using a washer on the tool as a simple stop.
- Shape of tool allows easy withdrawal from workpiece.
- Saves time over chassis punches.
- More economical than chassis punches—one tool does the job of several punches.
- Drills holes as easily in .007 shim stock as in 8 gauge sheet metal.



- **Special no-slip shank will not spin in chuck.**
- **High speed tool steel for durability and long life.**
- **Precision ground cutting edge**
- **Special point angles prevent wandering on finished surfaces**

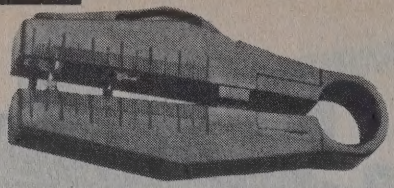


VB-020 VB-040 VB-016 VB-008

Stock No.	Type	Hole Dia. Range	Shank Dia.	Overall Length	Net Ea.
81N2635	VB-008	1/8"-1/2" (3-14mm)	1/4"	2 1/4"	8.95
81N2636	VB-016	1/4"-3/4" (6-20mm)	3/8"	2 7/8"	16.95
81N2638	VB-020	5/16"-1 3/16" (8-30mm)	3/8"	3 11/16"	30.95
81N2637	VB-040	5/8"-1 3/16" (16-30.5mm)	3/8"	3"	39.95

16

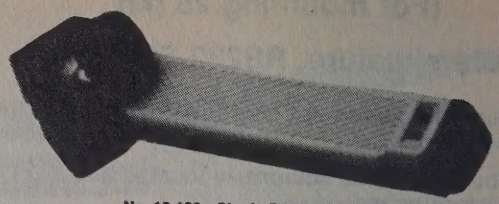
TOOLS, HARDWARE KITS



No. 12-156—Teflon Stripper

Specifically designed for stripping PTFE, Kaynar and other heat resisting insulations, plus applications that require wire stripped to consistently accurate lengths. Stripping length can be preset from 7/32" to 2 3/8". For up to 20 AWG stranded or 14 AWG solid wire.

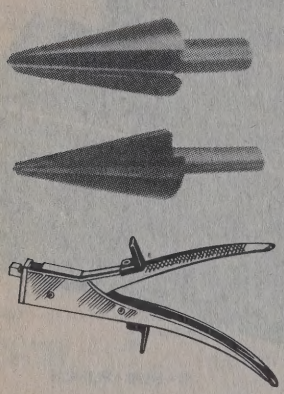
81F1364. Net 33.80



No. 12-160—Single Blade Stripper

Makes easy work of tough stripping jobs from 500 MCM heavy conductors to delicate fiber optics. Tool steel blade cuts around the circumference of the cable then swivels exactly 90° at the touch of a button for slitting longitudinally along the cable.

81F1365 Net 23.25



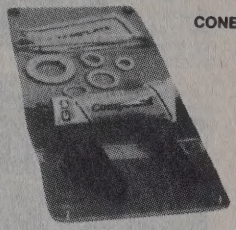
NIBBLING TOOL

Type 805. Hand operated nibbling tool cuts sheet metal like a chassis punch. Starts with 3/8" hole then nibbles to shape and size desired. Cuts up to 18 ga. steel, 1/16" copper aluminum, and plastic.

34F1018. Net 8.17

Type 806. Same as 805 but with heavy spring stripper bracket for greater speed. Bracket is removable for tight places.

30F1340. Net 8.38



CONECUT—FOR VARIABLE DIAMETER HOLES

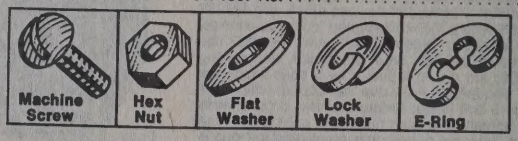
No. 1 Drill 3400
39F953 Net 14.05

No. 2 Drill 3405
39F954 Net 24.65

No. 0 Drill 3401
81F1366 Net 9.79

Conecut Kit 3420
39F956 Net 46.46

Compound 3425
81F1367 Net 1.68



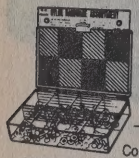
11-528 METRIC HARDWARE ASSORTMENTS

Popular sizes metric hardware in convenient compartmentalized storage containers. Diagram inside container lid identifies specific compartment of each product. E-Rings black treated for corrosion; all other hardware nickel plated steel.

30F248 Net 24.94

Size	Contents	Qty. in Pkg.
2x3mm	ROUND MACHINE SCREWS—STEEL, NICKEL PLATED	15
2x5mm		15
2x8mm		15
2x14mm		15
2.6x3mm		15
2.6x5mm		15
2.6x8mm		15
2.6x14mm		15
3x4mm		15
3x6mm		15
3x8mm		15
3x12mm		15
4x4mm		15
4x6mm		15
4x8mm		15
4x10mm		15

Size	Contents	Qty. in Pkg.
2mm	HEX NUTS—STEEL, NICKEL PLATED	25
2.6mm		25
3mm		25
4mm		25
2x4.3x0.4	FLAT WASHER—STEEL NICKEL PLATED	15
2.6x7.5x0.5		15
3x8x0.5		15
4x8x0.5		15
2.6x0.6mm	SPRING LOCK WASHER STEEL NICKEL PLATED	25
3x0.7mm		25
4x1mm		25
5x1.3mm		25
2.5mm	E-RING—STEEL	15
3mm		15
4mm		15
5mm		15



NYLON HARDWARE ASSORTMENT—11-516

Most popular sizes of nylon screws, nuts, & washers in compartmentalized storage containers.

Contents	Qty. in Pkg.
6-32x1/2" Round Head Machine Screws	10
8-32x1/2" Screws	10
6-32x1/2" Binding Head Machine Screws	10
8-32x1/2" Screws	10
6-32 Thr. 5/16" W 7/64" Th. Hex Nuts	20
8-32 Thr. 11/32" W 1/8" Th.	20
No. 6 Scr. .150 HL. 5/16" O.D. .05 Th. Washers	20
No. 8 Sl. .170 Sl. 3/8" O.D. .05 Th.	20

30F247. Net 5.20

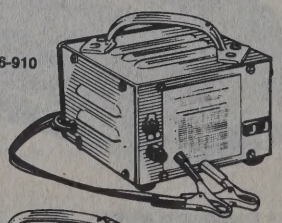
MACHINE SCREW ASST.

Popular sizes of Machine Screws in compartmentalized storage containers. 675 pieces.

Contents	Qty. in Pkg.
#4-40x1/2" Round Head Machine Screws	100
#6-32x1/4"	100
#6-32x1/2"	75
#6-32x3/4"	50
#8-32x1/2"	50
#4-40x1/4" Hex Nuts—Steel	100
#6-32x1/4" Nickel Plated	100
#8-32x1/4"	100

30F246. Net 10.27

GC PORTABLE VOLTAGE INVERTER

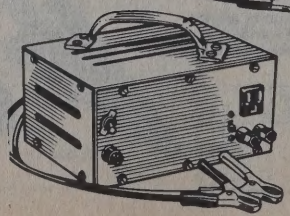


DELUXE PORTABLE INVERTER

Frequency stabilization, accommodates power hand tools, minimal current draw on idle. Uses high temperature silicon power transistors. Short proof output. Output light. Detachable input cables. INPUT: 12 VDC, 20 amps. OUTPUT: 117 VAC, 200 watts cont. @ 60.3 Hz controlled. Max. variation, battery voltage 9-15 V. 6"H x 8¼"W x 6¼"D.

TYPE 26-916

02F1074. Net 141.25



PORTABLE INVERTER

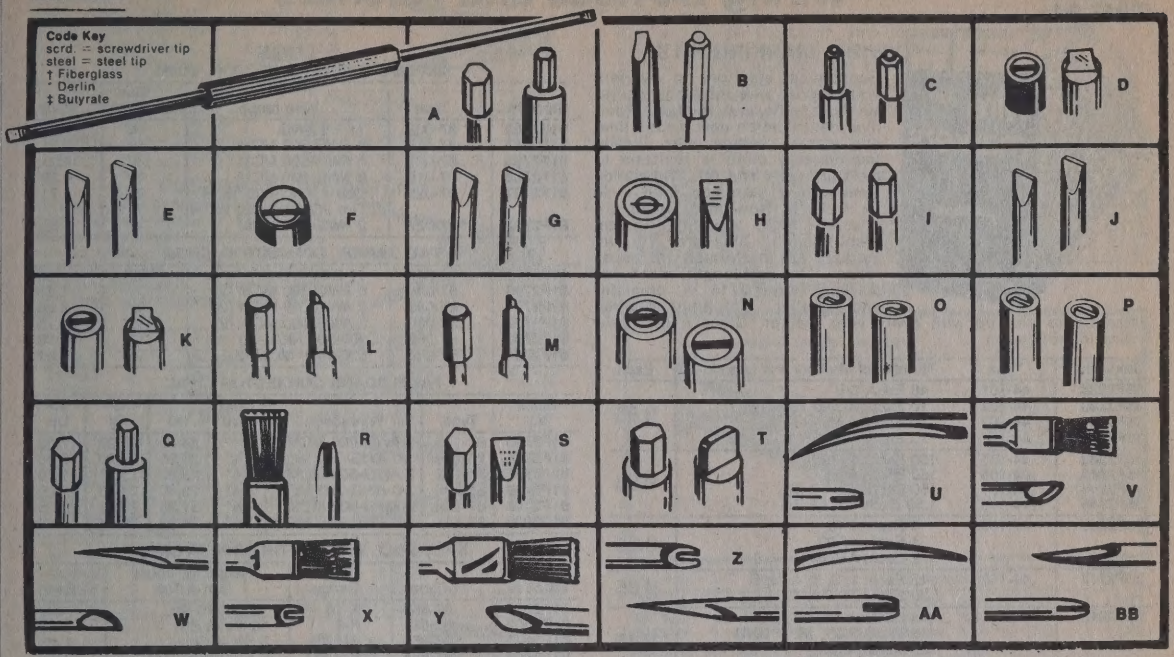
Inverts 12 VDC to 110 VAC. For campers, boats, trailers, shop, and at home. Operates TV sets, CB units. Ham gear, small appliances and radios. Rugged construction. Transistorized circuitry. With 6½ ft. leads, and carrying handle. INPUT: 12 VDC 20 amps. OUTPUT: 117 VAC 185 watts max. @ 60 Hz nominal. 6"H x 6¼"W x 7½"D.

TYPE 26-910

02F1073 Net. 82.32

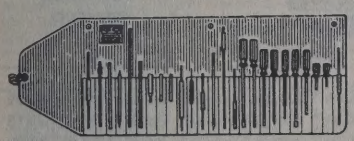
16

Alignment Tools and P.C. Aids



Stock No.	Type	Fig.	All Sizes in Inches: One End	Other End	Length	Net.
35F1449	9296*	A	¼ x .078 Hex	⅜ x .078 Hex	11	.98
35F1493	9304*	B	⅜ x .077 Hex	.020 x .109 scrd.	9⅛	.75
35F3375	9300*	C	¼ x .077 Hex	⅜ x .077 Hex	5	.75
35F818	8277‡	D	.140/#6 scr.	⅛ x .015 steel	2⅝	.90
35F622	8728†	E	.027 scrd.	.027 scrd.	12⅛	.95
35F605	8196‡	F	⅛ x .015 ste.	¾ knurled	2½	.78
35F618	8728A*	G	.027 scrd.	.027 scrd.	7	.70
35F821	8275*	H	⅛ x .015 ste.	1/32 x ⅛ scrd.	4⅝	.90
35F625	9091*	I	7/32 x .125 Hex	⅜ x .125 Hex	5⅜	.68
35F817	9294†	J	Both 9/32 x .031 scrd.		16	1.13
35F616	8276†	K	.140/#6 scr.	⅛ x .015 steel	6⅛	1.00
35F623	8606*	L	7/32 x .103 Hex	3/32 x .098 tip	5⅜	.68
35F624	8606L*	M	7/32 x .103 Hex	3/32 x .098 tip	11⅜	.90
35F1443	8271‡	N	.140/#6 scr.	⅛ x .015 steel	6	1.05

Stock No.	Type	Fig.	All Sizes in Inches: One End	Other End	Length	Net.
35F1444	8721‡	O	.140/#6 scres	.115/#4 screw	9	1.12
35F1445	8722‡	P	.116/#6 screw	.144/#6 screw	7	.98
35F1448	9295*	Q	.375 x .101 Hex	.250 x .101 Hex	11	.98
35F812	8282*	R	¼ x .100 Hex	.020 x .109 scrd.	5⅞	.63
35F814	9088	S	Brush	Forked Tip	8	2.12
34F1170	8605	T	Cap. adj.	Tuner adj.	5⅝	1.22
35F653	9093	U	Ang. Reamer	Forked Tip	8	2.12
35F654	9094	V	Brush	Scraper Tip	8	2.12
34F282	9069	W	Reamer	Scraper Tip	6½	2.12
34F283	9073	X	Brush	Forked Tip	6½	2.12
34F286	9074	Y	Brush	Scraper Tip	6½	2.12
34F510	9075	Z	Strt. Reamer	Forked Tip	6½	2.12
34F518	9076	AA	Ang. Reamer	Forked Tip	6½	2.12
34F517	9086	BB	Strt. Reamer	Forked Tip	8	2.12

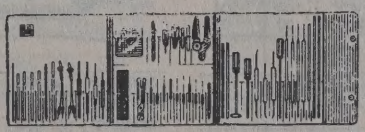


MASTER DELUXE TOOL KIT

Type 8283. Contains: a complete assortment of align., adj. and radio tools. 25 in all. Includes: TV-FM tuning, K-Tran, Neutralizing, Long Aligning and Tel-A-Turn tools. Core, Duplex, Universal, Shorty, 2-in-1 and Screwdriver Aligners. Plus many more. Complete with case.
35F650. NET 17.97

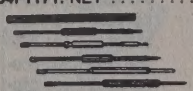
ALL PURPOSE ALIGN. TOOL AND SERVICE AID KIT

Type 5040. Contains: selection of the most popular TV align. tools and service aids. Includes: K-Tran, Hex Iron Core, Hex Align., Brush/Forked Tip, Zenith Alignment tools. Plus, Core, Duplex. Shorty and TV aligners. Also, 5" Hex Wrench and 2 screwdrivers. 12 in all. Complete with roll-up, plastic carry case.
34F1172. NET 10.95



ALIGNMENT AND SPECIALTY TOOL KIT

Type 5050. Contains: selection of align. tools and service aids. Tool is described on inside of case in detail. Includes: Wire Stripper, Inspection Mirror, Neo-Light Tester, Lo Volt Tester, Fuse Puller, Tweezers, Capacitor Tool, Oiler, Heat Sink, Transitor Tool, Wrench Kit plus wide selection of align. and adj. tools. 44 tools in all. Complete with case.
34F1171. NET 47.96



Type 8454 **Type 8455**

Type 8454. Universal Color TV Align Kit. Contains: Zenith Align., Hex Iron Core, Hex Core and Double End tools. Plus: Shaft Ext., 5" Hex Wrench and case.
34F1173. NET 3.58

Type 8455. Standard TV Align. Kit. Contains: K-Tran, TV Channel Tuning, TV-FM Tuning, Long Align. tools. Plus, Core, TV, Universal and Duplex Aligners. Case.
35F651. NET 8.95

DELUXE ALIGNMENT TOOL KIT

Type 8280. Contains: most often used align. tools. Neutralizing, K-Tran, TV Channel Tuner, TV-FM Tuner, Oscillator Align. and Zenith Align. tools. Plus, TV, Universal, Duplex, Shorty Duplex and 2 Core Aligners. Also, Alignment Wrench and 5" Hex Wrench. 15 tools in all. Complete with fold over flap case to keep tools from falling out.
35F801. NET 11.14

DIAL CORD

The following 100-ft. spools cover 90% of replacement needs. Nylon cord with fiberglass core treated to prevent stretching and slipping. 100-ft. size.
Type 75-A-100. Extra-thin cord .028" dia. 30-lb. bk. strength.
25F802. NET 4.40

Type 75-100. Standard cord, .028" diameter; 30 lbs. breaking strength.
25F805. NET 4.60

Type 74-100. Medium cord, .040" diameter; 35 lbs. breaking strength.
25F808. NET 4.53

IDEAL

Wiring Devices and Anchors

WIRE MARKING KITS

Economical solutions to all general-purpose wire marking requirements—on-site and in-plant. Positive identification now means time and money savings later. Plastic impregnated cloth is resistant to moisture, dirt and oil. Withstands temperature extremes from —40 to +275 F. Non-smear legends—ensures high visibility, instant identification. Standard 1½ in. markers are perforated for separation into half-length sizes for marking wires 3/16 in. diameter and smaller. Matching terminal markers to pair up with every wire marker. Gives a complete wire identification.

Stock No.	Type	Number of Markers and Legend	Each
35F2238	44-101	45 Each: 0-9	9.85
35F2239	44-102	10 Each: A-Z, 0-15, +, −, /	
35F2240	44-103	10 Each: 1-45	
35F2241	44-104	10 Each: 46-90	
35F2242	44-105	150 Each: 1, 2, 3	9.85
35F2243	44-106	150 Each: A, B, C	
35F2244	44-107	150 Each: T1, T2, T3	
35F2245	44-108	1.50 Each: L1, L2, L3	
35F2246	44-109	6 Each: 1-15 4 Each: 16-90 2 Each: A-Z, +, −, /, 0	9.85
35F2247	44-110	45 Each: 1, 2, 3, A, B, C 30 Each: T1, T2, T3, L1, L2, L3	9.85
35F2248	44-111	45 Each: +, −, AC, DC 33 Each: POS, NEG, GND 27 Each: NEUT 21 Each: SPARE, BLANK	9.85

FLANGE TYPE ANCHORS

Excellent for multi-purpose use—effective anti-turning ribs works well in hollow or solid materials. Flat concentric ribs for greater grip. Open throat and slot for easy installation. Maximum expansion at inner end. May be used with either sheet metal or wood screws. Anchors are made of Tenite® butyrate plastic. Resists moisture and corrosion—won't deteriorate. Has high impact strength. Temp. rating (—50°F. to +220°F.).

FLANGE TYPE ANCHORS & KITS

Stock No.	Type	Anchor Length	Screw Size	Drill Size	Ctn. Qty.	Each
35F2224	90-041	⅞" Yellow	6-8-10	3/16"	100	.03
35F2225	90-042	1" Red	10-12	¼"	100	.04
35F2226	90-044	1½" White	14-16	5/16"	50	.05

Stock No.	Type	Description	Each
35F2227	90-051	100—#6-8-10 x ⅞" Flange Anchors 100—#8 x 1" Pan Head S.M.S. 1—3/16" Masonry Bit	8.20
35F2228	90-052	100—#10-12 x 1" Flange Anchors 100—#10 x 1¼" Pan Head S.M.S. 1—¼" Masonry Bit	9.60
35F2229	90-053	100—#10-12 x 1" Flange Anchors 100—#12 x 1" Pan Head S.M.S. 1—¼" Masonry Bit	9.60
35F2230	90-054	40—#14-16 x 1½" Flange Anchors 40—#14 x 1½" Pan Head S.M.S. 1—5/16" Masonry Bit	9.10
35F2231	90-055	100—#10-12 x 1" Flange Anchors 100-#10 x 1" Pan Head S.M.S. 1—¼" Masonry Bit	9.55
35F2232	90-056	200—#6-8-10 x ⅞" Flange Anchors 100—#10-12 x 1" Flange Anchors 1—3/16" Masonry Bit 1—¼" Masonry Bit	12.05

FUSE PULLERS
Safe-T-Grip®

Notched edges for sure grip, eliminates possibility of slipping. Eliminates danger of pulling and replacing fuses by hand and bending of fuse clips. Also adapted for adjusting loose cutout clips, handling parts, etc.

LUGS

SINGLE BARREL CONNECTOR, CU/AL

Stock No.	Type	Wire range	Stud size	Each
81F2783	87-009	14-2/0 AWG	¼"	.82
81F2784	87-015	6 AWG-350 MCM	⅜"	2.01
81F2785	87-017	4 AWG-500 MCM	⅜"	4.01
81F2786	87-019	2 AWG-600 MCM	⅜"	4.29
81F2787	87-025	One 4 AWG-600 MCM Two I/O AWG 250 MCM	⅜"	4.71
81F2788	87-027	2 AWG-600 MCM	½"	6.82

TWO BARREL CONNECTOR, CU/AL

81F2789	87-042	14-2/0 AWG (2)	¼"	1.48
81F2790	87-046	6 AWG-350 MCM (2)	½"	5.28
81F2791	87-048	2 AWG-600 MCM (2)	½"	8.20
81F2792	87-060	2 AWG-600 MCM (2)	½"	10.75
81F2793	87-062	300-800 MCM (2)	½"	12.79
81F2794	87-064	500-1000 MCM (2)	½"	14.61

PANELBOARD CONNECTOR CU/AL

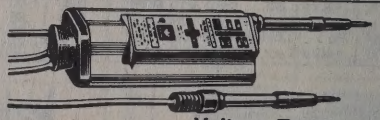
Stock No.	Type	Wire range	Stud size	1-9	10-49	50-Up
81F2795	87-126	2-AWG-600 MCM	⅜"	24.40	20.90	17.50
81F2796	87-129	1/0 AWG-750 MCM	⅜"	25.90	22.20	18.45
81F2797	87-132	2 AWG-600 MCM	⅜"	26.60	23.10	19.10
81F2798	87-135	3/0 AWG-750 MCM	⅜"	29.40	23.50	21.00
81F2799	87-138	2 AWG-600 MCM	⅜"	31.20	26.63	22.25
81F2800	87-141	3/0 AWG-750 MCM	⅜"	34.30	29.45	24.50

SPLIT-BOLT, TYPE K, FOR COPPER ONLY

Stock No.	Type	Wire Range	Range for Equal Run & Tap	Each
81F2801	87-650	K-10	12 Str.-10 Str.	.99
81F2802	87-651	K-8	10 Str.-8 Str.	1.12
81F2803	87-653	K-4	8 Str.-4 Sol.	1.46
81F2804	87-655	K-2	6 Str.-2 Str.	2.35
81F2805	87-656	K-1/0	4 Str.-2 Str.	2.68
81F2806	87-657	K-2/0	2 Str.-2/0 Str.	4.89
81F2807	87-658	K-3/0	1 Str.-3/0 Str.	6.67
81F2808	87-660	K-250	1 Str.-250 MCM	7.81

SPLIT-BOLT, TYPE S, DUAL RATED CU/AL

Stock No.	Type	Wire Range	Run Copper, ASCR & Aluminum	Each
81F2809	87-669	S-6	12 Sol.-6 Sol.	1.53
81F2810	87-671	S-3	10 Sol.-2 Sol.	2.58
81F2811	87-672	S-2	8 Str.-2 Str.	2.78
81F2812	87-673	S-1/0	2 Str.-1/0 Str.	3.52
81F2813	87-674	S-2/0	2 Str.-2/- Str.	5.70
81F2814	87-675	S-3/0	1 Str.-3/0 Str.	7.94



VOLTAGE TESTER

Voltage Tester

Stock No.	Cat. No.	Description	1-5	6-Up
81F2816	†61-076	Vol-Con™ Voltage/Continuity Tester	33.90	31.95
81F2817	†61-079	Vol-Con™ Voltage/Continuity Tester	37.00	35.15
81F2818	†61-080	Vol-Con™ Voltage/Continuity Tester	40.95	38.90
35F2249	†61-065•	Voltage Tester with Standard Prods	19.75	17.90
35F2250	†61-066•	Voltage Tester with 1 Prod and 1 Clip	22.05	20.95
3FF2251	†61-067•	Voltage Tester with Resistor Prods	22.05	19.75

TESTING EQUIPMENT ACCESSORIES

81F2819	†61-201	Batteries for Solenoid/Continuity Tester	4.25
81F2820	†61-070•	Replacement Leads for 61-065 Volt. Tester	7.55
81F2821	†61-071	Replacement Leads for 61-066 Volt. Tester	10.70
81F2822	†61-072•	Replacement Leads for 61-067 Volt. Tester	10.70
81F2823	†61-078	Replacement Leads for 61-077 Volt. Tester	8.90
35F2252	†61-009•	Vinyl Carrying Case for Voltage Testers	5.10
35F2253	†61-010•	Leather Carrying Case for Voltage Testers	12.75

Fuse Pullers Safe-T-Grip®

Stock No.	Type	Size	Description	Each
35F2233	34-001	Midget	For small fuses, 9/32" to ½" in diameter	2.00
35F2234	34-002	Pocket	For 0 to 100A., 250V. and 600V.	3.85
35F2235	34-003	Giant	For 31 to 600A., 250V. and 31 to 400A., 600V.	10.00

Wire Strippers & Heat Guns

STRIPMASTER

Automatic single squeeze feature, holds jaws open for removing wire without crushing end. For stripping lighter gauge wires, 6 holes, except 14-22, with 4 holes. Shipping weight 14 oz.

Stock No.	Type	AWG Gauge	NET
58F553	45-093	No. 14 to 22 wire	13.50
58F554	45-097	No. 16 to 26 wire	
58F555	45-098	No. 20 to 30 wire	

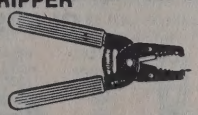
CUSTOM STRIPMASTER®

Unique blade construction and extreme holding power of broad jaws permit fast accurate stripping. Strips without nicking wire, or marking insulation to meet the most rigid inspection standards. Includes short stop latch and adjustable wire stop. Wt. 14 oz.

Stock No.	Type	AWG Gauge	NET
58F550	45-186	No. 10 to 14 Wire	47.95
58F551	45-187	No. 16 to 26 Wire	
58F552	45-188	No. 26 to 30 Wire	

T-TYPE WIRE STRIPPER

For clean stripping of wires used in electronic instruments and appliances. Sturdy, compact, constructed of hardened steel for rugged duty and long service. Comfortable plastic grips for sure handling and safety. Wt. 5 ozs.



Stk. No.	Type	AWG Gauge	NET
58F586	45-120	No. 10 to 18 Solid	5.50
58F587	45-121	No. 16 to 26 Standard	5.50
59F1103	45-125	No. 22 to 30 Solid	6.30

ALL-PLASTIC WIRE CONNECTORS

A low-cost screw-on connector for OEM production. U.L. and C.S.A. listed for 300V max. temp. rating 105°C max. Average shipping weight 1¾ lbs./1000.

Stk. No.	Model	Type	Min. & Max. Wire Combin.	Net Per 1000
35F2458	A0/A1	30-140	2#24, 2#18	12.15
59F1104	A-3	30-143	2#18, 3#16	16.70
35F2448	82	30-182	3#16	19.60
35F2449	83	30-183	2#14, 2#16	27.95

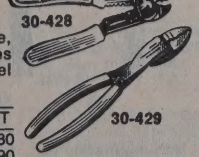
WIRE-NUT® WIRE CONNECTORS

Screw-on connector for fast, economical production line use. Tapered spring insert. 71B, and 72B models are listed as 300V Fixture-Type splicing connectors. 73B is listed as 600V. Larger models 74B and 76B are listed as 600V Pressure-Type connector for Cu/Cu, Al/Al and Cu/Al wire connectors. Temp. rating: 71B and 72B 150°C.; 73B, 74B and 76B, 105°C.

Stk. No.	Model	Type	Min. & Max. Wire Combin.	Net per 100	Net per 1000
35F2450	71B	30-071	. . .	2.90	. . .
35F2451	71B	30-171	2#18, 2#16	. . .	20.95
59F1111	72B	30-072	2#18, 3#16	3.15	. . .
59F1112	72B	30-172	2#18, 3#16	. . .	23.50
35F2452	73B	30-073	2#18, 3#16	3.70	. . .
35F2453	73B	30-173	1#18	. . .	29.35
35F2454	74B	30-074	1#14, 1#18	4.35	. . .
35F2455	74B	30-174	2#14, 3#16	. . .	34.25
35F2456	76B	30-076	1#12, 2#18	6.10	. . .
35F2457	76B	30-176	2#10, 1#12	. . .	48.60

COMBINATION CRIMP TOOL

Five tools in one! Crimps, strips, cuts wire, cuts screws and bolts and cleans and chases threads. Lightweight 8-inch hardened steel tool.

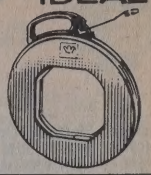


Stock No.	Type	Description	NET
59F1118	30-428	Combination Crimp Tool	10.80
59F1119	30-429	Multi-Crimp Tool	15.90

TAPE-PAK™ FISH TAPE

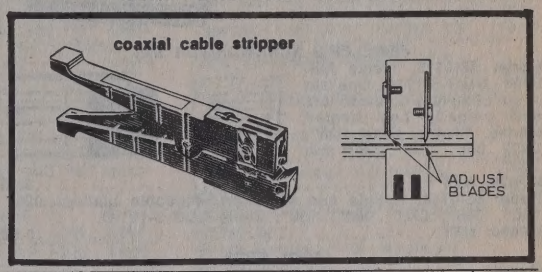
IDEAL

Reel and winder has tough, high-impact lightweight plastic reel. Big grips and grained surface provide sure, non-slip handling. Built-in winder lets you rewind tape quickly. Positive tension on tape eliminates scrambling or jamming in the reel. Tape is replaceable.



Stk. No.	Type	Length and Size of Tape	NET
59F1120	31-020	40 ft. x ⅛" x .045 (3/64")	12.95
59F1121	31-033	50 ft. x ⅛" x .060 (1/16")	16.45
59F1122	31-024	100 ft. x ⅛" x .060 (1/16")	23.45
59F1123	31-025	200 ft. x ⅛" x .060 (1/16")	31.60

STRIPPERS AND CUTTERS



Stk. No.	Type	Description	NET
20F970	45-162	Coaxial stripper, up to ⅛" O.D.	11.40
20F971	45-163	Coaxial stripper, ⅛ to ¼" O.D.	11.40
20F972	45-164	Coaxial stripper, ¼ to 9/16" O.D.	17.20
81F2815	45-165	Coaxial stripper 9/16 to 5/16" O.D.	11.40
20F973	L-9225	Replacement Blade set for 45-162 and 45-163.	1.75
20F974	L-9226	Replacement Blade set for 45-164.	2.00

PORTABLE ELECTRIC HEAT GUN

46-013 Standard heat gun. **46-021** High capacity with greater air volume. Lower temp. green nozzle for Mylar and high temp. red nozzle for Teflon. May be hand held or stood up on any tabletop. Standard Wt.: 1¾ lb.; High Capacity Wt.: 3½ lbs.

Stock No.	Type	Description	NET
59F1113	46-013	Heat Gun w/gold nozzle only	51.85
59F1114	46-921	Green Nozzle for 46-013	7.45
59F1115	46-922	Gold Nozzle for 46-013	7.45
59F1116	46-923	Red Nozzle for 46-013	7.45
20F982	46-021	High Cap. Heat Gun w/gold Nozzle	88.30
20F983	46-932	Gold Nozzle for 46-021	15.25
20F984	46-933	Red Nozzle for 46-021	15.25

ELECTRIC MARKER

Marks metal, glass, stone, ceramics, plastics, hard rubber, wood, etc. Vibrates at 7200 strokes per minute. Unique construction reduces "bouncing".

Stock No.	Type	Description	NET
58F583	11-111	w/carbide tipped point	23.45

"SWIVEL-BLADE" CABLE STRIPPER

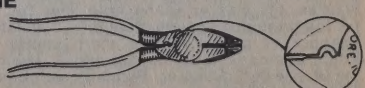
Strips most types of cable. Cuts outer sheathing without damaging inner conductors or insulation. Can be used on coaxial and power cables from 3/16" to 1½" O.D. Adjustable blade strips insulation, up to 5/32". Unique "swivel blade" automatically turns to direction in which tool is moved. Weight: 4 oz.

Stock No.	Type	Description	NET
35F2460	45-127	stripper w/utility knife for 5/16" to ¾" O.D.	10.40
35F2461	45-128	stripper for 5/16" to ¾" O.D.	10.40
59F1117	45-129	stripper for ¾" to 1½" O.D.	12.40

ELECTRICIAN'S PLIERS WITH CRIMPING DIE

8½" Electricians' pliers with built-in crimping die. Can be used for twisting wires and deburring conduit. Has New England nose and special plastic grips. Shipping wt. 1 lb.

Stock No.	Type	Description	Each
35F2463	30-420	Electricians' Pliers	15.95

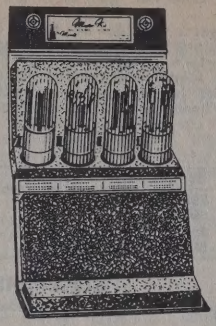


16

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

Selected Top-Quality Tools

MOODY SUBMINIATURE TOOLS



Model 39-0135. Contain four individual Moody kits each with five interchangeable, bright plated tool tips and one chuck-type swiveltop handle all in a durable leatherette case. Screwdriver kit, Phillips and Allen kit, socket kit and open-end wrench kit are similar to type 58-0152 described in detail below.
28F1840. NET **22.50**

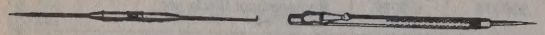
JEWELER'S SCREWDRIVER SET

Model 58-0116, meets Mil. Spec. GGG-S-121d. One set of six complete screwdrivers with properly heat-treated blades. Blades sizes .025", .040", .055", .070", .080" and .100".
33F479. NET **8.50**
Model 58-0114. Handle and six interchangeable blades. .025", .040", .055", .070", .080", .100". Meets GGG-S-121-D.
33F696. NET **5.50**

TOOL SETS

Stk. No.	Type	Description	NET
34F768	58-0148	Phillips & Allen Set	9.50
34F772	58-0149	Allen Set	11.00
34F785	58-0150	Socket Set	9.50
34F786	58-0151	Open End Set	12.50

POCKET AND MACHINIST SCRIBERS



Model 76-1510. **Model 76-1519.**

Model 76-1510. Meets MIL-Spec. GGG-131. Approximately 8½" overall with a hook point and a straight point. Has knurled aluminum finger grip handle.
34F559. NET **1.50**
Model 76-1519. On one end, powerful magnet for prodding. Other end stores a scribing point. Pocket clip.
33F697. NET **3.20**

SUBMINIATURE TOOL SET

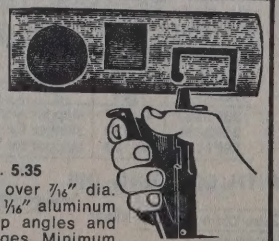
Type 58-0152 Deluxe Set. Provides a complete set of subminiature tools in one durable and compact package. 27 sizes of precision screwdrivers, Phillips, Allens, open-end and socket wrenches are conveniently handy, yet secure for carrying. Set 58-0152 contains two of each of the following 54 interchangeable tool tips, 27 knurled, chuck-type handles, and one extension which extends reach by approximately 3". The set of tool tips include: screwdriver blades—.025", .040", .055", .070", .080" and .100"; Phillips blades—#0 and #1; Allen wrench tips—.028", .035", .050" (#4), .062" (#6), .078" (#8), and .093"; socket wrench tips—5/64", 3/32", 7/64", 1/8", and 9/32"; offset open-end wrench tips— 5/64", 3/32", 7/64", 1/8", 9/32", 3/16", 1/4", and 5/16". Shipping weight: 24 oz.
10F8300 NET **65.00**

ANTI-WICKING TOOLS

Stock No.	Type	Gauge	NET
34F796	AW22	22	12.40
34F797	AW24	24	

ADEL

HAND NIBBLING TOOL



Stk. No.	1-4	5-11
33F670	10.15	9.14

Replacement punch for above.
33F671. NET **5.35**
Makes any size or shape hole over 7/16" dia. Bites through 18-gauge steel or 1/16" aluminum copper or plastic. Takes sharp angles and tight curves. Leaves smooth edges. Minimum hold size 7/16" diameter. Punch is replaceable. Shipping weight 8 oz.

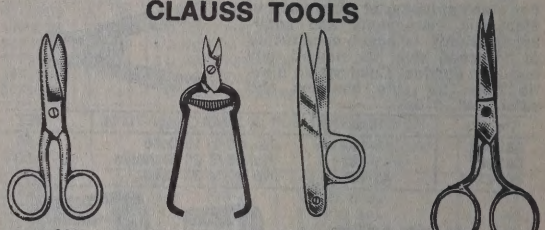
WD-40 SPRAY CLEANER

- **Penetrates**
- **Cleans**
- **Protects**
- **Lubricates**

WD-40 spray cleaner is perfect for cleaning contacts, cleaning sticky parts and lubricating all types of machine parts. As a fast-acting penetrant, WD-40 loosens rusty joints easily. WD-40 can be used to protect metal from moisture and corrosion. This silicone-free spray leaves no gummy residue and is a non-conductor of electricity. Quickly eliminates moisture-induced short circuits in electrical and electronic equipment. WD-40 is available in a 12 ounce aerosol spray.

Stk. No.	Type	Description	NET
00Z250	40015	12 oz. aerosol spray	3.45

CLAUSS TOOLS



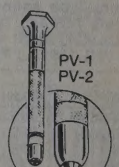
SCISSORS AND SNIPS

Scissors have small hardened points for fine cutting. Double plated, chrome over nickel except (*).

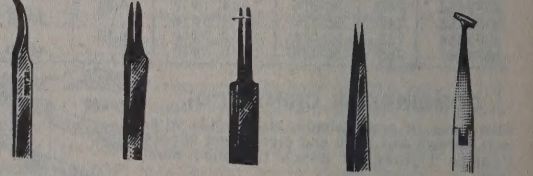
Stk. No.	Type	Description	Size	Wt.	NET
34F780	925	Electricians' scissors	5"	3 oz.	6.70
34F781	76½*	Filament snip	6½"	5 oz.	8.54
34F782	TC4½	Thread snip for light cutting	4½"	3 oz.	6.87
34F771	384	General cutting tool, slender blades	4"	⅔ oz.	7.04
34F789	331¼	Fine Wire Cutters	3¼"	4 oz.	7.71
34F790	431½	Fine Wire Cutters	3½"	4 oz.	6.70
34F791	564	Fine Wire Cutters	4"	4 oz.	6.70

SWIVEL TOP PIN VISES

Have knurled metal handles and solid locking chucks. The PV-1 will take drills sizes #80 to #68, (.0135" to .031"). The PV-2 will take drill sizes #67 to #52. (.032" to .0635").



Stk. No.	Type	1-10
33F480		2.00
33F481		2.00



DOMESTIC TWEEZERS

Non-magnetic, exc. for AA. Satin-finish stainless steel. Delicate feel and balance. With smooth inside points except (*) serrated.

Stk. No.	Type	Description	Size	Wt.	NET
34F773	7SS	Curved tweezers	4½"	⅓ oz.	5.86
34F774	55	Long, V-shaped	4¼"	⅓ oz.	4.36
34F775	5	Long, slender	4¼"	⅓ oz.	4.36
34F776	231*	Serrated inside points	4¾"	⅔ oz.	4.02
34F777	AA	Tapered points	4⅞"	⅔ oz.	3.35

Chassis Punches and Tools

GREENLEE TOOL CO.

P&B RELAY SOCKET PUNCH

Type 731R. Makes clean, accurate, finished holes for Potter and Brumfield KHP, KU, and KUP miniature relay sockets. Makes holes in up to 16 gauge metal. No sawing and filling methods. All holes are identical. Weight 10 oz.

For Type KU Relay
Hole dimensions 1¼" × 1⅜".
34F981 NET 72.50
For Type KHP Relay Hole Dimensions 1.018 × .861"
33F797 NET 47.40

½" THRU 1¼" KNOCKOUT PUNCH SET

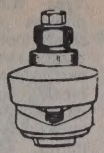
Type 735. Enlarges knockouts and punch holes for conduit in metal boxes, conduit in metal boxes, cabinets and panels. Punches cut up to 10 gauge metal. Metal is supported by die to prevent distortion. Die is recessed for slug clearance. Comes in leather case. Four punches in set, cut hole diameters of ⅞", 1 3/32", 1 11/32" and 1 11/16" for ½", ¾", 1", and 1¼" conduit. Wt. 2¾ lbs.

33F750 NET 34.70

1½" AND 2" KNOCKOUT PUNCH SET

Type 737. Similar to No. 735. Consists of two punches for cutting hole diameters of 1 15/16" and 2⅜" for 1½" and 2" conduit. Packed in leather case. Weight 3½ lbs.
33F753 NET 40.10

BALL-BEARING DRIVES



For faster and better hand operation of knockout punches. For use with knockout and chassis punches having a ⅜" or larger drive screw. For knockout punches No. 737 for 1½" and two inch conduit, No. 730 for 1⅞", 2", 2¼", and 2½". No. 730M for 2 5/32" openings, and No. 730 Round Radio chassis punches 1 11/16" and larger.

Stk. No.	Type	Overall Size	Wt.	Net
33F725	AV-304BB	¾" × 4"	11 oz.	9.80

For the following punches: No. 735 for ¾", 1" and 1¼" conduit. No. 730 Radio Chassis punches for 1 5/8" and 1¾" opening, and Nos. 730S for 1 7/32" opening.

Stk. No.	Type	Overall Size	Wt.	Net
33F728	AV-249BB	¾" × 3¾"	9 oz.	9.70

For Knockout Punch No. 735 for ½" conduit and No. 730 Radio Chassis punches for 1 1/16", ¾", 1 13/16", ⅞" and 1 5/16" openings.

Stk. No.	Type	Overall Size	Wt.	Net
33F731	AV-322BB	⅜" × 2½"	2 oz.	4.30

Same type drive as No. AV322BB above for 1" thru 1½" sizes No. 730 Radio Chassis punch.

Stk. No.	Type	Overall Size	Wt.	Net
33F734	AV-112BB	⅜" × 2 13/16"	2½ oz.	5.30

ROUND PUNCHES

Type 730 Makes round openings with maximum ease in minimum time

Stk. No	Size	Net	Stk. No	Size	Net
33F670	½"	8.50	33F769	1¼"	9.70
33F754	9/16"	8.50	33F755	1 5/16"	11.90
33F761	⅝"	8.50	33F770	1⅜"	11.90
33F775	11/16"	8.50	33F771	1½"	12.80
33F762	¾"	8.50	33F756	1⅝"	15.60
33F776	13/16"	8.50	33F757	1¾"	17.50
33F763	⅞"	8.50	33F758	1⅞"	21.80
33F736	15/16"	9.20	33F759	2"	22.60
33F764	1"	9.20	34F977	2⅛"	24.30
33F765	1 15/16"	9.70	33F772	2¼"	26.10
33F766	1⅛"	9.70	34F978	2½"	40.80
33F767	1 5/32"	9.70	34F979	2¾"	57.00
33F768	1 3/16"	9.70	34F980	3"	79.00

730M. Meter punch. Hole size; 2 25/32".
33F777. NET 42.80
730-S. 1 7/32" punch for oil tight control units.
33F778. NET 16.40
730-T. 3⅛ punch for instrument panels.
33F794. NET 81.50
AV-1675. ¼ screw fpr ½–⅝ punches.
33F773. NET 1.50
AV-322. ⅜ × 1½ screw fpr 11/16-⅞ punches.
33F787. NET 1.50
AV-112. ⅜ screw for 1 to 1½ punches.
33F774. NET 1.50

CHASSIS "KEY" PUNCHES

Type 732 Punches for cuting holes for tube sockets and plugs with keys.

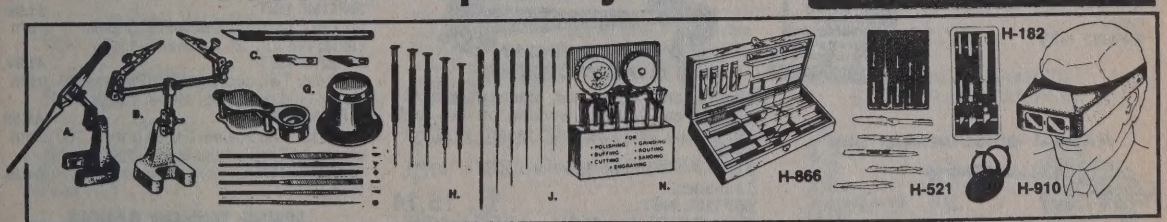
SQUARE CHASSIS PUNCHES

Type 731. For cutting square and oblong holes in radio chassis. Turns with ordinary wrench. Punch has 4 cutting edges. Drive screw fits into ½" pilot hole. Av. wt., 10 oz.

33F779. For ½" holes. **NET** 23.30
33F780. For ⅝" holes. **NET** 23.30
33F781. For ¾" holes. **NET** 24.40
33F788. For ⅞" holes. **NET** 29.60
33F782. For 1" holes. **NET** 29.50
33F789. For 15/32" holes. **NET** 19.90
33F790. For 1 5/16" holes. **NET** 47.70
33F791. For 1 11/64" holes. **NET** 28.30
33F792. For 1 17/64" holes. **NET** 32.90
33F793. For 1 21/64" holes. **NET** 37.60

Precision Specialty Tools

MAXON™



A. The Third Hand. Cross-lock tweezer mounted in double ball joint to heavy iron base. Holds work in any position.
34F1280 H200. Net. 7.95

B. Twin Grip. Two alligator clamps mounted to ball joints. Tweezer interchangeable with crossbar and clamps. Crossbar 5½" long. Heavy, nickel plated base.
33F1806 H201. Net. 10.85

C. Precision Knife set. 5" aluminum handle. Includes 3 blades.
34F1286 H111. Net. 1.39

D. Precision Knife Blades. 8 assorted No. 11 and No. 16 blades. For H-111. (Not illustrated.)
34F1287 H111A. Net. 1.29

G. Eyepiece Magnifier. 2.5X power mag.
34F1282 H900. Net. 2.10

Pocket Magnifier. 10X power mag. Folds into nickel plated case.
34F1291 H901. Net. 5.65

H. 5 Pc. Precision Screwdriver Set. Hexagon swivel head. Popular blade sizes. Nickel plated. (Not illustrated.)
34F1295 H855. Net. 3.75

J. Set of 6 Reamers. Cuts holes in wood, metal, plastic, or fiber. Assorted sizes, drill gauge 42 to 73. Easy grip handle.
33F1806 H311. Net. 7.49

K. 6 Pc. Swiss Needle File Set. Assorted 14 CM files. Cut #2 Vinyl folding pouch.
34F1263 H778. Net. 12.75

L. Swiss Needle File Set. Three 14 CM files, med. Cut #0. Shapes: round, half round, bent 3 square. (Not illustrated.)
34F1281 H777. Net. 6.35

N. 18 Piece Rotary Tool Accessory Kit. ⅛" and 3/32" shanks. For sanding, buffing, etc. Fits all portable rotary tools.
34F1296 H980. Net. 10.95

H903—DOUBLE LENS POCKET MAGNIFIER—Has two lenses—4X power and 5X power—mounted in plastic frames which fold into attached case.
81F5727 ..... 5.30
H866 DELUXE KNIFE & TOOL CHEST SET—Aluminum mitre box, sander, #1 knife, #2 knife, #5 knife, razor saw, screwdriver, pin-point stylus, and 20 assorted blades.
81F5726 ..... 24.95
H521—ALL PURPOSE TWEEZER SET—4½" sharp pointed tweezer, 4¾" stamp tweezer, 6" retrieving tweezer, 6" solder-utility tweezer, 6½" self closing tweezer.
81F5725 ..... 9.95
H182—PRECISION KNIFE SET WITH HANDY STORAGE TRAY—1 each: lightweight knife, medium weight knife with multi-purpose handle, heavy duty knife with multi-purpose handle.
81F5724 ..... 6.95
H910—BINOCULAR MAGNIFIER—Provides 3 dimensional viewing for both eyes. Objects magnified 2½ times at a working distance of 10 inches.
81F5728 ..... 12.95

Jonard Industrial Tools

MANUAL QUICK-WRAP GUN

Type WG-350. Connections are considerably stronger than solder connections. Lack of stress points results in less breakage. Hand-operated gun uses interchangeable bits and sleeves. Bits are selected to fit different sizes of terminal height, width and wire sizes combinations. Sleeves are selected to fit over the bit. Sleeves are insulated to help prevent shorting of adjacent connections. Terminal Dia. x Depth are all .075 x .750" except for wire gauge 22-24 which is .075 x .807".

35F3641. NET **113.87**

***Modified wrap includes additional 1½ turns with insulation on terminal.**

QUIK-WRAP BIT

Stock No.	Type	Wire Gauge	Regular or *Modified	Each
35F3642	BW-2426	24-26	Regular	24.87
35F3643	BW-2224	22-24	Regular	

QUIK-WRAP SLEEVE

35F3646	SW-2426	24-26	Regular	13.74
35F3647	SW-2224	22-24	Regular	

WRAPPING TOOL KIT

KW-350. Handles most popular wire wrap connections. Fitted in durable leather finished case.

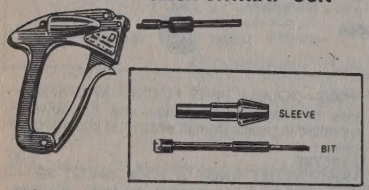
35F3636. NET **89.60**

UNWRAPPING TOOL KIT

KU-360. Unwraps most popular wire wrap connection sizes. Durable leather finished case.

35F3637. NET **97.19**

MANUAL QUICK-UNWRAP GUN



UG-360. Portable tool unwraps connections easily. Only bits are required, no sleeves are necessary.

35F3638. NET **109.74**

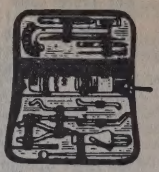
QUIK-UNWRAP BITS

Stock No.	Wire Gauge	Type	Each
35F3837	20-32	SU-2032 Sleeve	16.60

CONNECTOR TOOL

KA-260 3-Piece Contact Insertion Kit.
35F1148. NET **88.69**
KR-260 3-Piece Contact Removal Kit.
35F1149. NET **103.49**

MASTER 15-PIECE SET



Type K-55. Precision chrome plated carbon steel tools for maintaining relays. Contains: two spring adjusters; tension and thickness gauges; duck bill plier; screwdriver tweezers; mirror, four-way tool; brush; armature; stop benders; contact spray and burnisher. Leather zippered case. 3½ lbs.

35F1127. NET **160.30**

MASTER 20-PIECE SET

Type K-600. Includes pliers, drivers, tweezers, burnisher, soldering iron and aids, files, magnifier, etc; all tools for service of electronic equipment. Zippered leather case.

35F1137... 133.74

DIAMOND CLEANER BURNISHER

Consists of abrasive diamond particles for cleaning of relay contacts with minimum pressure. Nominal material removal will not alter normal contact gap.

35F1100. Type K-234. Kit of 3. **NET.** **53.77**
35F1101. Type D-200. Coarse, Green, 2 diamond faces. **NET** **17.80**
35F1102. Type D-300. Medium, Red. 2 diamond faces. **NET** **17.80**
35F1103. Type D-400. Fine, Blue, 1 diamond face. **NET** **17.80**

PENFILE POCKET CLEANER-BURNISHER

Non-residual, hardened steel. Plastic dielectric cap permits working on live and dangerous contacts. 5½" length x ⅜" diameter.

Type P-4 Penfile. ¼"W x 1¼"L x .007"T. 12 blades.
35F1107. NET **15.14**
Type P-6 Penfile. 3/16"W x 1¾" L x .007"T. 12 blades.
35F1108. NET **15.14**
Type RB-4. Replacement blades for P-4. Package of 25
35F1109. NET **14.67**
Type RB-6. Replacement blades for P-6. Package of 25
35F1110. NET **14.67**

ECONOMY BURNISHERS

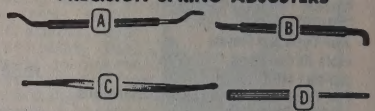
3½" long. **OB-1, -2,** standard packages of 1 dozen, **OB-3, -4,** standard packages of 1 dozen.

Type OB-1. For fine cont. 3/16" w, .007" thk.
35F2219 ..... **16.00**
Type OB-2. For extra sensitive pts. Blue. ¼" wide, .007" thick.
35F2220 ..... **18.40**

ECONOMY BURNISHERS CONT.

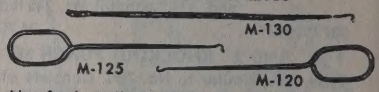
Type OB-3. For general purpose contacts. Red. ¼" wide, .010" thick.
35F2221 ..... **32.74**
Type OB-4. For industrial uses. Green. ¼" wide, .020" thick.
35F2222 ..... **40.87**

PRECISION SPRING ADJUSTERS



A SA-2. Chisel edge. Curved both ends. Adj. horiz. relays. .023" slots, 7" L.
35F1114. NET **18.00**
B SA-6A. For vertical and horizontal relays. .029" slots, 5½" length.
35F1115. NET **17.40**
C SA-20. Upward and downward slots for closely set springs. .024" slots, 7" L.
35F1119. NET **21.60**
D SA-7. Straight type for rotary switches and flat-type relays. .015" slot, 4½" L.
35F3838. NET **9.07**

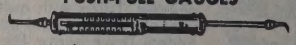
HOOKS FOR FINE SPRINGS



Use for inserting, removing, and adjusting fine springs in hard-to-reach areas. Tapered to fine point, highly polished.

Stock No.	Type	Each
35F1126	M-120	5.40
35F1129	M-125	5.40
35F1131	M-130	7.27

PUSH-PULL GAUGES



For measuring tension and compression of spring loaded equipment.

GPP-5. Two scales: 0-500 grams, 50 gram steps; 0-16 oz.-in., 1 oz.-in. steps. ½" x 15".
35F1188. NET **61.99**
GPP-8. Two scales: 0-220 grams, 5 gram steps; 0-8 oz., .25 oz. steps. 1½" x 14½".
35F2215. NET **41.59**
GPP-36. Two scales: 0-1020 grams, 20 gram steps; 0-36 oz., .5 oz. steps. 1½" x 14½".
35F2216. NET **41.59**
GPP-15. Two scales: 0-6084 grams, 100 gram steps; 0-15 lbs., 4 oz. steps. 1½" x 14½".
35F2218. NET **41.59**

SPRING TENSION GAUGES

Model G-50. Engraved scale front and back for horiz. and vert. reading. Scale is 0-50 gm., at 5 gm. intervals. 5" length.
35F1111. NET **30.75**
35F1135. G-30. 0 to 30 gm. **NET** **30.75**

Type GD. Readings can be taken clockwise and counter-clockwise. Pointer remains at maximum force measured, enabling reading to be taken after measuring.

Stk. No.	Type	Range (grams)	Net Each
35F1135	GD-1	0-10	71.27
35F1139	GD-5	6-50	71.27
35F1138	GD-10	10-100	71.27
35F1140	GD-15	15-150	71.27

TOOLS

GENERAL HARDWARE TOOLS

QUALITY CIRCLE CUTTERS

Fig. A. Cut round holes in metal, wood, bakelite, etc. Used with drill press, hand drill or brace. Fully adjustable. Wt., 8 oz.

No.	Type	Shank	Size	NET
34F571	4	Comb. ¼"	⅞" to 4"	7.00
34F573	5-B	Round 5/16"	1" to 5½"	7.26

Extra blade for Types 4, 5-A, or 5-B circle cutters above. 4 oz.
34F574. NET 1.78

Fig. B. Type 55. Cuts holes from 1¾" to 8" dia. Made of tool steel with Jessup cutting bits. Has ½" shank to fit ½" chuck. Set screw wrench included. Wt., 8 oz.
34F575. NET 12.20
34F576. Extra blade for above. NET 2.52

CHASSIS LAYOUT TOOLS

Fig. C. Model 83. Pocket Scribe. Hex head, steel case, locking chuck. 2⅛" tapered point may be reversed. Size, 4¾".
34F560. NET 1.94

Fig. D. Model 15. Drill and Wire Gauge, Decimal equivalents for sizes 1 to 60. Lists taps and body drill sizes ¼-28 to 2-56.
34F561. NET 5.52

Fig. E. Model 16. Multi-Use Rule & Gauge. A 4" rule in 32nds and 64ths, drill point gauge, sq., bevel protractor, center finder, circle divider, tap drill table. Wt. 4 oz.
34F562. NET 4.68

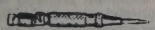
INSPECTION MIRROR

Type 558. 2" × 1" oval inspection mirror. Adjustable 6" knurled chrome plated handle.
34F443. NET 3.60

MACHINIST HAND VISE

Model 815. Ideal for jobs where portability and flexibility are desired. Hard steel knurled jaw faces grip any object securely and safely. Has spring tension wing nut adjustment. Wt., 1 lb.
34F444. NET 9.90

AUTOMATIC CENTER PUNCH TYPE 79



Constructed of shock-resistant alloy steel. Pressure adjustable. Ideal for rapid marking on steel. Tips replaceable. 5 × ½" dia. 5 oz.
34F565. NET 10.48
34F566. Type 79P. Extra point. NET 1.42

Fig. F. Model 310. 6" Steel Rule and Wire Gauge. Gives 32nd and 64th graduations B and S wire gauge and decimal equiv.
34F563. NET 1.90

Fig. G. Model 301. 6" Pocket Rule and Depth Gauge. Only ¼" wide. Gives readings in 64ths. With handy pocket clip.
34F564. NET 1.08

ADJUSTABLE FILE AND TOOL HOLDER

Fig. H. Model 890. Holds files, blades, reamers, scriber points, etc. in a vise-like grip. Knurled knob assures easy and positive locking. Wt., 8 oz.
84F578. NET 2.76

RATCHET TAP WRENCH

Fig. J. Model 160R. Made of hardened and tempered tool steel. Self-equalizing jaws positive ratchet, sliding-T-handle. Opening capacity: 3/32 to 7/32". Wt. 8 oz.
34F579. NET 13.78

HAND DRILL AND PIN VISE

Fig. K. Model 92. A precision tool with two reversible collets for holding drills, taps, wire, etc. from the smallest size .0 to .125". Has large free-wheeling swivel head. Size: 4" long, 5/16" body dia., ¾" head. Wt. 5 oz.
34F580. NET 4.52

INSPECTION MAGNIFIER

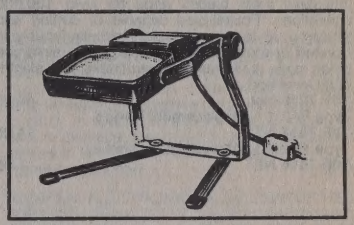
Fig. L. Model 549-4. 4" powerful ground and polished lens. 12" chrome plated adjustable Gooseneck Arm. Ball joint swivel permits easy adjusting. Sturdy cast-iron base for bench or table use. Wt., 4 lbs.
34F620. NET 25.52

TWIST DRILL SHARPENER

- Restores worn twist drills
- Up to ¾" drill size
- Used by industry

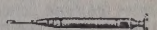
Accurately sharpens twist drills. For machine shops, garages, home workshops and all drill users. For fractional drills ⅛ to ¾ in.; for number size drills 1 to 30; for letter size drills A to Z; millimeter size drills 3.0 to 19.0 mm.
34F1180. TYPE 825. NET 15.60

ADJUSTABLE ILLUMINATED MAGNIFIER STAND



Model 1050. For assembly or inspection of small parts, soldering and engraving. For laboratory, industry, schools, and hobby use. Both lens and light frame adjust separately to required height and visual range. Lens size 4" × 2" adjusts from 1" to 6½" high. .7 watt 115 volt lamp, with 6 ft. U.L. approved cord. Sturdy extruded aluminum 5" × 5" stand folds compactly for storage. Weight 1¼ lbs.
35F1182. NET 23.32

JEWELERS' SCREWDRIVER SET



Type S-600. Set of six. Sizes: 0, 1, 2, 3, 4, 5. Swivel head with removable blade. 3" long. ½ lb.
34F577. NET 10.08

FLAT LEG MACHINISTS' DIVIDERS AND CALIPERS

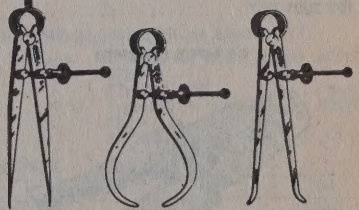


Fig. A Fig. B Fig. C

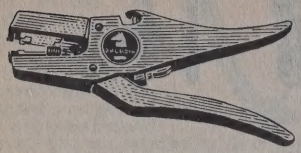
TYPE 450. Quality flat leg dividers. **Type 452.** Outside calipers, **Type 454.** Inside calipers. Hardened points. Bow springs. Bearing spools.

Stk. No.	Type	Description	Fig.	Size	Each
34F1174	450-4	divider	A	4"	8.52
34F1175	450-6	divider	A	6"	9.76
34F1176	452-4	outside caliper	B	4"	8.52
34F1177	452-6	outside caliper	B	6"	9.76
34F1179	454-6	inside caliper	C	6"	9.76

16

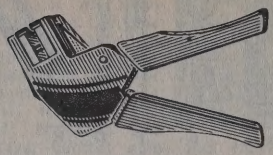
PALADIN The Wire Handlers

SELF ADJUSTING STRIPPER



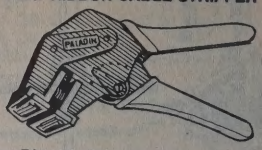
Type PA1100. Strips 12 to 30 AWG wire in one step. Built-in sensor automatically adjusts to cut and strip solid or stranded wire and multiple cable. Feeds from the front so it can reach anywhere. Stainless steel blades good for over 100,000 operations. Pocket-size capable of cutting and stripping up to six conductors simultaneously in bonded or molded cables. Fiberglass, reinforced nylon body is virtually indestructable and electrically insulated.
10F 7010 Net 42.95
Type PA2101. Replacement blades.
10F 7013 NET 14.25
Type PA2103. Wire brush for above.
10F 7014 NET 1.38

FLAT RIBBON STRIPPER



Type PA1120. Strips up to 32 conductors at one time on bonded, laminated or twisted pair conductor flat cable. 26 to 16 ga. wire. Stamped steel body. Strip length adjustable to .5".
10F 7011 **NET** **129.95**
Type PA2105. Replacement blades for 1120.
10F 7024 **NET** **6.50**
Type PA1810. Same as PA1120, strips up to 64 conductors.
10F 7015 **NET** **55.95**
Type PA2802 Replacement blades for 1810.
10F 7017 **NET** **8.50**
Type PA2801. Replacement anvil for 1810.
10F 7016 **NET** **10.00**

FLAT RIBBON CABLE STRIPPER

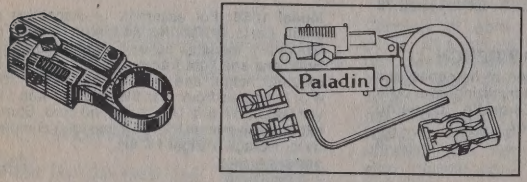


Type PA1121. Strips cable for on-board soldering or connector termination. These tools strip up to 32 conductors of bonded, laminated or twisted pair conductor flat cable-a major advance in flat cable preparation technology, both in function and versatility. Two varieties of the tool are available. The PA1120 strips the insulation completely off the cable while the PA1121 strips the insulation back, but does not remove it, thus preserving the centerline spacing. No other flat ribbon cable stripper on the market today can equal the quality or cost effectiveness that this tool delivers.
Maintenance/Repair Kit for Both Tools: PA2105
81F 2490 NET 159.00

CABLE TY GUN

Type PA1825. Paladin's new Cable Ty Gun gives the user high quality at a truly economical price. The Ty Gun tensions the ty's and cuts them cleanly without leaving ragged edges. The tension adjustment gives great flexibility in selecting bundling pressure while keeping operator fatigue to a minimum.
81F 2491 NET 52.50

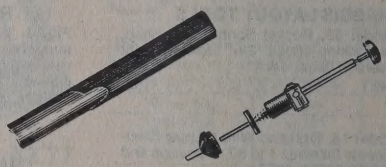
COREX COAXIAL WIRE STRIPPER



Two bladed (types 1204, 1208) or three bladed (type 1209) coax tool designed for solder and crimp type connectors. Removes dialectric, braid, and outside insulation, either simultaneously, separately, or in any combination of both. Strips all coaxial wire with O.D. of .14" to .30", including RG58, RG59, RG142, RG122, RG174, 8281, and Western Electric or IBM cable. Removable cassette blades are rated up to 5,000 strips. Tool holds cable in place while making a series of consistent, 360° turns, which cuts quickly and smoothly.
Type PA1204. Two blades, designed for crimp or solder connectors. Cuts braid and dialectric same length, which extends .26" from outside insulation after its use.
10F 7019 NET 34.95
Type PA1208. Same as PA1204, except braid and dialectric extends .48" from outside insulation after its use.
10F 7020 NET 34.95

Type PA1209. Three bladed version designed primarily for crimp type connectors. Cuts braid and dialectric to different lengths, in one operation. Braid extends .27" and dialectric extends .42" from outside insulation after its use.
10F 7021 NET 42.95

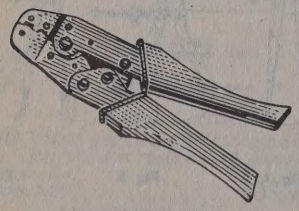
DESOLDERING TOOLS



Compact hand-held unit designed with quality, versatility and performance in mind. Sturdy metal body resists cracking or breakage. Teflon tips are made of a heavily reinforced material to withstand more desoldering operations. The all metal internal vacuum system is industrially tough and will give excellent performance throughout its long life. A unique spring action allows the plunger seal to "float" on top of solder debris thus preserving the full vacuum force at all times.
Type PA1700. Desoldering tool with standard tip.
10F 7022 NET 16.95
Type PA1701. Desoldering tool with miniature tip.
10F 7023 NET 16.95
Type PA2712. Standard replacement tip.
10F 7000 NET 2.48
Type PA2714. Miniature replacement tip.
10F 7001 NET 2.75
Type PA1704. Desoldering tool—anti-static with standard tip.
81F 2488 NET 19.95
Type PA2716. Replacement desoldering tool tip for PA 1704—anti-static tool.
81F 2489 NET 4.95

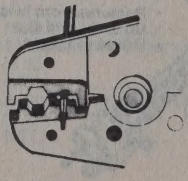
16

CRIMPEX CRIMPER



Double-action hand tools crimp insulated terminals and splices. Accepts a wide variety of connectors. Over 50,000 operations. Terminals which it will accept include 3M, T & B, AMP, Hollingsworth, Burndy, and Ideal. Choice of handle size and crimping capability.
Type PA1300. Hand ratcheted crimper. 22-10 ga. Length 9".
10F 7002 NET 49.95
Type PA1601. Smaller version of PA1300. Length 7½". 22-14 ga.
10F 7003 NET 49.95

CRIMPEX FOR BNC CONNECTORS



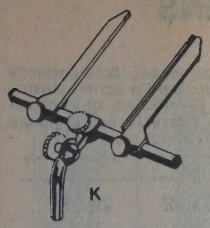
Type PA1610. Mini crimper type PA1601, with RG-58 dies for BNC connectors. Crimps pin and ferrule in two easy steps.
10F 7004 NET 112.95

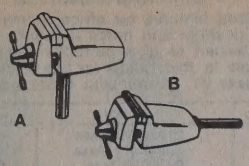
Type PA1615. Mini crimper, PA1601, with RG-59 dies for BNC connectors.
10F 7005 NET 112.95
Type PA1616. Mini crimper. PA1601, with RG-174 dies for BNC connectors. For use on Amphenol #31-242 or Trompeter #PL220-003 connectors.
10F 7006 NET 112.95

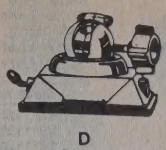
COAX TERMINATION KIT

COAX TERMINATION KIT
Lightweight kit designed primarily for field use. Includes the ratcheted crimp tool with replaceable dies, and the coax wire stripper. Gives constant quality connections.
Type PA4000. RG-58 coax termination kit. Includes crimper model PA1610, and coax stripper model PA1209.
10F 7007 NET 154.95
Type PA4001. RG-59 coax termination kit, includes crimper model PA1615, and coax stripper model PA1209.
10F 7008 NET 154.95

Panavise Handling Devices







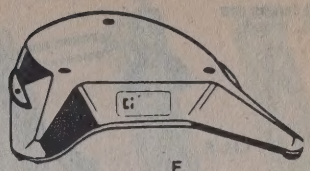


Fig. A model 303 standard PANA-VISE head vertically mounts to all 300 bases and features 2½" wide nylon faced jaws which open 2¼" holding objects firmly yet gently. Exceptional quality & strength.
75F019 model 303 ..... $16.95

Fig. B model 304 LOW PROFILE HEAD has the same features as the standard head except the stem is cast into the rear of the head for the away from the work bench jobs when mounted in the LOW-PROFILE base.
81F1160 model 304 ..... $18.95

Fig. C model 300 standard Pana-Vise BASE holds all regular 300 series heads and PCB holders. Exclusive split ball feature permits the location of work to any position. Rotates turns and tilts by the securing of a single knob. Three base mounting holes in the lugs is adaptable to Pana-Vise mounts or permanent mounting.
75F016 model 300 ..... $13.95

Fig. D VACUUM BASE attaches to any clean non-porous surface with it's heavy duty suction pad. Same multi position split ball feature as the standard base. All 300 series heads mount in this base.
75F018 model 380 ..... $21.95

Model 301 STANDARD PANA-VISE combines popular head 303 & base 300
75F017 ..... $29.95

Nylon faced jaws. model 343.
75F016 ..... $2.00

VACUUM BASE PANAVISE. model 381 combines model 303 & model 380
75F032 ..... $37.95

Fig. F model 308 WEIGHTED BASE MOUNT: 5 lbs. mount for all 300 series bases is compact and keeps stability. Equipt with four non-skid neoprene feet. Tapped in holes for permanent mounting.
75F020 ..... $16.75

Model 809 combo consists of the 308 mount, the 305 LOW-PROFILE BASE which is the same as the standard base but is only 2½" in height, and the 366 WIDE OPENING VISE that opens to 6" with 1¾" wide jaws. The steel jaws have reversible neoprene pads that are ribbed on side and have a wide "V" on the other for cylindrical and delicate objects.
75F024 Model 809 ..... $50.65

Model 808 combo consists of the LOW-PROFILE BASE, the WEIGHTED BASE MOUNT and the 376 SELF CENTERING EXTRA WIDE OPENING HEAD that double action jaws allow fast operation and stays centered on the base for heavier objects. This head opens to 9" and features the same reversible pads as the 366 Wide Opening Vise.
75F023 model 808 ..... $49.60

Model 376 SELF CENTERING EXTRA WIDE OPENING HEAD. (vise only)
75F031 ..... $20.95

Model 810 combo of the 300 STANDARD BASE and 315 PCB HOLDER that opens to 12" puts boards where you want them. These 6" aluminum arms hold boards up to 5/32" thick. Featuring a special "V" grip groove with adjustable spring tension equalising the pressure right to end of the arms even holding exceptionally small parts.
75F021 model 810. ..... $33.90

Model 811 combo same as the 810 combo with the WEIGHTED BASE MOUNT 308 for PCB work.
75F025 model 811. ..... $50.65

Fig. K model 315 CIRCUIT BOARD HOLDER combo.
75F022 ..... $19.95

Model 333 RAPID ASSEMBLY CIRCUIT BOARD HOLDER. This circuit board holder features an 8 position rotating adjustment and six position feature in the vertical plane. Crossbars are available up to 30 inches in length to hold circuit boards up to 28 in. in width. Extra arms can be added for dual or multiple assembly. Same spring loaded feature in the arms as the 315 model.
75F028 model 333 ..... $39.95

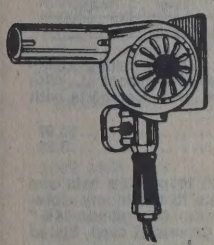
Model 324 ELECTRONIC WORK CENTER FEATURES the model 315 PCB Holder, the 300 standard Base and the model 312 TRAY BASE MOUNT with a SOLDER STATION model 371 to hold solder spool and coil solderpencil holder.
75F027 ..... $49.95

Model 312 BASE TRAY MOUNT (only) a low cast metal mount for all 300 series bases has six individual trays for neatly organizing small parts and tools or should a part drop the 8½" dia. tray will catch it.
75F026 ..... $13.95

Model 350 MULTI-PURPOSE WORK CENTER features a combination of the 312 BASE TRAY MOUNT the model 376 SELF CENTERING EXTRA WIDE HEAD and the model 300 STANDARD BASE.
75F030 model 350 ..... $44.95

MASTER APPLIANCE

AIR HEAT GUN



Sturdy die-cast aluminum housing. 8 ft. neoprene-jacketed 3-wire cord and plug that is oil and grease resistant. Turbo type fan blade is efficient and quiet in operation. All models for 115VA.C. or D.C. operation. Equipped with adaptor for 2 prong receptable. Shipping wt. 5 lbs.

Stk. No.	Model	Amp	Temp F	Net Each
37F1442	HG201	5	200/300	73.40
37F1437	HG301	12	300/500	73.40
37F415	HG501	14	500/750	73.40
37F422	HG751	20	750/1000	79.60

- Adjustable Air Intake
- Double-Jacketed heater housing

ELEMENT KITS

Incl. 1 element, 1 mica insulation, 2 element lead nuts, 1 element anchoring screw, 1 mounting washer, 1 nozzle screen, 1 screen retaining ring.

HAS-017K. For HG201.
37F1767. NET 7.80
HAS-018K. For HG301.
37F1769. NET 7.80
HAS-011K. For HG501.
37F1772. NET 8.95
HAS-015K. For HG751.
37F1774. ..... 8.95

- Air-cooled barrel
- High-impact housing
- Shaded pole motor

MASTER-MITE™ HEAT GUN

Model 10008 Air velocity 700 feet/minute, volume 3.8 CFM. Nozzle length 3⅞", nozzle opening 1" diameter. Motor 3300 RPM. 4.5 amps maximum power consumption. High-impact Noryl® housing. Brushless-type shaded pole motor for whisper-quiet operation. Air-cooled barrel, three-conductor grounded cord. Has color-coded anodized barrel, safety light and three-way trigger switch. Size 8⅞ inches long, 7 inches high. Cord length 7 feet. Wt. 1¾ pounds.
37F1450. NET 48.80

SPECIFY HEATING ELEMENT FOR ABOVE

Type 20012. Blue Nozzle. Temperature ½" from nozzle 500° F, power 340 watts.
37F2900. NET 10.15

Type 20013. Silver Nozzle. 475°F, 475 W.
37F2901. NET 10.15
Type 20014. Black Nozzle. 800°F, 525 W.
37F2902. NET 10.15

ATTACHMENTS

Stock No.	Type	Figure	Description	Net
37F427	A-206-HG	L	¼" Pin Point Cone.	15.50
37F425	A-160-HG	Q	Baffle for tubing up to ¾" O.D.	7.05
37F426	A-170-HG	N	Baffle for tubing ¾" to 2" O.D.	7.05
37F428	A-203-HG	P	Extra wide baffle for tubing up to ¾" O.D.	19.95
37F429	A-205-HG	M	Baffle for tubing up to 1¾" O.D.	12.15

ALLOVER HEAT GUN

Model 1000. Features Perforated cool touch heat shield. Elements wound on solid mica forms to resist breakage. Three quickly replaced heating elements. Built in stand. Impact resistant housing. Turbofan design delivers 21 cfm at 2700 fpm. Thermal cutout. ON-COOL-HOT rocker switch 3-wire grounded cordset. Weight 2.25 lbs.
81F1155 NET $89.50

VARI-TEMP

Model 1500. The ALL-OVER heat gun with optional temperature control t-at ranges from ambient to 650 F and higher with special attachments.
81F1156 NET $99.20

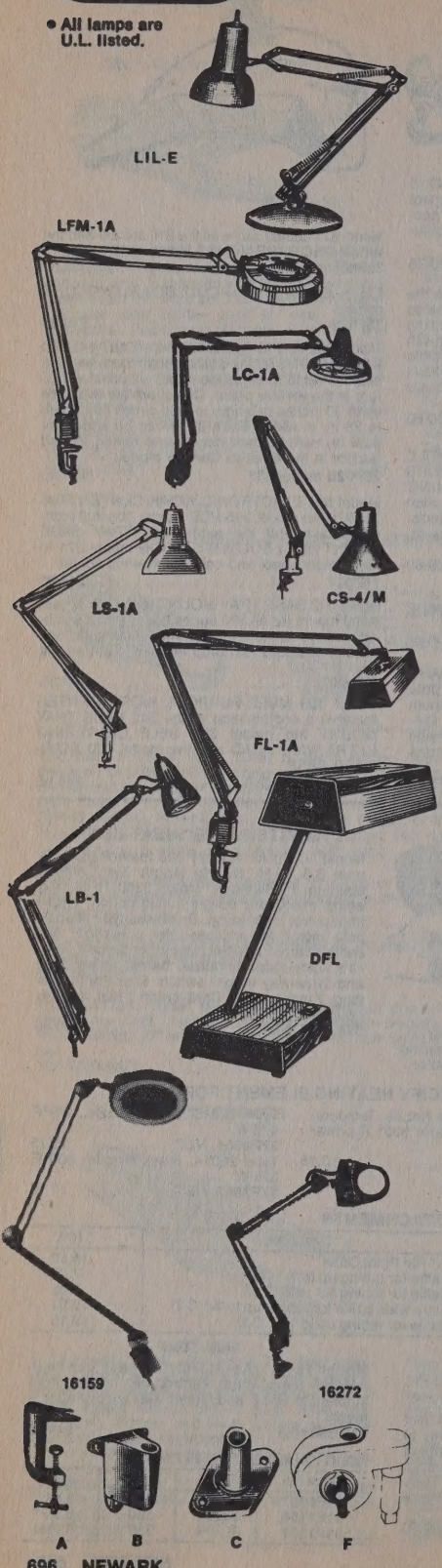
ADDITIONAL HEATING ELEMENTS

Stock No.	Type	Temp.	Net
81F1157	30230	650	8.95
81F1158	30231	500	8.95
81F1159	30299	350	8.95

16

Adjustable Lamps and Brackets

• All lamps are U.L. listed.



MINI-LUXO LIL-E

Built with precision-engineered features for office, home or school. Sets perfectly on a desk and glides into position and holds it thanks to flexible spring-tension balancing. Scientifically balanced to give perfectly even distribution of light exactly where it is needed. Unit is then ready for use where space is not available. Size: fully extended, 24"; Base 7". Comes with 40S11 bulb. Shpg. wt. 6 lbs.

Stock No.	Type	Color	1-5	6-Up
99F1127	LIL—E	Black with Base	33.32	29.97
99F1129	LIL—E	White with Base		
99F1128	LIL—E	Red with Base		
Stk. No.	**Type**	**Description**		
25F088	40S11—N	Replacement Bulb	2.53	

LUXO-O-LAMPS COMPLETE WITH BULBS AND TUBES
LFM-1A ILLUMINATED MAGNIFIERS

Large magnification, cool fluorescent light, and maneuverable. Lamps can be raised or lowered, tilted or turned to any direction. Sweep and movement same as All Angle Lamp L-1 listed below. 3 Diopter 5" ground glass lens. Dove Gray finish. Grounded line cord. With fluorescent tube and brackets below. Shpg. wt. 8 lbs.

Stock No.	Type	Description	1-5	6-Up
99F1100	LFM-1A	Illuminated Magnifier w/Bracket	83.34	74.97
99F1133	LFM-2/FE	Illuminated Magnifier w/Base 30" extension	105.35	94.77

ACCESSORIES FOR LFM MAGNIFIERS

Stock No.	Description	1-5	6-Up
99F1102	Lens attachmernt #1 adds 4 diopters for total of 7	16.64	14.97
99F1103	Lens attachment #2 adds 8 diopters for total of 11	18.64	16.77

25F189. Replacement circline tube. FC 8T 9CW/RS. **NET** 6.67

CS-4/M CROWNLITE 2

All metal construction for rugged maintenance-free use. Steel tubing, tempered steel springs and machined hardware assure long life. Flexible arm movement twists, turns, stretches—up, down, around to desired position. Supplied with a four-way bracket. Total ext. 36" Bulb: 60W incandescent (not included).

99F1130 Polar White. **NET** 17.31
99F1131 Black. **NET** 17.31
99F1132 Red. **NET** 17.31

LC-1A COMBO LAMP

Combines 60 W incandescent with 22 W fluorescent for balance of light, close to daylight quality. 300 ft. candles at 12 in.; 2 arms make 45" extension. Famous Luxo spring balance. Styled in dove gray. Complete with grounded line cord, 22WT-9 fluorescent tube and 60 watt bulb and bracket. Shpg. wt. 8 lbs.

99F1106. 1-5 ..... 63.33 **6-Up** 56.97

LS-1A ALL ANGLE LAMP

Tubular steel fixture raises, lowers, tilts, traverses, and turns in 45" radius, 360° sweep. 60 watt incandescent bulb, dual cool shade for greater light output and cool operation. With bulb, brackets and grounded cord. Approved for 100 watts. Wt. 5 lbs.

Stock No.	Type	Description	1-5	6-Up
99F1108	LS-1/A	All Angle Lamp	86.68	77.97

FL-1A FLUORESCENT LAMP

All angle/all purpose lamp with "feather touch" positioning. Unique spring extension arm and 360° sweep. 19" x 4" shade for excellent reflecting control. With fluorescent tubes, bracket and grounded cord. Styled in dove grey. Complete with 2—F15T8 fluorescent tubes. Shipping weight 9 lbs.

99F1107. 1-5 ..... 63.33 **6-Up** 56.97
25F168. Type F15T8/CW6 Replacement Bulb. **NET** 3.58

LB-1A MACHINE TOOL LAMP

Designed for use in shops where work area must be well lit to provide safe and efficient operation. The lamp arm will not change position due to machinery vibration because of spring-balanced construction. Inner reflector for cool shade. 4½" dia.; 2 extension arms for 45" reach. With bulb, bracket and grounded cord. Styled in dove grey. Shipping weight 5 lbs

99F1111. 1-5 ..... 41.99 **6-Up** 62.95

DFL DESK LAMP

Pre-angled light shield and two 15 watt fluorescent tubes are incorporated into a contemporary lamp design. Long lasting black baked enamel and woodgrain vinyl finish add to the elegance of the design. Has weighted base for stability with separate instant on-off switch. Rubber pads for surface protection. Warranted against defective parts and workmanship. Size: 15.62" high x 18.75" wide.

99F1101. 1-5. ..... 39.99 **6-Up.** 35.97

MAGNA-LUX MAGNIFIER

Economy multi-purpose magnifier with a 39" arm reach. 40-watt incandescent bulb and 4", 3-diopter lens incuded. Lamp also comes with a standard two-conductor cord set and 4-way mounting bracket.

Stock No.	Type	Description	1-5	6-Up
81F1169	16272	Black Plastic Const.	26.65	23.97

EXHAUST FAN LAMP

Model 16159 comes on a 45" adjustable heavy duty K-arm. Separate switches for fan and lamp. 3-bladed fan delivers 100 CFM @ 2900 rpm. Equipped with 3 conductor cord, FC8T9/CW 22 watt fluorescent tube and a clamp for mounting to horizontal surfaces.

81F9075	16159	Gray	100.02	89.97

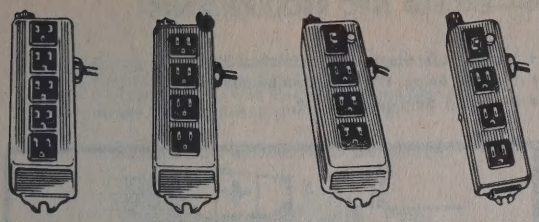
ACCESSORY BRACKETS

Type A. Clamps to level surface. 2¼" maximum. Shipping Weight ½ lb.
99F1112. 1-5 ..... 3.97 **6-Up** 3.57
Type B. Screws to vertical surface. Shipping weight, ½ lb.
99F1113. 1-5 ..... 3.97 **6-Up** 3.57
Type C. Screws to level surface. Shipping weight, ½ lb.
99F1114. 1-5 ..... 3.97 **6-Up** 3.57
Type F. F adaptor For mounting to slanted surface (drawing board). Wt. 1 lb.
99F1116. 1-5 ..... 4.64 **6-Up** 4.17

Power Outlet Boxes

SPC technology

SERIES 0800

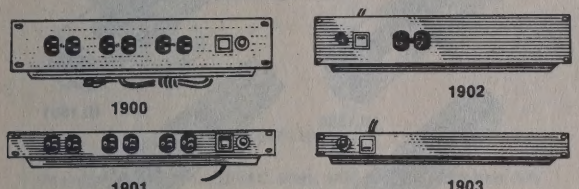


0800 0801 0802 0803

Specifictions

- Size: 8¾"L x 2⅜"W x 1½"H
- Case length (excluding mounting tabs): 7 7/16"
- Mounting: 8¼" centers
- Protection circuit breaker or fuse (except 0800)
- Power supply cord: 16/3 HPN, molded plug
- Maximum rating: 15A, 125VAC, 60Hz, 1875 Watts, continuous duty.
- Outlets: "U" grounded
- Seamless steel case with bake-on finish (gray)
- Components color: black
- Nominal shipping weight: 6 ft. cords—1½ lb., 15 ft. cords—2 lbs.

SERIES 1900



1900 1902 1901 1903

Specifications

- Max. rating: 15A, 125VAC, 60Hz, 1875 Watts, cont. duty
- Outlets: 6 "U" ground (3 duplexes)
- Case: fabricated steel with black cover, gray baked-on finish
- Combination master switch and pilot light on front panel
- Power supply cord: 16/3 HPN with molded plug
- Protection: circuit breaker
- Component colors: master switch, white; outlets and power supply cord, black

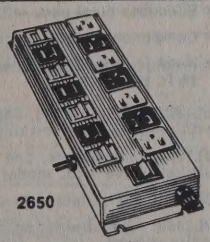
Dimensions

1900 AND 1902
- Front panel: 19"L x 3 15/32"W
- Back cover: 17"L x 3 11/32"W
- Mounting centers: 18¼" x 3"

1901 AND 1903
- Front panel: 19"L x 1 23/32"W
- Back cover: 17"L x 1 19/32"W
- Mounting Centers: 18¼" x 1¼"

SERIES 2600

2600

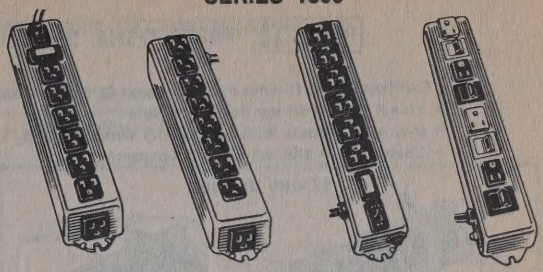


2650

Specifications

- Case size: 13 7/16"L x 4¼"W x 1½"H (Excluding mounting tabs, case length—12 7/16")
- Mounting: four slots, centers—13⅛" x 2⅞"
- Power supply cord: 16/3 HPN, molded plug
- Maximum rating: 15A, 125VAC, 60Hz, 1875 Watts continuous duty
- Protection: all have circuit breakers
- Fabricated steel case with baked-on finish (gray)
- Component colors: black except where noted on chart
- Nominal Shipping Wt.: 6 ft. cords—3 lbs., 15 ft. cords—3½ lbs.

SERIES 1300



1300 1301 1303 1350

Specifications

- Size: 13⅛"L x 2⅜"W x 1½"H
- Case length (excluding mounting tabs): 11 13/16"
- Mounting: 12¾"centers
- Protection: circuit breaker or fuse (except 1301)
- Power supply cords: 16/3 HPN, molded plug
- Maximum rating: 15A, 125VAC, 60Hz, 1875 Watts, continuous duty
- Outlets "U" ground
- Seamless steel case with baked-on finish (gray)
- Component colors: black (1350 alternating black and white)
- Nominal unit shipping weights: 6 ft. cords—2 lbs., 15 ft cords—2½ lbs.

- "U" GROUND OUTLETS HAVE ELECTRICAL WIRED GROUND
- FINEST QUALITY HEAVY DUTY CORD-SET
- GRAY FINISHED, STURDY STEEL CASES
- RATED 15 AMPERES, 125 VOLTS
- PRE-WIRED AND READY FOR USE

Stk. No.	Type	Outlets No.	Outlets Style	Protection	Control	Cord Lgth.	EACH
60N2420	0800-XS	5	U-GRD	—	—	6'	13.60
60N2421	0800-XF	5	U-GRD	—	—	15'	16.60
60N2422	0801-FS	4	U-GRD	Fuse	—	6'	16.65
60N2443	0801-FF	4	U-GRD	Fuse	—	15'	19.65
60N2444	0801-BS	4	U-GRD	C.B.	—	6'	17.50
60N2445	0801-BF	4	U-GRD	C.B.	—	15'	20.50
60N2448	0802-BS	3	U-GRD	C.B.	LR	6'	20.15
60N2449	0802-BF	3	U-GRD	C.B.	LR	15'	23.12
60N2498	0803-BS	4*	U-GRD	C.B.	LR	6'	21.75
60N2499	0803-BF	4*	U-GRD	C.B.	LR	15'	24.75
60N2407	1300-FS	7*	U-GRD	Fuse	R-P	6'	28.25
60N2408	1300-FF	7*	U-GRD	Fuse	R-P	15'	31.25
60N2440	1300-BS	7*	U-GRD	C.B.	R-P	6'	29.05
60N2409	1300-BF	7*	U-GRD	C.B.	R-P	15'	32.05
60N2410	1301-XS	9*	U-GRD	—	—	6'	20.75
60N2411	1301-XF	9*	U-GRD	—	—	15'	23.75
60N2400	1303-FS	6	U-GRD	Fuse	R-P	6'	25.65
60N2438	1303-FF	6	U-GRD	Fuse	R-P	15'	28.65
60N24-1	1303-BS	6	U-GRD	C.B.	R-P	6'	26.40
60N2439	1303-BF	6	U-GRD	C.B.	R-P	15'	29.40
60N2453	1350-BF	4	U-GRD	C.B.	Ir-1	15'	41.75
60N2432	1900-BS	6	U-GRD	C.B.	LR	6'	43.25
60N2491	1900-BF	6	U-GRD	C.B.	LR	15'	46.25
60N2578	1901-BS	6	U-GRD	C.B.	LR	6'	40.90
60N2493	1902-BF	6	U-GRD	C.B.	LR	15"	48.40
60N2580	1903-BS	6	U-GRD	C.B.	LR	6'	43.25
60N2581	1903-BF	6	U-GRD	C.B.	LR	15"	46.25
60N2459	2600-BS	10	U-GRD	C.B.	LR	6'	38.75
60N2430	2600-BF	10	U-GRD	C.B.	LR	15'	41.75
60N2465	2650-BS	8	U-GRD	C.B.	LR-1	6'	64.40
60N2457	2650-BF	7	U-GRD	C.B.	LR-1	15'	67.40

* = 1 Outlet on end of box
R = Rocker on-off switch
LR = Lighted rocker switch
P = Pilot light
I = Individual switch for each outlet

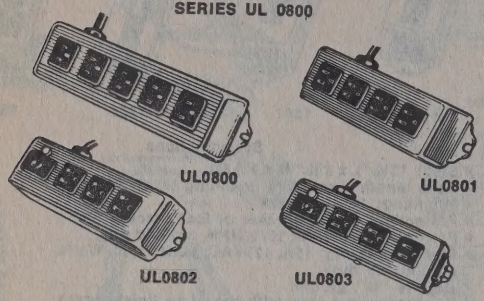
16

Temporary Power Taps

UL LISTED MEET OSHA STANDARDS—EXCEED NEC REQUIREMENTS

- Furnished With 15 Amp Push-To-Reset Circuit Breakers
- Finest Quality Heavy Duty Cord-Sets
- U-Ground Outlets With Electrically Wired Ground
- Unique cross slot mounting arrangement
- Housings Of Sturdy, Blue Finished Steel
- Rated 15 Amps, 125 Volts Continuous Duty
- Mounting Screws Provided

SERIES UL 0800



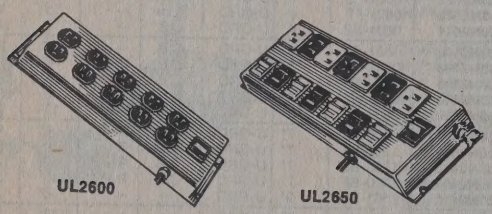
SPECIFICATIONS

- Size 8½"L x 2⅜"W x 1½"H
- Case length (excluding mounting tabs): 7 7/16"
- Mounting 5 3/16 centers
- Protection: all have circuit breakers
- Power supply cord: 14/3 SJT, molded plug
- Maximum rating: 15A, 125VAC, 60 Hz, 1875 Watts, continuous duty
- Outlets: "U" ground
- Seamless steel case with baked-on finish (Blue)
- Components color black
- Nominal unit shipping weights: 6 ft. cords—2 lbs. 15 ft. cords—2½ lbs.

UL0800: Five outlets only. **UL0801:** Four outlets only.
UL0802: Three outlets with lighted rocker switch.
UL0803: Four outlets, one on end of box for series string wiring, with lighted rocker switch.

Stock No.	Type	Cord	Each
60N2582	UL0800-BS	6'	20.65
60N2583	UL0800-BF	15'	24.00
60N2584	UL0801-BS	6'	19.60
60N2585	UL0801-BF	15'	22.90
60N2586	UL0802-BS	6'	22.25
60N2587	UL0802-BF	15'	25.55
60N2588	UL0803-BS	6'	23.90
60N2589	UL0803-BF	15'	27.25

SERIES UL 2600



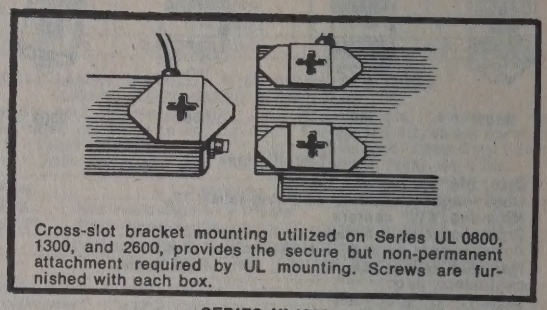
SPECIFICATIONS

- Case size: 13 7/16"L x 4¼"W x 1½"H (Excluding mounting tabs, case length—12 7/16")
- Mounting: four Keyhole-slot brackets, centers—10 1/16" x 2¾"
- Power supply cord: 14/3 SJT, molded plug
- Maximum rating: 15A, 125VAC, 60Hz, 1875 Watts, continuous duty
- Protection: all have circuit breakers
- Fabricated steel case with baked-on finish (Blue)
- Component colors: black except where noted

UL2600. Five duplex outlets (a total of 10) with lighted rocket switch.

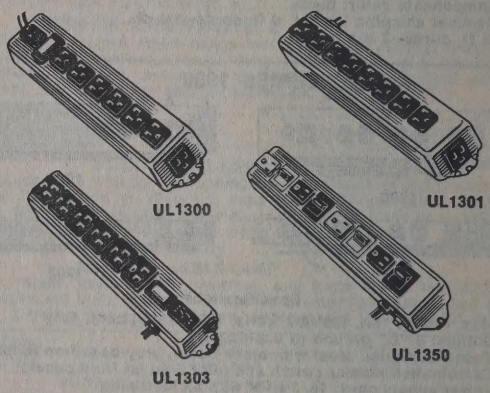
UL2650. Seven alternating black and white lighted rocker switch-outlet groups plus master lighted rocker switch control.

Stock No.	Type	Cord	Each
60N2600	UL2600-BS	6'	41.05
60N2601	UL2600-BF	15'	44.40
60N2602	UL2650-BS	6'	66.40
60N2603	UL2650-BF	15'	69.70



Cross-slot bracket mounting utilized on Series UL 0800, 1300, and 2600, provides the secure but non-permanent attachment required by UL mounting. Screws are furnished with each box.

SERIES UL1300



SPECIFICATIONS

- Size: 13⅛"L x 2⅜"W x 1½"H
- Case length (excluding mounting tabs): 11 15/16"
- Mounting: 10⅜"centers
- Protection: circuit breaker
- Power supply cords: 14/3 SJT, molded plug
- Maximum rating 15A, 125VAC, 60Hz, 1875 Watts, continuous duty
- Outlets: "U" ground
- Seamless steel case with baked-on finish (Blue)
- Component colors: black (UL1350 alternating black and white)
- Nominal unit shipping weights: 6 ft. cords—2½ lbs., 15 ft. cords—3 lbs.

UL1300: seven outlets, one on end of box for series string wiring, with on-off switch and pilot light.

UL1301: nine outlets, one on end of box for series string wiring. Use as slave with model UL1300 as control.

UL1303: six outlets with on-off switch and pilot light.

UL1350: four alternating black and white lighted rocker switch-outlet groups.

Stock No.	Type	Cord	Each
60N2590	UL1300-BS	6'	30.30
60N2591	UL1300-BF	15'	33.65
60N2592	UL131-BS	6'	28.55
60N2593	UL1301-BF	15'	31.90
60N2594	UL1303-BS	6'	28.15
60N2595	UL1303-BF	15'	31.50
60N2598	UL1350-BS	6'	44.75
60N2599	UL1350-BF	15'	44.05

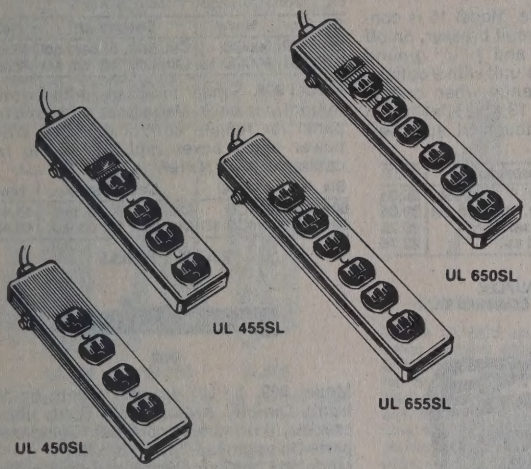
Temporary Power Taps

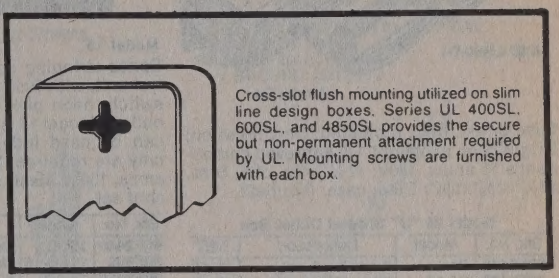
SPC technology

UL LISTED **MEET OSHA STANDARDS—EXCEED NEC REQUIREMENTS**

- Furnished With 15 Amp Push-To-Reset Circuit Breakers
- Finest Quality Heavy Duty Cord-Sets
- U-Ground Outlets With Electrically Wired Ground
- Unique Cross Slot Mounting Arrangement
- Housings Of Sturdy Steel
- Rated 15 Amps, 125 Volts Continuous Duty
- Mounting Screws Provided

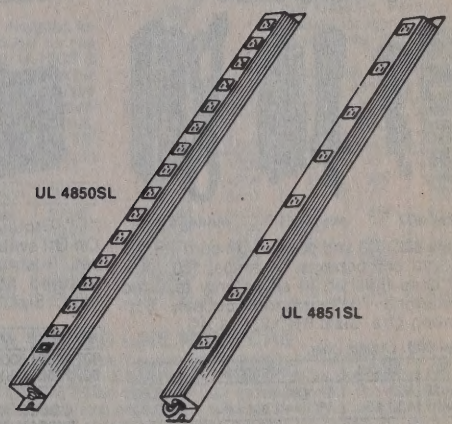
SERIES UL 450SL AND UL 650SL





Cross-slot flush mounting utilized on slim line design boxes. Series UL 400SL, 600SL, and 4850SL provides the secure but non-permanent attachment required by UL. Mounting screws are furnished with each box.

SERIES UL 4850SL



Specifications

- All have circuit breakers
- Maximum rating: 15A, 125VAC, 60Hz, 1875 Watts, continuous duty
- Outlets: "U" ground duplex, beige color
- Seamless steel case with baked-on beige finish
- Power supply cord: 14/3 SJT, molded plug, beige color
- Keyhole-slot flush mounting
- Nominal unit shipping weights: 6 ft. cords — 2 lbs., 15 ft. cords — 2½ lbs.
- Switched models have a beige switch housing with amber pilot light

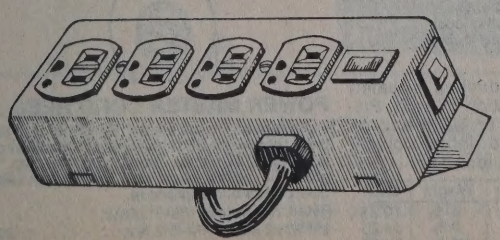
Series	Dimensions Length	Dimensions Width	Dimensions Height	Mounting Centers
UL 450SL	9 1/4"	2 3/8"	1"	8 1/4"
UL 650SL	12"	2 3/8"	1"	10 15/16"

SERIES UL 450SL

Stock No.	Type UL-	No. of Outlets	Master Switch w/Pilot Light	Cord Lgth. (ft.)	Each
79N726	450SL-BS	4	—	6	20.75
79N727	450SL-BF	4	—	15	24.05
79N728	455SL-BS	4	Yes	6	24.55
79N729	455SL-BF	4	Yes	15	27.90

SERIES UL 650SL

Stock No.	Type UL-	No. of Outlets	Master Switch w/Pilot Light	Cord Lgth. (ft.)	Each
79N730	650SL-BS	6	—	6	26.00
79N731	650SL-BF	6	—	15	29.30
79N732	655SL-BS	6	Yes	6	29.80
79N733	655SL-BF	6	Yes	15	33.15



Specifications

- Size: 49 1/16" L x 1½"W x 1 3/16"H
- Case length: 48" (excluding mounting tabs)
- Mounting: 46 15/16" centers
- Protection: circuit breaker
- Power supply cord: 14/3 SJT with molded plug
- Outlets: "U" ground
- Maximum rating: 15A, 125VAC, 60Hz, 1875 Watts, continuous duty
- Components color: black
- Nominal shipping weights: 6 ft. cord — 4½ lbs., 15 ft. cord — 5¼ lbs.
- All units have master switch with pilot light

Stock No.	Type UL-	No. of Outlets	Cord Lgth. (ft.)	Each
79N734	4850SL-BS	15	6	55.05
79N735	4850SL-BF	15	15	59.40
79N736	4851SL-BS	8	6	47.75
79N737	4851SL-BF	8	15	44.40

HOSPITAL GRADE OUTLET STRIPS

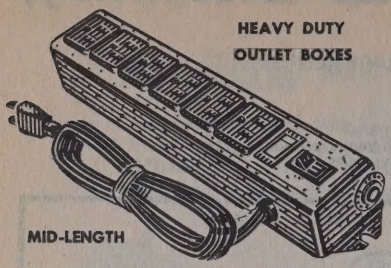
- Case color: White
- White SJT 14/3 cords sets with hospital grade plug.
- Hospital grade duplexes 2 each
- 8⅝" x 2 3/8" x 1½" case
- Circuit breaker protection
- Cross slot bracket mounting
- No switch
- Mounting centers 5 13/16"

Stock No.	Type	W/pilot	Cord lgth.	Each
81N9236	HG-0851-BS	yes	6'	73.60
81N9237	HG-0850-BS	no	6'	69.95
81N9238	HG-0851-BF	yes	15'	78.85
81N9239	HG-0850-BF	no	15'	76.95

16

SGL WABER Electric OUTLET BOXES

HEAVY DUTY OUTLET BOXES



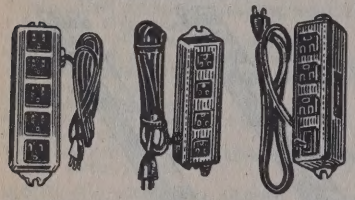
Model 24

Fuse or ckt. brkr. protected; On-Off switch; Bright neon pilot light; UL approved component's 15 amps, 130V; 12¾" mtg. ctrs; Size, 13⅛"x2⅜"x1⅝"; Steel case. 6 outlets.

Model 24 "U" Ground Outlet Box

Stk. No.	Model	Description	NET
60F2400	24	fuse, 6' cd. set	25.65
60F2438	24-15	fuse, 15' cd. set	28.65
60F2401	24CB	ckt. bkr., 6' cd. set	26.40
60F2439	24CB-15	ckt. bkr., 15' cd. set	29.40

"U" GROUND OUTLETS



Model 602 Model 603 Model 605

Models 602, 603 and 605. Tough cord set. UL approved components. 15 amps, 130 volts. Steel case finished in silver gray textured hammertone "U" ground outlets. 8¼" mounting ctrs. Size: 8⅝"x2⅜"x1½".

Model 602: Outlets only.

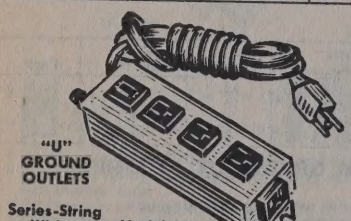
Stk. No.	Model	Description	NET
60F2420	602	6' cord set	13.60
60F2421	402-15	15' cord set	16.60

Model 603. Fuse or Circuit breaker

60F2422	603	Fuse 6' cord set	16.65
60F2443	603-15	Fuse 15' cord set	19.65
60F2444	603CB	Ckt. brkr., 6' cord set	17.50
60F2445	603CB-15	Ckt. brkr. 15' cd. set	20.50

Model 605. Pilot light, On-Off switch, Fuse or circuit breaker.

Stk. No.	Model	Description	NET
60F2448	605CB	Ckt. brkr. 6' cd. set	20.15
60F2449	605CB-15	Ckt. brkr. 15' cd. set	23.15

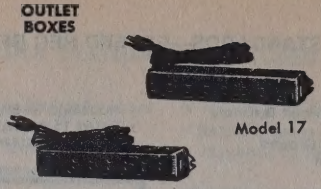


Model 608

Series 608. 4 "U" ground outlets, pilot light, on/off switch, fuse or circuit breaker, outlet on one end for series string wiring. Cord. 15A, 130V. UL listed components. 8¼" mtg. centers. Size: 8⅝"x2⅜"x1½". Ship. wt. 2 lbs. 6' cord; 3 lbs. 15' cord.

Stk. No.	Model	Description	NET
60F2498	608CB	Ckt. brkr. 6' cord	21.75
60F2499	608CB-15	Ckt. bkr. 15' cord	24.75

OUTLET BOXES



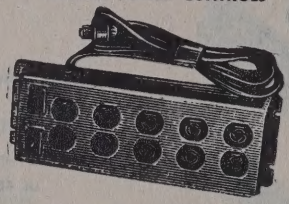
Model 17

Model 15

Series stringing possible. Model 15 is control unit, with fuse or circuit breaker, on-off switch, neon pilot light and 7 "U" ground outlets. Model 17 is slave unit with 9 outlets; can be used independently when outlets only are required. Size: 13⅛"x2⅜"x1⅝"; 15 amps, 130V. Steel case, tough UL approved cord set.

Stk. No.	Model	Description	NET
60F2440	15CB	ckt. brkr. 6' cord set	29.05
60F409	15CB-15	ckt. brkr. 15' cord set	32.05
60F2410	17	6' cord set	20.75
60F2411	17-15	15' cord set	23.75

800 SERIES DUPLEX MASTER POWER CONTROLS



"U" Ground outlets. 13⅛x2⅞" mtg. ctrs.; On-Off switch; 15 amps, 130 volts. HPN cord set. Push-to-reset ckt. bkr; steel case of textured hammertone; bright neon pilot light. Size: 13⅜"x4⅛"x 1½".

Stk. No.	Model	Description	NET
60F2430	800CB-15	Ckt. brkr. 15' cd. set	41.75
60F2459	800CB	Ckt. brkr. 6' cord set	38.75

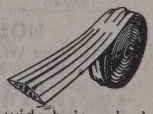
COLOR CODED SWITCH-OUTLET BOXES

Model 30 Model 32

Four color keyed switch-outlet groups. Models available with panel mounted fuse or circuit breaker. Model 32 is the "U" ground type with a choice of six or fifteen foot Waber high quality UL approved cord-set.

Model 32P. "U" Ground Type Ind. Pilot Lights.

Stk. No.	Model	Description	NET
60F2452	32PCB	Ckt. brkr. 6' cd. set	38.75
60F2453	32PCB-15	Ckt. brkr. 15' cd. set	41.75



Cordgard Electrical Cord Ducting

3" wide beige vinyl cord ducting for safety from tripping and protection of cord. Pre-slit channel accepts up to 7/16" dia. cord. Double face adhesive and ribbed slots for no slippage, indoors or outdoors.

Stk. No.	Type	Length	Weight	Each
65F2470	G-6-BE	6'	4 lb.	10.95
65F2471	G-15-BE	15'	9 lb.	24.25
65F2472	G-50-BE	50'	29 lb.	74.95

RACK MOUNTS—MASTER POWER CONTROLS

Model 900

Model 900. "U" ground outlets controlled by an on-off switch, pilot light, and ckt. bkr. UL Listed cord set. Size 3½"x19".

Stk. No.	Model	Description	Net
60F2432	900CB	Ckt. brkr. 6' cord set	43.25
60F2491	900CB-15	Ckt. brkr. 15' cd. set	46.25

Model 904. Similar to 900 but with 2 outlets in front, 4 in back. Made to be mtd. on a rack panel for remote control of other Waber power outlet boxes mtd. inside the rack cabinet. Size, 3½x19".

Stk. No.	Model	Description	Net
60F2492	904CB	Ckt. Bkr. 6' cd. set	45.40
60F2493	904CB-15	Ckt. Bkr. 15' cd. set	48.40

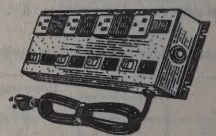
RACK PANELS

903

Model 903. 6 "U" ground outlets (in the front) "on/off" switch, pilot light, circuit breaker, 6 or 15-foot cord set. Component parts UL approved. Size: 1¾"x19".
Model 911 has same features except outlets are in back. (6-foot cord, or 15-foot cord.)

Stock No.	Type	Description	Net
60F2578	903CB	Circuit Brk.	40.90
60F2579	903CB-15	Circuit Brk.	43.90
60F2580	911CB	Circuit Brk.	43.25
60F2561	911CB-15	Circuit Brk.	46.25

DELUXE COLOR CODED POWER CONTROL CENTER OUTLET BOXES



MODEL 25. Features individual control, and master control. Seven outlets can be individually switched. UL listed cord set. "U" ground outlets. Model 25P features built-in pilot lights on all switches.

Stk. No.	Model	Description	Net
60F2441	25CB	Ckt. brkr. 6' cd. set	50.25
60F2442	25CB-15	Ckt. brkr. 15' cd. set	53.25
60F2456	25PCB	Ckt. brkr. 6' cd. set	64.40
60F2457	25PCB-15	Ckt. brkr. 15' cd. set	67.40

Model PM-252

POWER MASTER CORD REEL

UL approved Power Master CordReel is a compact, lightweight 25 ft heavy-duty extension cord in a case. The three prong plug and two "U"-grounded outlets allow safe, convenient use of power tools and appliances.
Rated 10A or less/125V/1250W.
81F9312 Model PM-252 Net 20.65

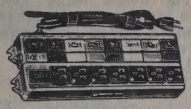
16

U.L. Listed Multiple-Outlet Strips SGL WABER Electric

SERIES 68 AC & DC—SPDT, DPDT, 3PDT RELAYS

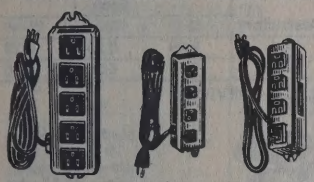
U.L. LISTED DELUXE OUTPUT STRIPS

UL800CB: 10 U grnd. outlets.
UL25CB: 7 switch outlet groups.
UL25PCB: Pilot lights on switches; otherwise same as UL25CB. 6' cord—3 lbs.; 15'—4 lbs.



Stk. No.	Type	Description	Each
79W344	UL25CB-6	6' line cord	48.40
79W348	UL25CB-15	15' line cord	51.65
79W352	UL25PCB-6	6' line cord	57.00
79W356	UL25PCB-15	15' line cord	60.25
79W360	UL800CB-6	6' line cord	36.05
79W364	UL800CB-15	15' line cord	39.30

U.L. LISTED COMPACT OUTLET STRIPS



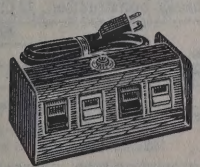
UL602 UL603 UL605

Compact outlet strips provide "U" ground type outlets and all are protected by circuit breakers. Model UL602CB has 5 outlets. Model UL603CB has 4 outlets. Model UL605CB has 3 outlets, on-off switch and pilot light. 6' cord—2 lbs.; 15' cord 2½ lbs. 8⅝" L x 2⅜"W x 1½"H.

Stk. No.	Type	Description	Each
61F1657	UL602CB-6	6' line cord	19.50
61F1652	UL602CB-15	15' line cord	22.75
61F1662	UL603CB-6	6' line cord	17.90
61F1654	UL603CB-15	15' line cord	21.15
61F1660	UL605CB-6	6' line cord	20.40
61F1656	UL605CB-15	15' line cord	23.65

U.L. LISTED DESK TOP CONSOLE OUTLETS

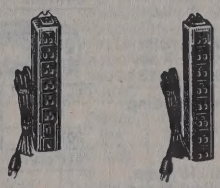
UL95CB: 4 outlets w/ pilot lights on switches. UL96CB: 6 outlets w/pilot lights on switches. UL97CB: 8 outlets w/pilot lights on switches.
3½ lbs.; 15'—4½ lbs.



Stk. No.	Type	Description	Each
79W368	UL95CB-6	6' line cord	35.90
79W372	UL95CB-15	6' line cord	39.15
79W376	UL96CB-6	6' line cord	45.65
79W380	UL96CB-15	15' line cord	48.90
79W384	UL97CB-6	6' line cord	55.00
79W388	UL97CB-15	15' line cord	58.25

Complete line of multiple outlet strips . . . all bearing the U.L. label. All the units shown on this page have passed the testing of the Underwriters Laboratories and are designed to exceed NEC requirements and meet OSHA standards. These units are equipped with push-to-reset circuit breakers, completely wired and ready to plug in. All are rated at 15 amperes, 125 volts, 60 Hz continuous duty. Cases are of rugged steel, finished in hammertone blue. Plug-in units are available with 14/3 jacketed cord-sets. All units incorporate 3-wire "U" ground outlets.

U.L. LISTED OUTLET STRIPS



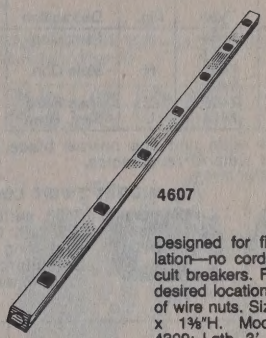
MODEL UL15 MODEL UL17

Models UL15CB and UL17CB are designed for series stringing with a convenient outlet on one end and a cord-set on the other end. UL15CB is the control unit with on-off switch, pilot, circuit breaker and 7 "U" outlets. UL17CB is the slave unit. Both models are finished in blue hammertone. Model UL24CB has 6 outlets, on-off switch, pilot and circuit breaker. Wt.: 6' cord—2 lbs.; 15' cord—3 lbs. Size: 13⅛"L x 2⅜"W x 1½"H. Suffix in model no. indicates cord length in feet.

Stk. No.	Type	Description	Each
61F1650	UL15CB-6	7 outlets	27.00
61F1659	UL15CB-15	7 outlets	30.25
61F1653	UL17CB-6	9 outlets	25.40
61F1661	UL17CB-15	9 outlets	28.65
61F1655	UL24CB-6	6 outlets	26.55
61F1663	UL24CB-15	6 outlets	29.80

U.L. LISTED WIRE-IN ELECTRICAL OUTLET STRIPS

- INTERNALLY WIRED
- GROUND OUTLETS



4607

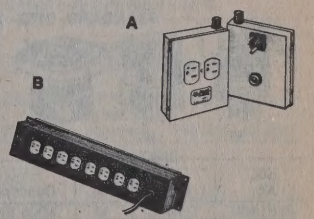
Designed for fixed installation—no cord-set or circuit breakers. Fastened to desired location by means of wire nuts. Size is 1½"W x 1⅜"H. Models 4305, 4309: Lgth. 3', Wt. 3 lbs. 4407, 4413: Lgth. 4', Wt. 4 lbs. 4508, 4515: Lgth. 5', Wt. 5 lbs. 4607, 4610, 4619: Lgth. 6', Wt. 6 lbs.

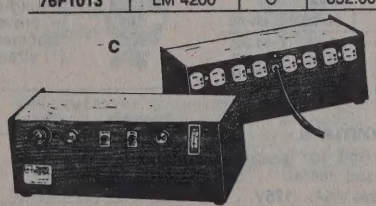
Stk. No.	Type	Outlets	Centers	Each
79W392	4305	5	7"	22.90
79W396	4309	9	3½"	25.40
79W400	4407	7	7"	26.55
79W404	4413	13	3½"	34.15
79W408	4508	8	7"	28.55
79W412	4515	15	3½"	39.00
79W416	4607	7	10½"	27.65
79W420	4610	10	7"	32.05
79W424	4619	19	3½"	46.00

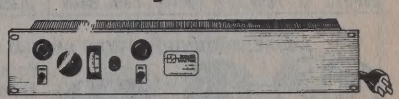
POWER MASTER LINE MONITORS

Power Master Line Monitor Power Conditioners protect against spike damage by filtering both the hot line and the neutral line. In addition, the filter is also bi-directional. This means that the filter system not only dissipates incoming spikes, but also outgoing spikes created by your own equipment. The Power Master filter system is passive. In other words, it operates only when a spike occurs. Upon sensing a spike or series of spikes, it will instantaneously "clamp" or reduce the spike to a level that is safe for use by your equipment. The spike, depending upon severity and the design of the Power Master filter system, is harmlessly dissipated either in the form of heat, through the grounding system or both. The result is a constant flow of clean electrical power to and from your electronic equipment.

Stock No.	Type	Fig.	Each
76F1005	LM 1100	A	54.00
76F1007	LM 1200	B	81.00
76F1008	LM 2100	A	113.50
76F1009	LM 2200	B	170.00
76F1010	LM 3100	A	170.00
76F1011	LM 3200	B	284.00
76F1012	LM 4100	D	818.00
76F1013	LM 4200	C	852.00







MAKE NEWARK ELECTRONICS YOUR DEPENDABLE ONE STOP SOURCE FOR ALL YOUR ELECTRICAL NEEDS

- **Phone, Write or Wire For Price Quotations on Larger Quantities**

16

Electrical Wiring Devices

TWIST-LOCK CONNECTORS

15A, 125V 2-WIRE CONNECTORS MIDGET SIZE

Cord-grip connectors accommodate .218″ to .375″ diameter cords. Brown bakelite, with metal casings plated to resist corrosion. Female receptacles will accept either polarized or non-polarized caps. 125 volts at 15 amps. U.L.

Stk. No.	Type	Fig.	Description	Each 1-9	10-24	25-49
38F522	7464-VBLK	J	Fem. Con.	3.87	3.44	3.01
31F1365	7465-VBLK	H	Male Con.	3.66	3.26	2.85
38F502	7466	K	Male Base	5.76	5.04	4.50
38F503	7468	L	Fem. Base	5.28	4.62	4.12

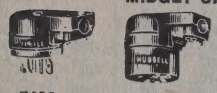
*Has one wide and one narrow blade to fit all corresponding polarized slots of receptacles.

MIDGET TWIST LOCK

7500 series twist lock, 15 amp, 125 volt. Cylindrical hollow brass split ring for ground provision. Non-interchangeable unit with UL requirements.

Stk. No.	Type	Description	Each 1-9	10-24	25-49
32F742	7593	Conn. body w/cord grip	6.97	6.20	5.42
32F743	7594	Cap w/cord grip	5.21	4.63	4.05
38F523	7595	Male Plug	6.30	5.60	4.90
38F524	7596	Female Connector	7.42	6.60	5.77

MIDGET SIZED CONNECTORS



10 ampere, 3 wire connectors, midget size and polarized. Accommodate .281″ to .421″ cable. Rated 250 volts at 10 amps; 125 volts and at 15 amps.

Stk No.	Type	Description	Each 1-9	10-24	25-49
32F747	7432	Male Plug	9.06	7.63	6.98
38F504	7485	Male Plug	4.53	4.03	3.53
38F505	7484	Fem. Con.	6.21	5.52	4.83
38F506	7486	Male Plug	5.58	4.96	4.34
38F507	7487N	Fem. Con.	5.29	4.70	4.11
32F748	7433	Fem. Con.	11.27	9.55	8.73

STANDARD SIZE—POLARIZED

10 amp. 3 wire cable connectors accommodate .296″ to .687″ dia. cables. Type 7572 is nylon cap. Rated: 250 volts at 10 amps; 125 volts at 15 amps.

Stk. No.	Type	Fig.	Description	Each 1-9	10-24	25-49
31F1366	7567-C	M	Male Plug	5.55	4.93	4.32
38F510	7555	N	Fem. Con.	9.25	8.10	7.22
38F511	7556	—	Male Base	7.54	6.60	5.89
38F512	7557	P	Fem. Base	8.29	7.26	6.47

3-WIRE GROUNDING TYPE SINGLE OUTLETS

Polarized for grounding exposed metal. All are 15A., 125V.

Stk. No.	Type	Description	Each 1-9	10-24	25-49
32F727	5278	Male Base	8.29	7.26	6.47
32F728	5279	Female Base	12.97	11.35	10.12
31F1367	5280-C	Male Cap.	9.58	8.39	7.48
32F730	5207	Fem. Con.	6.70	5.87	5.23
81F2898	5240	Male Base	7.59	6.43	5.88

VALISE PLUG

Special nylon webs join the three sections together for economy, speed, and long life. 3-wire grounding except *(2-wire). U.L. listed.

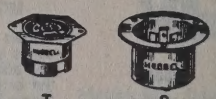
Stk. No.	Type	Description	Each 1-9	10-49	50-Up
31F1335	5965-VY	15A/125V	3.48	3.09	2.71
31F1363	5565-VY*	15A/125V	2.74	2.48	2.13
34F1153	5464-VY	20A/250V	6.25	5.55	4.86
34F1151	5666-VY	15A/250V	4.18	3.72	3.25
34F1152	5364-VY	20A/125V	5.99	5.32	4.66

CORD CONNECTORS

Type 5269. 3-Wire cord connectors grounding type 15 amps, 125v. With cord grip. Cord diameter: .296″ to .687″.

Stock No.	Type	Description	Each 1-9	10-24	25-49
30F1301	5269-C	Body	9.29	8.26	7.23
81F2897	5969-VY	Body	7.14	6.35	5.55

"TWIST-LOCK" DEVICES



Rated: 600 volts at 10 amps; 250 volts at 20 amps. Take .437″ to .750″ cables. 20 amp. 3-wire con-

Stk. No.	Type	Fig.	Description	Each 1-9	10-24	25-49
38F515	7327	S/B$	Male Base	12.54	10.98	9.79
38F516	7328	S/BT	Fem. Base	13.86	12.13	10.82

3-WIRE GROUNDING TYPE ADAPTER

Type 5273-L. For grounding exposed metal parts of portable electrical equipment. Designed to adapt standard 2-wire convenience outlets for use with new 3-wire grounding caps, 15 amps. 125 volts. Shpg. wt., 4 oz. Std. pkg.—50; Carton—10.

Stk. No.	Type	1-9	Each 10-24	25-49
38F517	5273-L	4.34	3.86	3.38

FEMALE GROUNDING-TYPE MOTOR BASE OUTLET

Type 5256. A good, standard grade outlet meeting FED. SPEC. W-C-596 (S). Parallel-blade with U-ground. Rated: 15 amps, 125 volts AC or DC. Nickel-plated brass construction. U.L. approved.

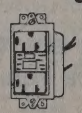
Stk. No.	Type	Each 1-9	10-24	25-49
32F746	5256	8.05	6.82	6.24
MALE BASE				
81F2898	5240	7.58	6.42	5.88

RECEPTACLES

3-wire grounding-type convenience outlets. 5242 is side-wired only. 5252 and 5262 are back or side-wired. Isolated ground receptacles have grounding terminals isolated from mounting strap to prevent transmission of transient current often associated with building ground. Twist lock except (*) straight blade.

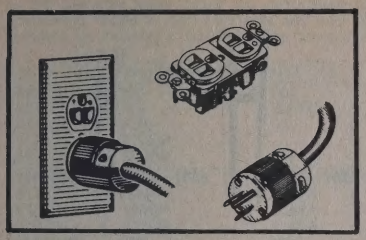
Stock No.	Type	Amp.	V.	Each 1-9	10-24	25-49
32F701	5242*	15	125	2.68	2.38	2.09
32F749	5252*	15	125	4.26	3.78	3.31
34F1154	5262*	15	125	7.85	6.98	6.11
34F1161	IG-5262	15	125	10.45	9.29	8.13

GROUND FAULT INTERRUPTER RECEPTACLES



Ideally suited for installation in bathrooms, workshops and outdoors, or with any application in residential dwellings, hospitals, schools or industry where GFI protection is needed. All are U.L. listed and have been designed to protect people from line-to-ground electrical shock hazards. If the level of leakage exceeds the trip level (4-6 milliamps), the unit quickly acts to open the circuit.

Stock No.	Type	Amp.	V.	Each 1-9	10-24	25-49
81F2901	GF5362	20	125	49.92	44.37	38.82
81F2900	GF5651	15	125	47.74	42.43	37.13



Designed to meet the specific performance demands required by hospitals. Gives the kind of performance demanded when safe, uninterrupted power is critical.

STRAIGHT BLADE 15A/125V, 2 POLE, 3-WIRE GROUNDING

Stock No.	Type	Description	1-9	10-49	50-Up
31F1336	8200	Recpt., brn.	9.55	8.49	7.43
31F1337	8200-I	Recpt., ivory	9.98	8.87	7.76
31F1338	8200-R	Recpt., red	11.08	9.70	8.65
31F1339	8200-GY	Recpt., gray	11.08	9.70	8.65
31F1341	8215-C	Plug, nylon	5.74	5.10	4.46
31F1342	8215-CT	Plug, clear	7.88	6.90	6.15
31F1343	8215-CAT	Plug, cl. angle	7.47	6.54	5.83
31F1344	8219-C	Conn., nylon	9.69	8.61	7.54

POLARIZED BLADE 20A/125V, 2 POLE, 3-WIRE GROUNDING

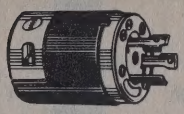
Stock No.	Type	Description	1-9	10-49	50-Up
31F1349	8300-I	Receptacle, duplex ivory	11.43	10.16	8.89
31F1354	8310-I	Receptacle, single, ivory	8.59	7.64	6.68
31F1357	8310-WHI	Receptacle, single, white	9.54	8.35	7.45
31F1358	8315-C	Plug, nylon	7.03	6.25	5.47
31F1359	8315-CT	Plug, clear	9.63	8.43	7.52
31F1360	8319-C	Conn., nylon	11.43	10.16	8.89

WALL PLATES

Impact resistant. Brown. Available in Ivory, Red, Grey and White on special order.

Stock No.	Type	Description	1-9	10-49	50-Up
31F1362	8248	single gang duplex receptacle	2.71	2.37	2.11
81F2911	P8	one duplex outlet ivory	.34	.30	.27
81F2912	P8X	one duplex outlet, brn.	.34	.30	.27
81F2913	P82	two duplex outlet, ivory	.76	.67	.59
81F2914	P82X	two duplex outlet, brn.	.76	.67	.59

INSULGRIP-NYLON CABLE CLAMPS



Molded of Dupont® Zytel, a rugged nylon which resists flame, arc, corrosion, shock and a wide range of environmental conditions. Powerful cable grip jaws offset wire in clamp to prevent strain on wiring terminals. Exclusive "Picture Window" wiring chamber lets you see if wires are inserted correctly. UL and CSa listed.

Stock No.	Type	Description	Cord Dia.	NET 1-9	NET 10-49
34F1140	2611	Twistlock, Plug	.385-.780	10.26	9.12
34F1141	2613	Twistlock, Conn. Body	.385-.780	21.20	18.84
32F725	4720-C	Twistlock, Plug	.296-.687	5.48	4.87
34F1142	4729-C	Twistlock Conn. Body	.296-.687	9.81	8.72
32F750	5266-C	Straight Blade, Pl.	.687	5.25	4.67
32F751	5266-CA	Straight Blade, Pl.	.328-.640	5.81	5.16
30F1304	5366-C	Straight Blade, Pl.	.296-.687	6.86	6.10
31F1366	7567-C	Twistlock, Plug	.296-.687	5.55	4.93
34F1144	7565-C	Twistlock, Conn. Body	.296-.687	9.38	8.34
81F2899	5366CA	Angle, Plug	.328-.640	8.62	7.55
81F2906	2321	Twistlock, Plug	.385-.780	6.96	6.19
81F2907	2323	Conn. Body	.380-.780	10.87	9.66
81F2908	2331	Nylon, Plug	.385-.780	6.96	6.19
81F2909	2311	Twistlock, Plug	.385-.780	6.96	6.19
81F2910	2313	Conn. Body	.388-.780	10.87	9.66
81F2917	9965C	Twistlock Plug	.385-.780	6.97	6.20

RECEPTACLE CIRCUIT TESTER

- Durable construction
- Ease of operation
- Immediate diagnosis

5200 Tester has a simple arrangement of neon lights indicating various fault conditions in electrical circuits. Quick and easy operation. By plugging the 5200 Tester into a single phase, 125V, 2-pole, 3-wire outlet the combination of lighted and unlighted lamps indicates circuit condition.
34F1145. NET 24.74

GROUND FAULT INTERRUPTER & POUCH

Plugs into any standard 15A., 120 V, straight blade, U-ground receptacle. Cord connected equipment can then be plugged into the single 3-wire grounding outlet in face of unit for ground fault protection. Underwriters' Laboratories listed for indoor use. Conforms to applicable National Electrical Code requirements.

Stock No.	Type	Description	Each
31F1333	GFP-115A	15A, 125V, 5mA sensitivity	91.90
31F1334	GFP-P	pouch for above	13.10

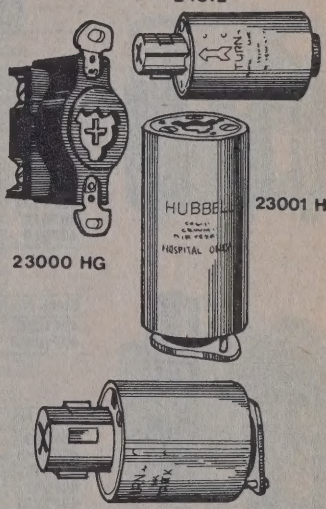
HOSPITAL GRADE WIRING DEVICES

PENDANT OR FEED-THRU SWITCH

Single pole, 10A 125V—5A 250V, Black phenolic housing and handle.

Stk. No.	Type	Description	1-9	10-49
34F1148	275	standard	4.11	3.65

24312



23001 HG

23000 HG

23004 HG

HUBBELLOCK DEVICES

Hospital grade plugs and connectors designed for use in non-hazardous areas in anesthetizing locations. Mate only with counterparts.

Stock No.	Type	Description	1-9	10-49	50-Up
81F2902	23001HG	Connector body	28.11	24.99	21.87
81F2903	23014HG	Plug w/epoxy kit	30.65	27.25	23.85
81F2904	23004HG	Plug less epoxy kit	46.58	41.40	36.23
EXPLOSION PROOF					
81F2905	24312	Epoxy sealed plug	76.61	68.10	59.59

GROUND FAULT LEAKAGE TESTER

GFT 2-G. Designed to measure trip level of either portable or "wired in" GFI in a range of 2 to 7 milliamperes. May be used on any 110, 120, 130 volt circuit at 15 or 20 amperes, or circuits above 20 amperes with use of adapters. Compact, tough impact resistant nylon housing. Highly visible indicator light on center band. Can be used to test tools or appliances with either two or three cords.
34F1150. NET 40.60

EVEREADY® Flashlights and Batteries

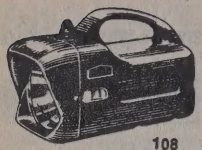
330

331

1251

8251

9251


108

Flashlights

Stock No.	Type	Description	Each
34F1134	308CT	With Continuity Tester	6.66
34F1135	330	Heavy Duty	1.46
34F1136	331	Heavy Duty—with magnet	1.86
34F1137	1251	Industrial—with ring hanger	3.13
34F1138	108	Floating Lantern	4.26
81F160	8251	Waterproof	2.79
81F161	9251	Heavy Duty—Ribbed—with ring hanger	3.72
81F162	9215	Pen lite	1.86

AA CD 9V

ALKALINE BATTERIES

Stock No.	Type	NEDA	Volts	Dimensions	Replaces	Common Use	Each
49F1168	E90	910A	1.5	.455 x 1.13	MN9100	Photo-Calc.	.59
49F1169	E91	15A	1.5	9/16 x 1 31/32	MN1500	Photo-Gen.	.59
49F1170	E92	24A	1.5	.405 x 1.745	MN2400	Photo-Calc.	.59
49F1171	E93	14A	1.5	1 1/32 x 1 15/16	MN1400	Instrument	.73
49F1173	E95	13A	1.5	1 11/32 x 2 13/32	MN1300	Instrument	.73
49F917	522	1604A	9	1 1/32 x 1 1/16 x 1 15/16	MN1604	Smoke Alarm	1.46
48F1174	523	1306A	4.5	.662 x 1.965	PX21	Photo Smoke	1.80
48F918	531	1307A	4.5	.662 x 2.290	PX19	Photo	1.80
48F919	532	1308A	3	.664 x 1.670	PX24	Photo	1.67

216
"9 Volt"

1015
"AA"

CARBON ZINC TRANSISTOR BATTERIES

Stock No.	Type	NEDA	Volts	Dimensions	Replaces	Common Use	Each
49F1035	1015	15	1.5	(AA) 9/16 x 1 31/32	15	Tran. Radio	.25
49F1028	216	1604	9	1 1/32 x 2 1/32 x 1 29/32	1604	Tran. Radio	.64

HEAVY DUTY (ZINC-CHLORIDE) BATTERIES

Stock No.	Type	NEDA	Volts	Dimensions	Replaces	Common Use	Each
48F909	1215	15D	1.5	(AA) 9/16 x 1 1/32	5AA	HD Gen. Purpose	.32
49F1041	1222	1604D	9	1 1/32 x 1 1/16 x 1 15/16	D1604	HD Gen. Purpose	1.00
48F910	1235-2	14D	1.5	1 1/32 x 1 15/16	4C	HD Gen. Purpose	.81
48F911	1250-2	13D	1.5	1 11/32 x 2 13/32	6D	HD Gen. Purpose	.81
49F1222	1209	908D	6	2 5/8 x 2 5/8 x 4 13/32	944	HD Gen. Purpose	2.19

1222 Heavy Duty

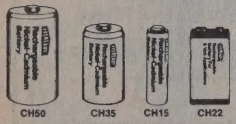
1209 Heavy Duty

INDUSTRIAL BATTERIES

Stock No.	Type	NEDA	Volts	Description	Replaces	Common Use	Each
48F912	HS15	.....	1.5	(AA) Penlite	500	Industry	.21
81F157	HS22	1604A	9	9V Alkaline	1604	Industry	1.88
48F913	HS35	.....	1.5	(C) Flash Batt.	700	Industry	.27
48F914	HS50	.....	1.5	(D) Flash Batt.	800	Industry	.27
81F158	HS91	15A	1.5	AA Alkaline	MQ1500	Industry	.67
81F159	HS93	14A	1.5	C Alkaline	MN1400	Industry	.94
48F915	HS95	.....	1.5	(D) Alkaline Batt.	.....	Industry	.74
48F916	HS150	.....	1.5	(D) HD Flash Batt.	1200	Industry	.31
49F1223	HS90	.....	6	Lant. Batt.	F4H IND	Industry	1.70

RECHARGEABLE NICKEL-CADMIUM BATTERIES AND CHARGERS

Batteries can be stored charged or uncharged. Capacity of Nickel-Cadmium batteries is expressed in average ampere hours, and stays relatively fixed over a wide range of discharge currents. Rechargeable batteries actually cost less to use per ampere hour than throw away batteries. Nominal cycle life is 1000 cycles except for Type N88 8.4 volt Ni-cad batteries can be recharged up to 300 cycles. End of cycle life is considered to be the point where the battery no longer provides 80% of rated capacity.



Stock No.	Type	Size	Volts	Capacity	Dimensions	Replaces	Each
49F1180	CF15	AA	1.2	500 mAh	.553 x 1.969	.....	2.85
49F1224	CF15T	AA	1.2	500 mAh	.553 x 1.981	.....	3.10
49F1147	CH15	AA	1.2	500 mAh	.553 x 1.969	GC3	2.36
49F1225	CH15T	AA	1.2	500 mAh	.553 x 1.981	GC3T	2.60
49F1181	CH35	C	1.2	1.2 Ah	1 1/32 x 1 31/32	GC2	2.64
49F1182	CH50	D	1.2	1.2 Ah	1 11/32 x 2 27/64	GC1	2.73
49F1228	*CH1	Short C	1.2	1Ah	1.043 x 1.161	GCT1.0	4.61
49F1229	*CH1.2	Sub C	1.2	1.2 Ah	.900 x 1.679	GCR1.0	4.19
49F1230	CH1.8	C	1.2	1.8 Ah	1.031 x 1.969	GCT1.5	15.56
49F1150	*CH4	D	1.2	4 Ah	1.305 x 2.310	GCW3	7.69
49F1232	CH22	7.2	7.2	80 mAh	.....	.....	6.11
49F1183	N88	8.4	8.4	90 mAh	1 3/4 x 3 3/4 x 1 15/16	GC9	4.44
49F1234	ACC50	.....	....	Charger: 4AA, 2C or 2D, 9V		.....	6.81
49F1184	ACC75	.....	....	Charger: 6AA, C or D.		.....	13.63
49F1235	*ACC100	.....	....	Professional Charger For All		.....	34.09

ACC100

*Available with solder tabs or fast charge at additional cost.

17

Batteries

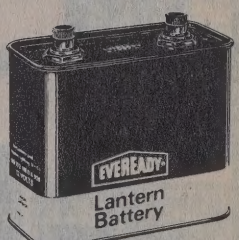
EVEREADY®

All the batteries listed below are guaranteed fresh when they leave our stock and carry additional manufacturer's guarantees. Made to high standards and fully inspected, these batteries are of the highest quality. Equivalent NEDA numbers are included in tables for your convenience.

Stock No.	Eveready Type	NEDA No.	Volts	Each	Dimensions	Replaces	Common Use
49F1049	IS6	905	1½	2.92	2½x6⅝	6 Ign.	Ignition
49F1051	IF6	905FC	1½	2.92	2⅝x6¾	6-Tel.	Ignition
48F931	HS6	911	1½	3.57	2⅝x6⅝	6 Ind.	Industry
81F171	A76BP	.....	1½		11.6x5.36mm	.....	Photo
49F1201	E146X	1604M	8.4	2.66	1.031x.66x1¾	TR146X	Electric
49F1202	E164	1404M	5.6	3.01	.662x1.767	TR164	Electric
81F168	186BP	1167A	1½	.62	.455x.165	.....	Calculator
81F169	189BP	1168A	1½	.62	.455x.118	.....	Calculator
81F191	191BP	1169A	1.5	.62	.455x.081	.....	Calculator
49F1040	206	1611	9	1.40	¾x2	M1611	Trans. Radio
49F340	228	1810	12	2.60	1x2 7/16	PM8	Trans. Radio
49F1029	226	1600	9	1.66	1x1 15/16	P6	Trans. Radio
49F1025	246	1602	9	2.47	1 3/8x1 3/8x2¾	2N6	Trans. Radio
49F1036	266	1605	9	2.07	1 13/16x1 13/16x2 7/16	M1605	Trans. Radio
49F1026	276	1603	9	3.13	2 9/16x2x3 5/32	D6	Trans. Radio
49F1204	303BP	.....	1½	2.59	Button Cell	RW22	Watch
49F1254	389BP	.....	1½	1.71	Button Cell	386BP	Watch
49F1206	343BP	.....	1½	.96	Button Cell	RW56	Watch
49F1207	357BP	.....	1½	2.59	Button Cell	RW42	Watch
81F164	362BP	1158SO	1½	1.17	.310x.081	.....	Watch
81F165	364BP	.....	1½	1.17	.267x.085	.....	Watch
49F1067	386BP	.....	1½	1.96	Button Cell	RW44	Watch
49F1208	392BP	.....	1½	1.13	Button Cell	RW47	Watch
49F1209	393BP	.....	1½	1.71	Button Cell	RW48	Watch
81F166	396BP	1163SO	1½	1.20	.310x.105	.....	Watch
81F167	399BP	1165SO	1½	1.20	.374x.105	.....	Watch
49F1210	E401E-2	910M	1.4	1.82	.455x1.130	RM401	Hearing Aid
49F1211	EP401E-2	1118M	1.4	2.08	.453x1.140	MP401	Port. Dev.
49F1061	411	208	15	1.27	1 1/32x5/8x1 25/64	U10	Inst.
49F1063	412	215	22½	1.54	1 1/32x5/8x2	U15	Inst.
49F1078	413	210	30	1.67	1 1/32x5/8x2 9/16	U20	Inst.
49F1001	415	213	45	2.53	1 3/64x5/8x3 11/16	U30	Inst.
49F1009	416	217	67½	2.87	1 21/64x63/64x3½	UX45	Inst.
49F1080	417	224	15	5.93	1 5/16x3 1/32x1 9/16	K10	Inst.
49F1081	420	225	22½	7.33	1 5/16x3 1/32x2 3/16	K15	Inst.
49F1039	425P	.....	22½	7.27	1 23/64x1 1/32x3 15/16	XX15	Inst.
49F1092	455	201	45	5.33	2 31/32x1x3 11/16	XX30	B Radio
49F1004	457	203	67½	8.66	3 13/16x1 3/8x2½	K45	B Radio
49F1002	467	200	67½	7.00	2 13/16x1 3/8x3 45/64	XX45	B Radio
49F1091	482	202	45	8.60	3 19/32x1 27/32x5½	M30	B Radio
49F1090	484	207	45	10.59	3 21/32x2 17/32x5 5/16	B30	Flour. Lant.
49F1136	489	728	225	22.53	4 11/32x2 11/16x4 3/16	XX150	Photo
49F1006	490	204	90	9.27	3 23/32x1 3/8x3 45/64	V60	Photo
49F1138	491	729	240	11.14	2 19/32x1 15/16x4½	U160	Photo
49F1089	493	722	300	14.33	2 11/16x2 7/32x3 29/32	U200	Geiger Cntr.
49F1139	497	741	U320	19.86	3x1 19/32x5⅝	U320	Photo
49F1062	504	220	15	1.87	39/64x1 9/32x1⅜	Y10	Inst.
49F1064	505	221	22½	2.40	1 9/32x1 9/32x1.975	Y15	Inst.
49F1125	509	908	6	1.67	2 5/8x2 5/8x4⅜	F4M	Lant.
49F1215	544BP	140650	6	9.29	.510x.990	PX28	Photo
49F1216	EPX625BP	1124MP	1.35	1.20	.615x.238	PX625	Photo
49F1217	EPX640BP	1126MP	1.35	1.34	.625x.440	PX640	Photo
49F1218	EPX675BP	1123MP	1.35	1.20	.455x.210	PX675	Photo
49F1219	646	914D	69	11.94	2 9/16x2 1/8x8 7/64	Z46HD	Lant.
81F172	A544BP	.....	6	2.53	13mmx25.2mm	.....	Photo
49F1216	EPX625BP	1124MP	1.35	1.20	.615x.238	PX625	Photo
49F1218	EPX675BP	1123MP	1.35	1.20	.455x.210	PX675	Photo
49F1163	EXP76BP	1107SO	1½	2.34	.455x.200	.....	Photo
49F1045	706	902	6	11.00	8 5/16x2 15/16x6 7/16	4F4H	Emergency
49F1053	711	700	1½	3.20	2⅝x1 5/16x4 1/32	2FH	Glo-Plug
49F1046	715	903	7½	11.94	7 1/4x4 1/16x6 7/16	4FSH	Emergency
49F1047	716	904	9	11.94	8 37/64x4 1/16x6 7/16	4F6H	Emergency
49F1019	717	9	7.5	3.27	2 5/32x1 15/16x3 1/32	C5	Emergency
49F1017	724	2	6	2.53	1 7/32x1 7/32x2 1/32	Z4	Emergency
49F1126	731	918	6	4.63	5⅜x2 7/8x4 15/16	TW1	Lantern
49F1127	732	926	12	6.60	5⅜x2 7/8x4 15/16	TW2	Lantern
49F1043	735	900	1½	2.00	2⅝x2 5/8x4 15/16	4FM	Glo-Plug
49F1054	742	4	1½	2.73	2⅝x2⅝x3 27/32	4F	"B" Radio
49F1021	744	.....	6	2.46	2⅝x2⅝x3 27/32	F4PI	"A" Radio
49F1065	763	710	22½	5.27	3½x2 3/32x3 1/16	4156	Instrument
49F1033	2356N	1612	9	6.67	2 5/16x1 1/32x6 1/16	C6X	Trans. Radio
49F1221	E304116BP	.....	12.6	5.76	1x2.875	304116	Smoke Alarm

509

386BP



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935

950

GENERAL PURPOSE CARBON-ZINC BATTERIES

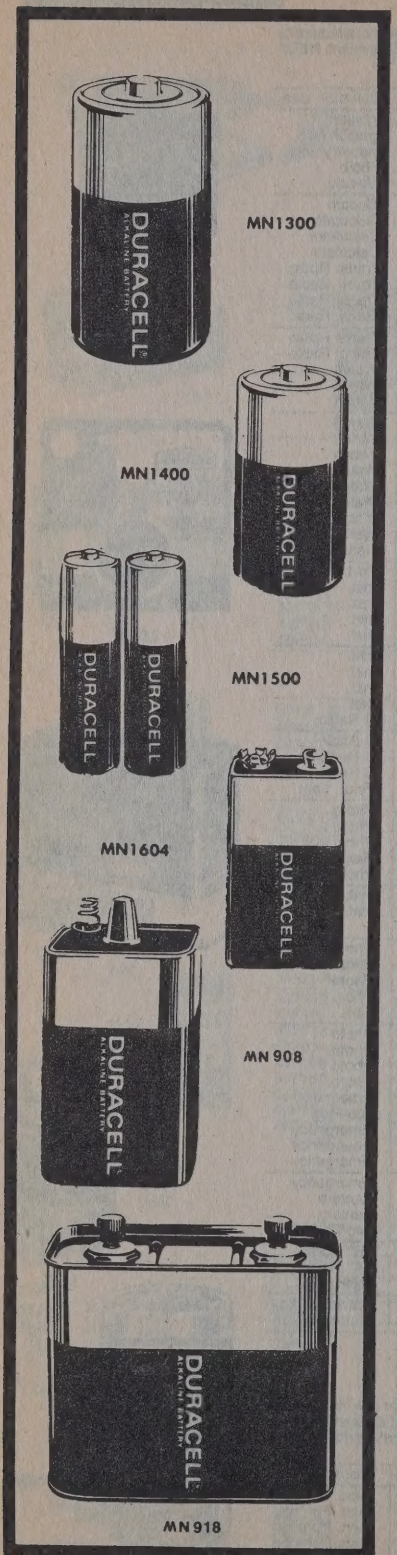
Long-life carbon-zinc batteries are most popular for portable power. Available in most standard sizes. For use in industrial, electronic; transistor, and many other applications. Specially sealed to provide protection in handling and against corrosive leakage. Sturdy construction. Long dependable service, even over a wide range of temperatures, plus peak performance at all times.

Stock No.	Eveready Type	NEDA No.	Volts	Each	Dimensions	Replaces	Common Use
49F1023	904	910F	1.5	.20	N .445x1.180	310	Gen. Purpose
49F1123	912	24F	1.5	.23	AAA 13/32x1¾	7	Gen. Purpose
49F1122	915	15F	1.5	.23	AA 9/16x1 31/32	910	Gen. Purpose
49F1014	935	14F	1.5	.30	C 1 1/32x1 15/16	1	Gen. Purpose
49F1118	950	13F	1.5	.30	D 1 11/32x2 13/32	2	Gen. Purpose

17

Duracell®

Batteries



ALKALINE BATTERIES

• **LAST SIX TIMES AS LONG AS CARBON CELLS** • **HIGH ENERGY**

For devices that require a long lasting power souce that delivers high energy, such as movie cameras, cassette players, electronic flash units, etc. Alkaline cells can last up to 6 times as long as carbon cells.

Stk. No.	Mallory Type	Eveready Type	Volts or Size	Each
40F1173	MN1300	E95	1.5/D	1.02
49F1171	MN1400	E93	1.5/C	1.02
49F1169	MN1500	E91	1.5/AA	.79
49F1175	MN1604	216	9	2.04
49F1170	MN2400	E92	1.5/AAA	.79
49F1168	MN9100	E90	1.5/N	.79

Stock No.	Type	Volts	Use	Each
81F151	MN908	6.0	Lantern	4.48
81F152	MN918	6.0	Lantern	9.48

MERCURY BATTERIES

• **MORE POWER PER UNIT OF VOLUME** • **HIGH ENERGY**

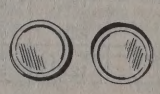
Mercury batteries offer more power per unit of volume than any other type making them ideal for use in electronic circuits. Mercury batteries are widely used in electronic instruments, photographic equipment, hearing aids, paging equipment, and radios.

Stock No.	Type	Replaces Eveready	NEDA	* B.P.	Std. Pkg.	† SP	Volts	Common Use
48F017	MP401H	EP401	1118M	1.18	24	1.07	1.4	Paging
49F563	RM1	E1	1100M	1.72	20	1.56	1.4	Phys. Hndcp.
49F500	RM1R	E1N	1109M	1.86	20	1.69	1.35	Electronic
49F502	RM4R	E4	.....	3.65	20	3.32	1.35	Electronic
49F532	RM12	E12	1101M	3.22	10	2.93	1.35	Tape Rcdr.
49F505	RM12R	E12N	1113M	3.58	10	3.25	1.35	Tachometer
49F506	RM42R	E42N	1115M	8.23	10	7.48	1.35	Elec. "D"
49F514	RM401H	E401	.....	1.01	72	.92	1.4	Paging
49F447	RM625H	E625	1122M	1.03	40	.94	1.4	Phys. Hndcp.
49F561	RM675H	E67	1127M	.43	60	.39	1.4	Electronics
49F570	TR126	E126	.....	5.15	24	4.68	8.4	Radio
49F508	TR132R	E132N	1203M	3.37	10	3.06	2.7	Electronic
49F536	TR133	E133	1306M	4.58	24	4.16	4.2	Radio, Paging
49F571	TR133R	E133N	1314M	4.94	10	4.49	4.05	Radio, Paging
49F510	TR134R	E134N	1409M	5.15	10	4.68	5.4	Electronic
49F537	TR135R	E135N	1505M	6.23	10	5.66	6.75	Electronic
49F511	TR146X	E146X	1604M	4.80	24	4.36	8.4	Electronic
49F544	TR164	E164	1404M	3.58	24	3.25	5.6	Phys. Hndcp.
49F439	TR164R	E164N	1410M	4.51	10	4.10	5.4	Electronic
49F548	TR175	E175	1501M	3.29	10	2.99	7.0	Microphone
49F549	TR177	E177	1606M	4.43	24	4.03	9.80	Radio
49F573	TR286	E286	1600M	5.72	6	5.20	8.4	Radio
49F574	TR289	228	1810M	7.87	6	7.15	12.6	Electronic
48F018	PX13B	EPX13	1114MP	1.43	24	1.30	1.35	Photo
49F411	PX28B	544	1406SO	7.08	24	6.44	6.0	Photo
49F412	PX30B	EPX30	1202A	2.08	24	1.89	3.0	Photo
49F020	PX675B	EPX675	1128MP	1.43	24	1.30	1.35	Photo
49F413	MS76B	576	1108SO	2.51	24	2.28	1.5	Photo
49F415	5K65	.....	1617M	3.86	24	3.51	9.0	Calculator
49F530	ZM9	E9	15M	2.15	48	1.95	1.4	Radio "AA"
48F025	9R81	.....	.....	1.94	20	1.76	1.4	Paging
49F417	MS13H	.....	.....	.85	60	.77	1.56	Electronic
48F022	TR431	E431	1801M	7.80	12	7.09	11.2	Smoke Alarm
48F027	304116	.....	1902M	7.80	12	7.09	12.6	Smoke Alarm

*Indicates broken package. †Indicates standard package.

LITHIUM BATTERIES

DL1/3NB



DL2016B

PX28LB

Stock No.	Battery Type	Voltage	Each	Usage	
81F139	DL⅓NB	3V	3.90	replaces (2)-S-76	Photo
81F140	DL2016B	3V	2.95	replaces LF ¼ 4V	Calculator/Watch
81F141	DL2032B	3.0V	2.95	replaces LF ½ V	Calculator/Watch
81F142	DL2430B	3.V	2.95	replaces LF ½ W	Calculator/Watch
81F143	DL2025B	3V	2.95	replaces CR 2025	Calculator/Watch
81F4410	PX28LB	6V	6.50	replaces PX28B	Photo

RECHARGE BATTERY SYSTEM

Battery modules utilize AA, C, D or 9V batteries. Mini-charges BC-3 & BC-2 can recharge 1 & 2 battery modules respectively. Both plug directly into wall socket. BC-1 can recharge up to 4 batteries of any of the four sizes. Batteries recharge in 16-18 hrs. Provides cost efficient source of portable energy. Delivers lower cost/hr of operation than "throw-away" battery types. Can be charged/discharged up to 1000 times. Strong durable construction. Consistent performance. Excel in high drain applications. Spare batteries can be left on charge for an indefinite period of time without harm to either batteries or charger. UL listed.

Type BC-2
Charger

Type BC-2. Charger can charge up to 2 modules
49F460. NET 4.65
Type MA-21. AA Module for BC-2/3, with 2 AA rechargeable batteries.
48F240. NET 6.56
Type MC-22. C Module for BC-2/3, with 2 C rechargeable batteries.
48F241. ..... 7.52

Type BC-3. Charger for single module.
43F239. NET 3.32
Type MD-23. D Module for BC-2/3, with 2 D rechargeable batteries.
48F242. NET 7.52
Type M919. Module for BC-2/3, with 9V rechargeable battery.
49F1250. NET 7.52

MA-21.
AA

MC-22.
C

RECHARGEABLE SEALED NICKEL-CADMIUM CELLS

Battery system includes rechargeable sealed nickel-cadmium cells and chargers. Nickel cadmium cells rated 1.25 volts can be recharged up to 1000 times or more. Home consumer uses these cells along with Model BC-1 charger to replace ordinary throw-away batteries.

Stk.No.	GE Type	Description	Net
49F990	2GC-1	AA Size 0.5 AH Twin Pack	5.52
49F991	2GC-2	C Size 1.0 AH Twin Pack	6.51
49F992	2GC-3	D Size 1.2 AH Twin Pack	6.51
49F942	HD1000	D Size 4.0 AH Single Unit	7.50
49F993	BC1-P	Charger for 2 or 4 GC-1, GC-2, or GC-3 Cells and two 9V	16.47
49F1252	GC9B	9 Volt Size	6.86

HD1000
Heavy Duty

Model BC-1

MD-23.
D

M919

STANDARD AND DIP-TYPE INDUSTRIAL NICKEL CADMIUM BATTERIES

Sealed cylindrical cells and battery packs are for applications requiring maintenance free durability and high discharge rate capabilities. All cells have a resealable safety vent mechanism which provides for complete safety. Batteries are capable of up to 1000 charge/discharge cycles and are available in standard temp. 50°C and high temp. 70°C capabilities. **Data Sentry®** are DIP-type P.C. board mountable batteries with DIP compatible pins, solvent-resistant plastic case, resealable safety vent mechanism, and are available in 2.4V, 3.6V with either standard temp. 50°C or high temp. 70°C Gold Top® design.

DIP-TYPE BATTERIES

Stock No.	Type	Call Type	VDC	Capacity Amp-Hr. 1 Hr.	Max. Overcharge Rate mA	Len.	Ht.	Wid.	Each
49F939	41B901BD16-1	Data Sentry	2.4	.070	7	1.67"	.61"	.67"	6.98
49F940	41B901CD18-1	Data Sentry	3.6	.070	7	1.67"	.61"	.82"	10.50
49F1275*	41B013AC00101	Data Sentry	2.4	.070	7	1.67"	.61"	.67"	8.18
49F1276*	41B013AD00201	Data Sentry	3.6	.070	7	1.67"	.61"	.82"	11.96

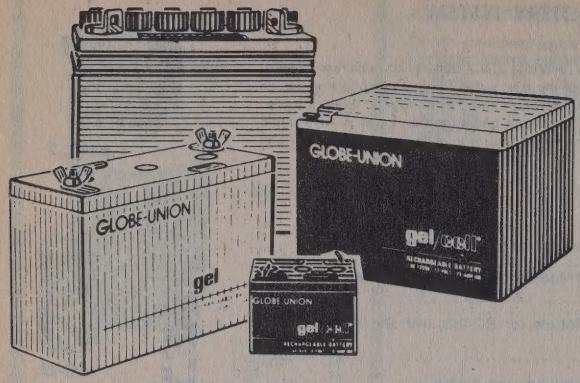
(*) High temp. Gold Top®

Stock No.	Type	Call Type	DC Volts	Capacity Amp-Hr. 1 Hr.	Max. Overcharge Rate mA	Maximum Dimensions Dia. In.	Maximum Dimensions Ht. In.	1-99
48F222	K01A113AA-SD1	⅓ AA	1.2	.100	10	.588	.705	3.98
49F941	41B01CD05	⅓ AA	3.6	.10	10	.610	2.06	10.68
48F114	K01A111AA-SD1	AA	1.2	.500	50	.574	1.952	4.45
48F117	KO1A111CS-SD1	sub C	1.2	1.0	100	.900	1.645	5.83
48F125	KO1H111AA-1D1	C	1.2	1.8	150	1.028	1.952	18.25
48F119	K01A111C-SD1	C	1.2	1.8	150	1.028	1.85	9.75
48F120	K01A112D-SD1	½ D	1.2	2.0	200	1.29	1.45	11.88
48F126	K01H111D-SD1	D	1.2	3.5	350	1.29	2.41	16.68
48F121	K01A111D-SD1	D	1.2	3.5	350	1.29	2.311	16.85
49F1251	K01A111F-GT1	F	1.2	5.60	560	1.303	3.488	31.83
48F123	K01H111AA-SD1	AA	1.2	.500	50	.556	1.927	4.28

(*) With positive button

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

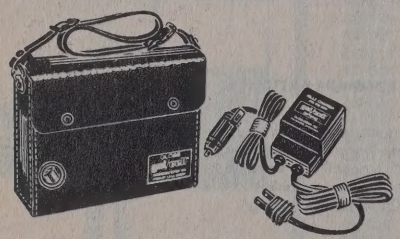
gel/cell® GLOBE Rechargeable Batteries, Chargers



SEALED, RECHARGEABLE GELL/CELL BATTERIES

Small, powerful rechargeable batteries with exclusive gelled electrolyte held permanently between plates and sealed in polystyrene. Compact, long-lasting battery contains no liquid. Can be operated, stored or charged in any position, even upside down. Completely maintenance free, water or electrolyte is never added. Up to 500 or more charge/discharge cycles. Self discharge is only 2% to 3% per month. Reliable lead dioxide system eliminates danger of permanent cell reversal and resulting loss of ability to recharge. Protective self-sealing relief valves prevent excessive cell pressure build-up if batteries are accidently over-charged. Not affected by memory or previous use history. May be connected in series to obtain any multiple of 2 volts or in parallel for other than standard capacities. A fully charged Gel/Cell wil operate over a temperature range of -76° F to +140° F. Gel/Cells are rated at 77° F. Their capacities increase above 77° F and decrease below 77° F. Durable, high impact, polystyrene case is non-conductive, will not rust or deteriorate. Ideal for transportable equipment such as tape recorders, TV sets, medical apparatus and test equipment. **Note.** Last digit of Globe part number indicates terminal style. 1 .187" quick connect, 3 "L" terminal, 4 .110" lug, 5 ¼-20 stud, 6 .250" quick connect, 7 .250" positive, .187" negative (vertical).

Stock No.	Type	Nom. Volts	Capacity In Amp Hrs.	20 Hr. Rate mA	Internal Resistance	Size, Inches W	D	H	Weight Lbs.	Net Each
99F1791	GC280-1	2	7.5	375	6 Milli	2.06	1.97	3.97	1.1	18.00
99F1792	GC410-4	4	0.9	45	60 Ohm	1.65	1.36	2.24	.37	16.00
99F1793	GC426-1	4	2.6	130	47	3.54	1.33	2.63	.86	18.00
99F1794	GC610-1	6	0.9	45	90	2.00	1.65	2.24	.55	18.00
99F1795	GC620-1	6	1.8	90	50	2.95	2.00	2.36	.97	24.00
99F1796	GC626-1	6	2.6	130	70	5.28	1.33	2.63	1.34	21.00
99F1797	GC645-1	6	4.5	225	30	5.92	1.33	3.90	2.4	28.00
99F1798	GC660-1	6	6.0	300	25	4.57	1.99	3.81	2.6	31.00
99F1799	GC680-1	6	7.5	375	20	5.96	1.97	3.97	3.3	31.00
99F1800	GC690-7	6	9.0	450	18	4.25	2.78	5.60	4.4	26.00
99F1809	GC6120-7	6	12.0	600	15	4.25	2.78	5.60	5.5	33.00
99F1801	GC6200-5	6	20.0	1000	9	7.0	3.42	5.25	8.5	58.00
99F1802	GC826-1	8	2.6	130	110	7.0	1.31	2.64	1.8	31.00
99F1803	GC1215-1	12	1.5	75	150	7.0	1.31	2.64	1.5	35.00
99F1804	GC1245-1	12	4.5	225	60	5.96	2.52	3.98	4.5	39.00
99F1805	GC1260-1	12	6.0	300	80	5.96	3.16	3.98	5.7	49.00
99F1806	GC12230-6	12	23.0	1150	14	6.94	6.59	4.92	19.0	104.00
99F1807	U-128-3	12	28.0	1400	10	7.75	5.19	7.36	21.0	88.00
81F4519	GC12550-3	12	55.0	2750	7	10.20	6.75	8.70	39.0	133.00

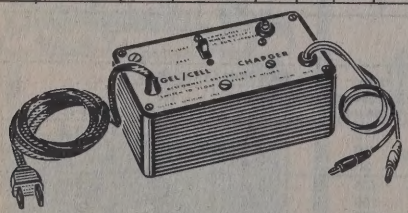


RECHARGEABLE BATTERY PACKS

Portable power supply provides a great source of power for battery operated equipment. Gives dependable electrical power anywhere, indoors or out. use it on camping, fishing and motor trips to power a portable radio, TV set, tape recorder, depth and fish finders, boat running lights, camp and emergency lights. Provides plenty of power for portable tools, communications equipment, test instruments, public addresses. Operates simply by connecting appliance to the power pack using a standard automobile cigarette lighter appliance plug. Any 12 volt or 14 volt appliance designed to operate from automobile lighters may be plugged directly into power pack. Absolutely safe, operates efficiently in any position and is not harmed by extremes of temperature. Battery pack is easily recharged by self-contained charger which inserts into battery pack and plugs into standard wall outlet. Pays for itself many times over by letting you save on batteries. Charging time for 12 volt battery pack is 16 to 20 hours for a complete charge; 18 to 24 hours for 14 volt battery pack.

Operating temperature range: -76° F to +140° F. Recharging temperature range: -4° F to +122° F. Not harmed by over discharge. Maintenance free. Comes complete with handsome carrying case, shoulder strap and self contained battery charger.

Stock No.	Type	Nom. Volts	Amp Hrs. (20 Hr. Rating)	W	D	H	Weight Lbs.	Net Each
99F1810	PP1245	12	4.5	8¼	2⅞	6½	6	74.00
99F1811	PP1260	12	6.0	4¼	4¼	6¼	7	84.00
99F1812	PP1200	12	7.5	6¼	4¼	6¼	8	97.00
99F1813	PP1290	12	9.0	9⅛	3⅛	8¼	10.5	87.00
99F1822	PP12120	12	12.0	8¼	3⅞	9	13	100.00
99F1814	PP1426	14	2.6	6¼	2⅞	6½	4.5	92.00
99F1815	PP1400	14	7.5	6¼	4¼	6¼	9.2	115.00



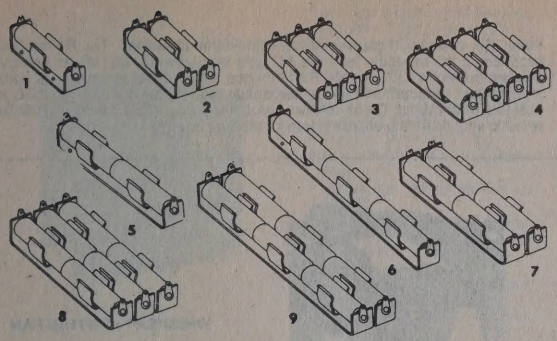
BATTERY CHARGER

Easy to use, low cost charger provides choice of two well regulated output voltages. Panel switch selects "fast" or "float" voltage. In "fast" mode a fully discharged battery is recharged in 12 to 16 hours, or less; in "float" mode, 36 hours or less. Batteries can be brought to 75% to 80% of full charge in half the time. With switch in "float" position, batteries may be left on charge continuously. Indicating lamp stays on during charge, begins to glow dimly and goes out when battery is approximately 90% charged (50% on float setting). Protected from momentary shorts and reversed polarity. Chargers with 350 mA outputs recommended for batteries up to 3 ampere rating; 750 mA chargers for larger batteries or when charging smaller batteries in parallel. Operating temp: -4° F to +122° F. Black bakelite case with aluminum top panel. Size: 5⅞"W by 3⅛"D by 2¾"H. Weight 2 lbs. Indicator lamp brightens noticeably if connections are accidently reversed.

Stock No.	Type	Nom. Output	End of Charge Voltage Fast	Float	For Batt. Nos.	Net Each
99F1818	GRC6350M	350 mA	7.2± 2V	6.9± 1V	610,620,626	54.00
99F1819	GRC6750M	750 mA	7.2± 2V	6.9± 1V	645,660,680	54.00
99F1820	GRC12350M	350 mA	14.6± 2V	13.8± 1V	1215	54.00
99F1821	GRC12750M	750 mA	14.6± 2V	13.8± 1V	1245	59.75

Keystone Battery Holders, Plugs

ALUMINUM BATTERY HOLDERS



Frame and clip made of 2024 ST4 Aluminum for light weight and strength. Spring tension battery holders feature cadmium-plated copper lugs and fibre insulators which are moisture-proofed.

PENCELL HOLDERS

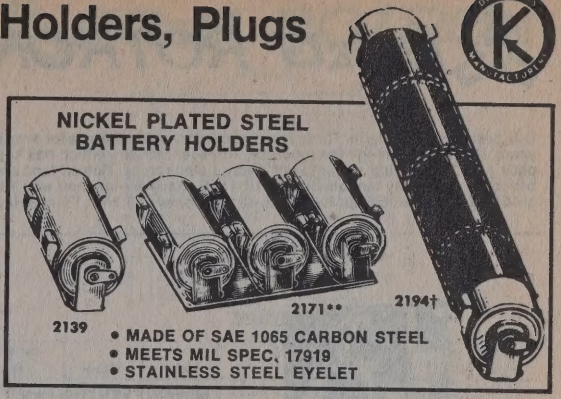
All Batteries listed below fit all sizes of Type No's.	Stock No.	Type	Cell	Fig.	1-19	20-99	100-249
Burgess CD6, 9R, Z HG9, HG12R, H133 HG502R, 920, 930 Eveready: E9, E12 E91, E133, 333, E502, 515,915,1015, N46	35F1589	139	1	1	.39	.34	.31
	35F1590	140	2	2	.68	.61	.56
	35F1591	171	3	3	.85	.77	.68
	35F1592	182	4	4	1.08	.96	.87
	35F1593	189	2	5	.77	.62	.56
	35F1595	192	4	7	1.08	.91	.87
	35F1596	193	6	8	1.49	1.33	1.28

"C" CELL HOLDERS

Burgess: 1, P6, 120, 130, H233, 302599 Eveready: 226, E233, 635, 935, 1035, E93	35F1597	173	1	1	.52	.45	.40
	35F1598	174	2	2	.80	.73	.67
	35F1599	187	3	3	1.00	.96	.85
	35F1600	185	2	5	.77	.62	.56
	35F1602	196	4	7	1.08	.91	.87
	35F1603	197	6	8	1.64	1.46	1.41

"D" CELL HOLDERS

Burgess: 2, 2R, CD7, 210, 230 Eveready: E42, N56, E95, D99, A100, 950, 1050	35F1604	175	1	1	.52	.45	.40
	35F1605	176	2	2	.97	.86	.78
	35F1606	190	3	3	1.10	1.01	.88
	35F1607	186	2	5	.77	.62	.56
	35F1609	200	4	7	1.22	1.03	.97
	35F1610	201	6	8	1.69	1.55	1.41
	35F1611	205	6	9	1.54	1.41	1.28



STANDARD ALL STEEL BATTERY HOLDERS

Ideal for Nickel Cadmium Alkaline, mercury, and carbon zinc cells. Made of SAE 1065. Carbon Steel to MIL Spec. 17919, heat treated to spring temper and nickel plated .0002 thick. Stainless steel eyelet, moisture proof vulcoid washers and a coated copper solder lug compose the contact assembly. 2 mounting holes (**) Side by side clips mounted on phenolic 1/16" thick MIL Spec. 3115B. (†) End to end with insulating tubes.

PENCELL HOLDERS—ALL CONTACTS INSULATED

All Batteries listed below fit all sizes of Type No's.	Stock No.	Type	Cells	1-19	20-99	100-249
Eveready: E9, E12, E91, E133, E502, N46, 515, 915, 1015, BA58 Burgess: Z, HG9, CD6, 9R, HG12R, H133, HG502R 920, 830	35F1550	2139	1	.53	.47	.42
	35F1551	2140	2**	.80	.76	.64
	35F1552	2171	3**	1.24	1.15	.97
	35F1553	2182	4**	1.42	1.32	1.15
	35F1554	2189†	2	.70	.67	.60
	35F1555	2191†	3	.80	.70	.67
	35F1556	2194†	4	.97	.89	.83

"C" CELL HOLDERS

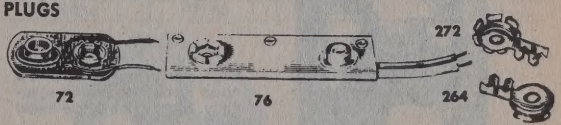
Burgess: 1, P6, 120, Eveready: E93, 226, E233, 635, 935, 1035, BA42	35F1558	2174	2**	1.00	.90	.86
	35F1560	2188	4**	1.94	1.76	1.58
	35F1563	2198†	4	1.06	1.01	.92

"D" CELL HOLDERS

Burgess: 2, 2R, CD7, 210, 230 Eveready: BA30, E42, N56, E95, D99, A100, 950, 1050	35F1564	2175	1	.68	.60	.54
	35F1565	2176*	2**	1.00	.90	.86
	35F1566	2190*	3**	1.49	1.42	1.32
	35F1567	2192*	4**	1.94	1.76	1.58
	35F1570	2162†	4	1.24	1.17	1.04

BATTERY PLUGS

Stk. No.	Type	For Use With	1-19	20-99	100-249
39F839	272	67½-volt "B"	.24	.18	.12
39F840	264	67½-volt "B"	.22	.17	.12
38F1305	68	9-volt	.16	.12	.11
35F1681	72	9-volt	.34	.32	.27
35F1683	74	67½-volt "B"	.75	.68	.60
35F1862	76	67½-volt "B"	.75	.68	.60

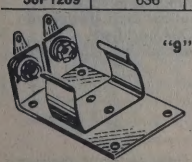


Plated brass pin mounted on laminated bakelite.

"9" VOLT PC SNAP-ONS

Mount directly to PCB. PC Male/Female for any 9 volt batt. No wiring. Materials: Steel and Tin plate. Contacts: Steel nickel plate.

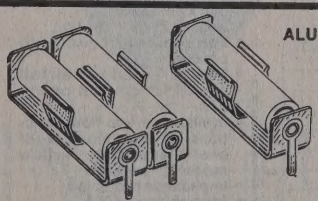
Stk. No.	Type	Description	1-19	20-99	100-249
38F1268	635	Male Contact	.16	.12	.08
38F1269	636	Female Contact	.18	.13	.09



"9" VOLT SNAP-IN BATTERY HOLDER

Battery snaps in place to insure positive contact in severe shock and vibration environments. Available with std. or PC lugs. Made from aluminum. All copper contacts.

Stk. No.	Type	Description	1-19	20-99	100-249
38F1270	1291	Printed Circuit Lugs	.81	.68	.61
38F1271	1290	Standard Solder Lugs	.79	.66	.58



ALUMINUM BATTERY HOLDERS WITH PC LUGS

Single or double holders with P.C. lugs attached. Eliminates extra wiring. Will accept most types of stated cell sizes.

Neda Nos.:	Stk. No.	Type	Cells	1-19	20-99	100-249
Pencell Holders						
15, 15A 1103, 1107	38F1306	2222	1	.54	.51	.45
	38F1307	2223	2	.85	.80	.77
"C" Cell Holders						
14, 1300, 1600	38F1308	2224	1	.70	.66	.59
	38F1309	2225	2	.85	.80	.77
"D" Cell Holders						
13 13	38F1310	2226	1	.70	.66	.59
	38F1311	2227	2	.91	.87	.84

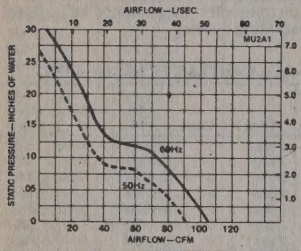
17

EG&G ROTRON

Muffin® and Whisper® Fans

U.S. designed. U.S. made. The brand preferred by professionals for over 30 years. Rotron "invented" the precision airmover industry which has kept pace with the cooling demands of today's electronics. Rotron fans and blowers, completely manufactured in the U.S., have earned their way into products bearing such names as IBM, Xerox, Honeywell, H-P, T.I. and Raytheon. So, you'll be in good company with Rotron airmovers. The Rotron line, broadest in the industry, features AC fans and blowers, as well as energy-efficient brushless DC models. Performance sensors are optional in its commercial fans, standard on military/aerospace models built for high reliability in hostile environments. These sensors can signal that a problem exists, or can be wired to shut down the entire system for added protection.

MUFFIN® VENTURI FAN

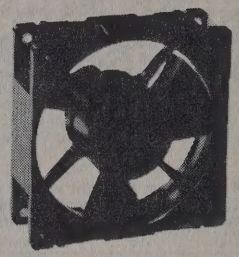


MUFFIN

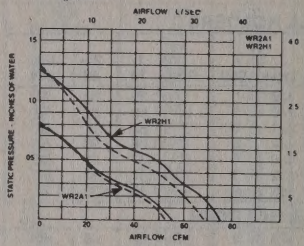
The dependable, low cost, largest selling fan for commercial cooling applications.

- 105 cfm (49.6 L/Sec) free delivery
- 4.71" sq. x 1.50" depth (119.6 mm x 38.1 mm)
- weight: 17.2 oz. (0.49 kg)
- acoustical rating as low as NC-43
- famous Muffin motor reliability
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified
- MU2A1, MU2B1-115V, MU3A1-220/230V

Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F8100	MU2A1	028021	20.20	17.60	15.80	14.80	13.85	13.05
81F8109	MU2B1	028027	29.00	25.25	22.70	21.25	19.90	18.91
81F8107	MU3A1	028023	20.75	18.05	16.20	15.20	14.20	13.40



WHISPER® VENTURI FAN

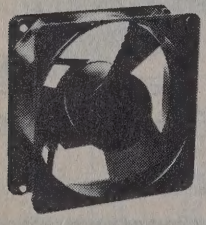


WHISPER

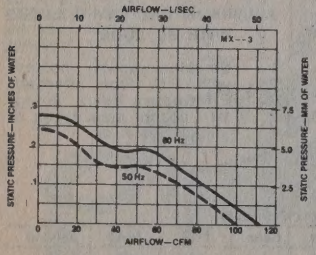
The quiet one—for efficient cooling where low acoustical disturbance is a must.

- 57 to 75 cfm (26.9 to 35.4 L/Sec) free air delivery
- 4.71" sq. x 1.50" depth (119.6 mm x 38.1 mm)
- weight: 17.2 oz. (0.49 kg)
- acoustical rating as low as NC-27
- famous Muffin motor reliability
- impedance protected
- for ambients up to 70°C
- UL yellow card recognized and CSA certified
- 115V 50/60 Hz

Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F8101	WR2A1	027117	21.40	18.65	16.75	15.70	14.70	13.85
81F8104	WR2H1	027119	22.40	19.55	17.55	16.45	15.40	14.50



MUFFIN® XL FAN

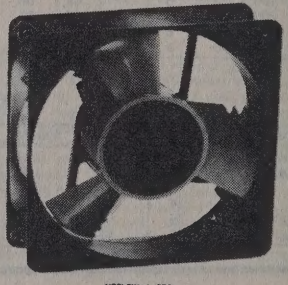


MUFFIN XL

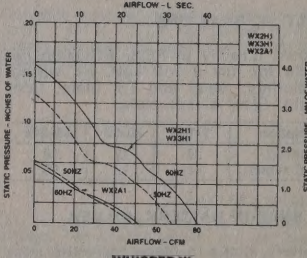
High performance and low noise level, with Muffin reliability. Sturdy one-piece metal venturi.

- 115 cfm (54.3 L/Sec) free air delivery
- 4.69" sq. x 1.54" depth (119.1 mm x 39.1 mm)
- weight: 21 oz. (0.61 kg.)
- convenient ground lug bosses
- Feathered Edge™ airfoil blades for quietest operation
- available in two flow directions, air over struts or air over blades first. Airflow model "L" available
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified
- 115 Volts 50/60 Hz.

Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F8103	MX2A3	028316	21.25	18.50	16.60	15.60	14.60	13.75
81F8106	MX2B3	028422	30.45	26.55	23.80	22.30	20.90	19.86



WHISPER® XL FAN



WHISPER XL

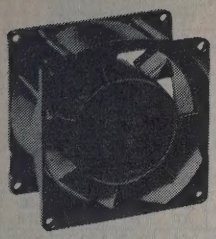
High performance and low noise level, with Muffin reliability. Sturdy one-piece metal venturi.

- 50 to 80 cfm (23.6 to 37.8 L/Sec) free air delivery
- 4.69" sq. x 1.54" depth (119.1 mm x 39.1 mm)
- weight: 21 oz. (0.61 kg)
- convenient ground lug bosses
- Feathered Edge™ airfoil blades for quietest operation
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified
- sleeve bearing, 115V, 50/60 Hz.

Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F2757	WX2A1	028778	23.20	20.20	18.15	17.00	15.90	15.00
81F2758	WX2HI	028858	22.50	19.60	17.60	16.50	15.45	14.55
81F2759	WX3HI	028860	23.25	20.25	18.20	17.05	15.95	15.05

Air Cooling Fans

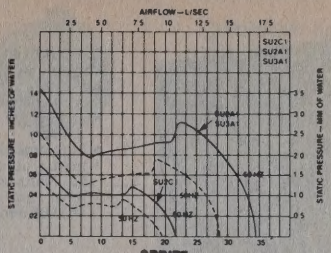
EG&G ROTRON



SPRITE® FAN

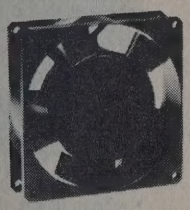
A smaller size fan that delivers relatively high pressures at close-to-maximum air delivery.

- 21 to 35 cfm (9.9 to 16.5 L/Sec) free air delivery
- 3.14" sq. x 1.64" depth (79.2 mm x 41.7 mm)
- weight: 18 oz. (0.51 kg)
- famous Muffin motor reliability
- acoustical rating as low as NC-28
- rugged die-cast zinc housing
- impedance protected
- for ambients to 70°C
- UL yellow card recognized and CSA certified
- lead wire and terminal models
- units 50/60 Hz



SPRITE

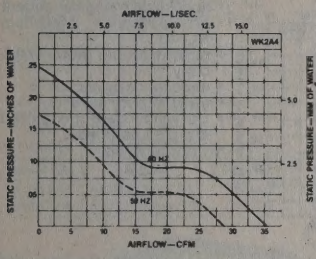
Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F8102	SU2A1	028267	20.65	18.00	16.15	15.15	14.15	13.35
81F2764	SU3A1	028269	21.50	18.75	16.80	15.75	14.75	13.90
81F8108	SU2C1	028270	21.65	18.85	16.95	15.85	14.85	14.00
81F8105	SU2A5	028279	21.95	19.15	17.20	16.10	15.10	14.20



WAFER FAN

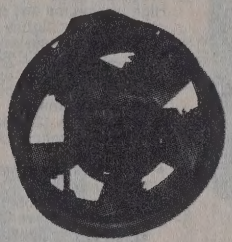
1" (25.4 mm) thickness and low noise level for cooling applications in tight spots in equipment used near operators.

- 27 to 35 cfm (12.7 to 16.5 L/Sec) free air delivery
- 3.63" x 1" depth (92.2 mm x 25.4 mm)
- weight: 10 oz. (0.28 kg)
- acoustical rating as low as NC-41
- one-piece die-cast zinc housing
- impedance protected
- for ambients to 55°C with sleeve bearings
- UL yellow card recognized and CSA certified
- lead wire model, 115V 50/60 Hz



WAFER

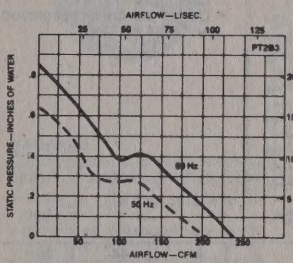
Stock No.	Model	Part	1-23	24-47	48-95	96-239
81F2765	WK2AY	028830	24.90	21.70	19.45	18.25



PATRIOT® FAN

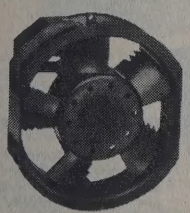
Quiet high pressure performance in a compact rugged fan.

- 240 cfm (113.3 L/Sec) free air delivery
- 6.75" dia. x 2" depth (171.5 mm x 50.8 mm)
- weight: 1.84 lbs. (0.84 kg)
- acoustical rating as low as NC-46
- one-piece die-cast aluminum housing
- long life ball bearings
- permanent split capacitor motor, capacitor provided
- for ambients to 70°C
- UL yellow card recognized and CSA certified



PATRIOT

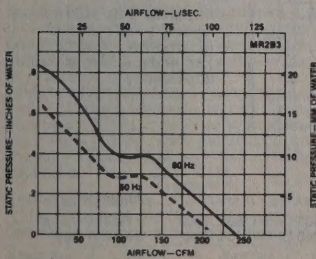
Stock No.	Model	Part	Net
81F8114	PT2B3	028254	47.50



MAJOR® FAN

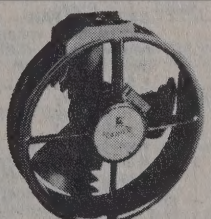
For low cost, low noise, high pressure/volume cooling in the tightest of spaces.

- 240 cfm (113.3 L/Sec) free air delivery
- 6.75" x 5.92" x 2.00" depth (171.5 mm x 150.4 mm x 50.8 mm)
- weight: 1.84 lbs. (0.84 kg)
- acoustical rating as low as NC-60
- one-piece die-cast aluminum housing
- long life ball bearings
- thermally protected
- for ambients to 70°C
- permanent split capacitor motor, capacitor provided
- UL yellow card recognized and CSA certified
- 115 V



MAJOR

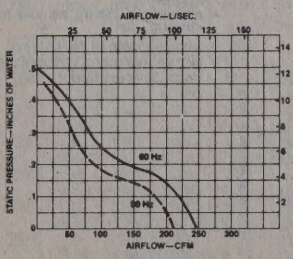
Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479
81F8113	MR2B3	028245	47.50	41.35	37.10	34.80	32.60



FEATHER® FAN

High volume air performance where space is severely limited, particularly in depth.

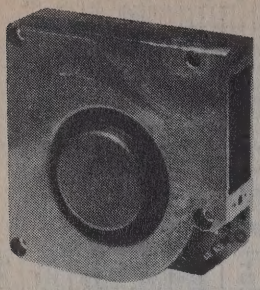
- .245 cfm (115.6 L/Sec) free air delivery
- 7" diameter x 2.47" depth (177.8 mm x 62.7 mm)
- weight: 1.5 lbs. (0.68 kg)
- exclusive Feathered Edge™ blade is extra quiet at free delivery, NC-45
- permanently lubricated ball bearings
- permanent split capacitor motor, capacitor provided
- for ambients to 65°C
- UL yellow card recognized
- FF113—115 volt, FF213—220/230 volt



FEATHER

Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479
81F8110	FF113	026165	57.60	50.20	45.05	42.20	39.50
81F2760	FF213	026166	62.90	54.80	49.20	46.10	43.20

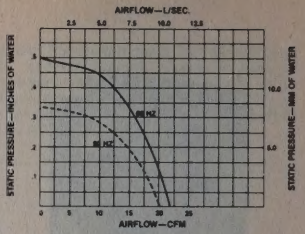
18



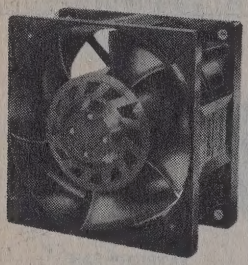
BISCUIT® BLOWER

The only air moving device that fits inside a 1¾" rack panel mounted instrument.

- 22 cfm (10.4 L/Sec) free air delivery
- high pressure capability
- built around famous Muffin fan features
- 4.75" sq. x 1.56" depth (120.65 mm x 39.7 mm)
- weight: 19 oz. (.54 kg)
- acoustical rating as low as NC-42
- for ambients to 70°C
- UL yellow card recognized



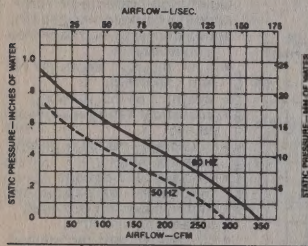
Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F8120	BT2A1	028448	28.20	24.60	22.05	20.70	19.35	18.25
81F2757	BT3A1	028449	28.85	25.15	22.55	21.15	19.80	18.65



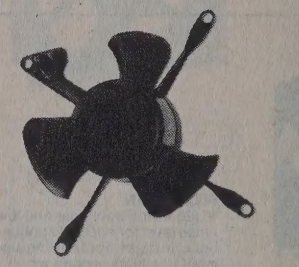
TARZAN® FAN

High air volume and pressure combined, for tightly packed cabinets and chassis.

- 340 cfm (160.5 L/Sec) free air delivery
- 6.91" sq. x 4.34" depth (175.5 mm x 110.2 mm)
- weight: 5 lbs. (2.26 kg)
- acoustical rating as low as NC-57
- ball bearing thermally protected motor
- for ambients to 55°C
- centrifugal blower performance in a compact axial flow fan
- UL yellow card recognized and CSA certified



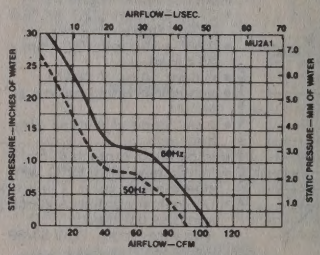
Stock No.	Model	Part	1-23	24-47	48-95	96-239
81F8116	TN3A2	020174	61.90	53.65	48.15	45.15
81F2761	TN3A3	020172	62.90	54.80	49.20	46.10



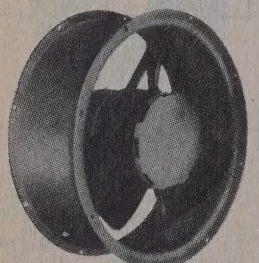
SKELETON FANS

Reduce costs. Save .5" space (13.2 mm) on height and width compared to equivalent venturi models; particularly helpful in tight packaging applications. Mount directly to orifice molded into your own panel design.

- 57 to 105 cfm (26.9 to 49.6 L/Sec.) free air delivery
- 1.6" (40.64 mm) depth; propellor dia. 4.19" (106.4 mm)
- mounting holes on 4.125" centers (104.78 mm)
- weight: 12.8 oz. (0.36 kg)
- acoustical rating dependent on application; Maximum NC-43
- famous Muffin motor reliability
- impedance protected.
- for ambience to 70°C
- UL yellow card recognized and CSA certified
- 115V 50/60 Hz



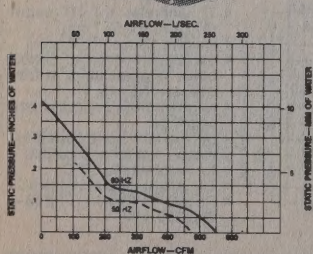
Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F2762	MU2A2	028022	18.00	15.70	14.10	13.20	12.35	11.65



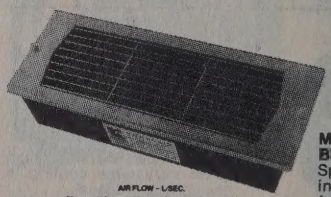
CARAVEL® FAN

Maximum air volume, from a narrow fan, for flushing large racks and cabinets.

- 550 cfm (259.6 L/Sec) free air delivery
- 10" dia. x 3.5" depth (254 mm x 88.9 mm)
- weight: 4.4 lbs. (1.99 kg)
- ball bearing thermally protected slow speed motor
- exclusive Feathered Edge™ blade for low noise level operation
- acoustical rating as low as NC-45
- for ambients to 60°C
- UL yellow card recognized and CSA certified



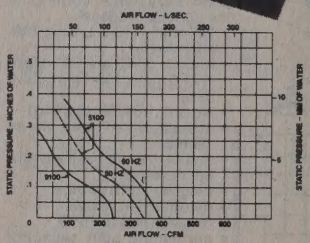
Stock No.	Model	Part	1-23	24-47	48-95	96-239
81F8115	CL2L2	020188	47.15	41.10	36.90	34.55
81F2763	CL3L2	020190	48.30	42.10	37.80	35.40



MODULAIR® CABINET BLOWERS

Special air moving packages incorporate proven Rotron fans and blowers to maximize airflow and simplify installation.

- fit standard 19" (483 mm) relay racks and cabinets
- incorporate washable filters, and grilles for attractive appearance.

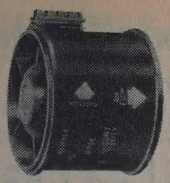


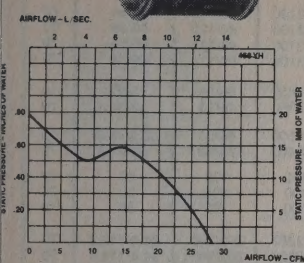
MODEL	HEIGHT	FLOW	AIRMOVERS
MB 5100	5¼" (133 mm)	400 CFM (189 L/Sec)	2 Feather Fans
MB 9100	5¼" (133 mm)	240 CFM (113 L/Sec)	3 Muffin Fans

Cabinet blowers requiring other flows and dimensions available on request.

Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479	480-999
81F8122	MB9100-100	024475	131.00	118.00	106.00	97.00	87.00	81.00
81F8121	MB5100-100	020099	222.00	200.00	180.00	165.00	148.00	138.00

EG&G ROTRON

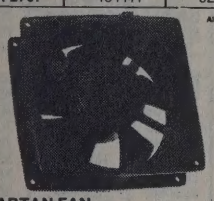


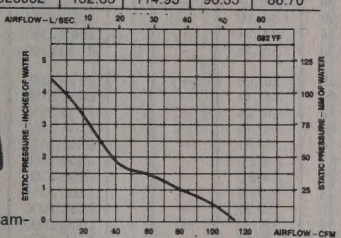


AXIMAX® 1, 2, 2H & 3
Family of miniature, high performance air movers for airborne and other critical space/weight/performance applications.
- free of air delivery from 11 cfm to 157 cfm (5.2 to 74.1 L/Sec)
- optional Altivar® motors automatically increase speed with altitude
- life expectancies from 10,000 hours at 72° C, at 22,000 RPM
- withstands ambients up to 257° F (125° C)
- sizes: 1½" x 1½" (38.1 mm x 38.1 mm), 2" x 1½" (50.8 mm x 38.1 mm), and 3" x 2 5/16" (76.2 mm x 58.7 mm)
- weight: 4 oz. (113 grams), 4½ oz, (128 grams) and 14 oz. (.4 kg) respectively
- meet all applicable military specs (MS connectors available)

Models for 115 VAC, 1 phase, 400 Hz; 200 VAC, 3 phase, 400 Hz; and 115 VAC, 1 phase, 60 Hz

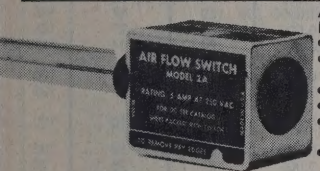
Stock No.	Model	Part No.	1-9	10-24	25-49	50-99
81F2767	464YH	026952	132.85	114.95	96.35	86.70





SPARTAN FAN
The MIL SPEC version of the famous Muffin.
- 113 cfm (53.3 L/Sec) free air delivery. 132 cfm (62.30 L/Sec) for 400 Hz model.
- unusually high pressure characteristics (up to 6.85" [174 mm] H_2O)
- dimensionally interchangeable with the Muffin fan (4.71" sq. x 1.50" [119.6 mm x 38.1 mm]
- double shielded stainless steel ball bearings
- lubricated for life
- highly efficient multi-slot motor
- withstands ambients from -60° F (-54° C) to +212° F (+100° C)
- venturi, spiders, and hub are single aluminum casting for shock and vibration resistance
- meet all applicable military specs (MS connectors available)

Stock No.	Model	Part No.	1-9	10-24	25-49	50-99
81F8124	682YF(Type SL)	020027	113.45	86.70	73.00	70.10
81F2770	810DF(Type ST)	026984	157.35	120.50	101.35	97.35



AIRFLOW INTERLOCK SWITCH
Features:
- 8 air velocity ratings
- Interchangeable actuating vanes
- Weight 4.5 oz. (0.13 Kg)
- SPDT 5 AMP 250 VAC
- Mounts on round and flat ducts with single screw
- Life expectancy—500,000 operations

Actuated by air velocity rather than air pressure. Designed for easy mounting on the outside of an air duct with a lightweight stainless steel vane protruding through the duct into the airstream. A snap action switch is actuated when the velocity pressure against the vane moves it in the direction of the air flow. As the velocity of the airstream decreases for any reason the vane moves back towards its original position and the switch dactuates.
The switch can be used as an interlock for on-off purposes, or as a marginal safety device where the electrical contacts are operated at a predetermined minimum flow air.
Operates reliably in ambient temperatures of -35° C to +85° C.

ELECTRICAL RATING: The contact arrangement is single pole double throw and no other contacts are available.
The underwriter's rating for the switch is 1 amp at 28 volts DC.

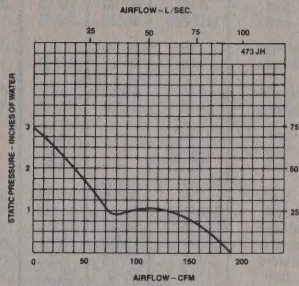
DETERMINATOR KIT: To determine the required vane type numbers, use the Rotron "Determinator Kit."

APPLICATION NOTES: To select the proper rating of a velocity operating switch, determine the velocity of the air in the duct at the point of insertion of the switch. This can be done by experiment or calculation. The cubic feet per minute (CFM)—liters per second 1/Sec) figure is a volume figure and should not be confused with the ft./min. figure which is a velocity figure. The relation is:

$$\frac{\text{CFM (L/S)}}{\text{area}} = \text{ft./min. (m/second)}$$

whereby the area is expressed in square feet (m^2). Therefore, if the CFM (L/S) delivery of the fan or blower can be estimated accurately, the air velocity in the duct at the point of insertion can be calculated.

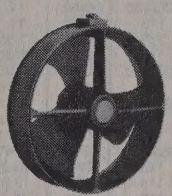
Stock No.	Model	Part No.	1-9	10-24	25-49	50-99
81F2749	2A/1000	020030	25.90	23.40	21.40	19.80
81F2750	2A/1350	020031	25.90	23.40	21.40	19.80
81F2751	2A/1600	020032	25.90	23.40	21.40	19.80
81F2752	2A/1800	020033	25.90	23.40	21.40	19.80
81F2753	2A/2000	020034	25.90	23.40	21.40	19.80
81F2754	2A/2450	020035	25.90	23.40	21.40	19.80
81F2755	2A/3000	020036	25.90	23.40	21.40	19.80
81F2756	2A/4000	020037	25.90	23.40	21.40	19.80

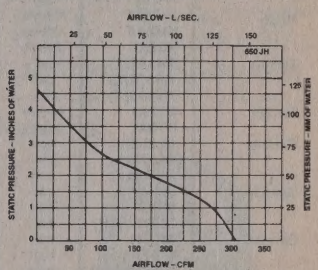


PROPIMAX® 2,3,& 3B
Large volume and high pressure air movers for airborne equipment.
- free air delivery from 22 to 225 cfm (10.3 to 106.2 L/Sec)
- offer pressures as high as 7" (177.8 mm) H_2O at cut-off
- optional Altivar® motors automatically increase speed with altitude
- life expectancies of 10,000 hours at 72° C, at 22,000 RPM
- withstand ambients up to 257° F (125° C)
- size/weight: 3¼" x 1½" (82.5 mm x 38.1 mm) and 6.5 oz. (184.3 g) for Propimax 2, 3¾" x 2" (95.3 mm x 50.8 mm) and 15.2 oz. (431 g) for Propimax 3 & 3B
- meet all applicable military specs (MS connectors available)

Models for 115 VAC, 1 phase, 400 Hz; 200 VAC, 3 phase, 400 Hz; 115 VAC, 1 phase, 60 Hz

Stock No.	Model	Part No.	1-9	10-24	25-49	50-99
81F2768	3B473JH	026976	224.70	196.30	165.40	145.35
81F2769	3BM473JH	021086	262.10	228.95	192.90	169.50





SAUCER®
High volume and high pressure both, from a minimum of fan space.
- 275 cfm (129.8 L/Sec) free air delivery
- generates pressures up to .5" (12.7 mm) H_2O
- driving motor entirely within hub for minimum depth 2.50" (63.5 mm), dia. 7" (177.8 mm)
- pre-lubricated stainless steel ball bearings
- for ambients from -60° F (-54° C) to +257° F (+125° C)
- clamping rings at venturi ends for easy mounting
- meet all applicable military specs (MS connectors available

Stock No.	Model	Part No.	1-9	10-24	25-49	50-99
21F2771	650JH	026991	190.40	154.60	132.30	123.20

Rotron Model 2A airflow switches will actuate and de-actuate in an airstream of the following velocity in ft./min. for "standard" air. (29.9 inch HG, 70° F.)

Type No. 2A/	Dim. "L" Max. In./ (mm)	Vertical-Up Airstream Inc. Air Ft./Min. (m/s) Act.	Vertical-Up Airstream Dec. Air Ft./Min. (m/s) Deact.	Horizontal Airstream Arm Horizontal Inc. Air Ft./Min. (m/s) Act.	Horizontal Airstream Arm Horizontal Dec. Air Ft./Min. (m/s) Deact.	Horizontal Airstream Arm Vertical Vane Down Inc. Air Ft./Min. (m/s) Act.	Horizontal Airstream Arm Vertical Vane Down Dec. Air Ft./Min. (m/s) Deact.	Vertical-Down Airstream Inc. Air Ft./Min. (m/s) Act.	Vertical-Down Airstream Dec. Air Ft./Min. (m/s) Deact.
1000	2.84 (72,13)	785 (3,990)	700 (3,555)	735 (3,735)	630 (3,200)	750 (3,810)	615* (3,125)	Not Usable	Not Usable
1350	2.22 (56,38)	1125 (5,715)	1030 (5,235)	1025 (5,210)	970 (4,930)	1000 (5,080)	890 (4,520)	720* (3,660)	685* (3,480)
1600	1.94 (49,28)	1340 (6,810)	1212 (6,160)	1215 (6,175)	1095 (5,565)	1225 (6,225)	1130 (5,740)	1040* (5,285)	865 (4,395)
1800	1.66 (42,16)	1550 (7,875)	1450 (7,370)	1460 (7,420)	1335 (6,785)	1500 (7,620)	1375 6,985)	1280 (6,505)	1115* (5,665)
2000	1.44 (36,57)	1800 (9,145)	1675 (8,510)	1790 (9,095)	1580 (8,025)	1760 (8,940)	1580 (8,025)	1595* (8,105)	1425* (7,240)
2450	1.12 (28,45)	2340 (11,890)	2120 (10,770)	2120 (10,770)	1867 (9,485)	2270 (11,535)	2035 (10,340)	2125 (10,795)	1950 (9,910)
3000	.94 (23,88)	2925 (14,860)	2700 (13,715)	2690 (13,665)	2420 (12,295)	2880 (14,630)	2570 (13,055)	2780 (14,125)	2395 (12,170)
4000	.75 (19,05)	4000 (20,320)	3680 (18,695)	3720 (18,900)	3485 (17,705)	3870 (19,660)	3520 (17,885)	3760 (19,100)	3565 (18,110)

NOTE: All figures shown above are ±15% except * denotes ±20%

Airflow figures listed are typical as recorded in a laboratory test set-up for controlled laminar flow conditions and are used only as a guide. For actual requirements in a specific application, it is recommended that the "Determinator Kit" be used to determine exact requirements.

EG&G ROTRON Performance Specifications

Fan	Model No.	Bearings	Volts	Hz.	Watts	Line Amps	Locked Rotor Amps	Cap. Mfd.	Ph.	RPM	CFM	L/Sec.	Max. Amb. °C
Muffin	MU2A1	sleeve	115	50/60	15/14	.19/.16	.26/.24	—	1	2700/3200	88/105	42/50	70
Muffin XL	MX2A3	sleeve	115	50/60	18/15	.20/.18	.26/.24	—	1	2700/3100	98/115	46/54	70
	MX3A3	sleeve	220/230	50/60	16/15	.10/.09	.14/.12	—	1	2700/3100	98/115	46/54	70
	MX2B3	ball	115	50/60	18/15	.20/.18	.26/.24	—	1	2700/3100	98/115	46/54	70
	MX3B3	ball	220/230	50/60	16/15	.10/.09	.14/.12	—	1	2700/3100	98/115	46/54	70
Whisper	WR2A1	sleeve	115	50/60	7/7	.07/.07	.08/.07	—	1	1600/1650	55/57	26/27	70
	WR2H1	sleeve	115	50/60	11/10	.12/.11	.135/.125	—	1	2150/2350	68/75	32/35.4	70
Whisper XL	WX2A1	sleeve	115	50/60	6/6	.07/.06	.07/.06	—	1	1450/1500	48/50	22.5/23.6	70
	WX2H1	sleeve	115	50/60	15/13	.19/.15	.20/.17	—	1	2050/2400	70/80	33/37.8	70
Muffin DC Brushless	MD12B1	ball	12DC	—	5.2	.43	1.7	—	—	3,100	105	50	70
	MD24B1	ball	24DC	—	5.2	.22	.8	—	—	3,100	105	50	70
	MD48B1	ball	48DC	—	5.2	.11	.4	—	—	3,100	105	50	70
Patriot	PT2B3	ball	115	50/60	35/33	.31/.28	.50/.50	—	1	2850/3350	200/240	94.4/113.3	70
	PT77B3	ball	220/230	50/60	31/33	.15/.14	.23/.24	—	1	2850/3350	200/240	94.4/113.3	70
Sprite	SU2A1(L)	sleeve	115	50/60	13/11	.17/.14	.23/.21	—	1	2750/3300	27/34	13.5/16.5	70
	SU3A1(L)	sleeve	220/230	50/60	13/11	.09/.08	.11/.10	—	1	2750/3300	29/35	14/17	70
	SU2C1(L)	sleeve	115	50/60	5/5	.06/.06	.07/.07	—	1	1800/1950	19/21	9/10	70
Major	MR2B3	ball	115	50/60	35/33	.31/.28	.50/.50	—	1	2850/3350	200/240	94.4/113.3	70
	MR77B3	ball	220/230	50/60	31/33	.15/.14	.23/.24	—	1	2850/3350	200/240	94.4/113.3	70
Wafer	WK2A4(L)	sleeve	115	50/60	14/12	.15/.13	.16/.15	—	1	2700/3300	30/36	14/17	55
Feather	FF113	ball	115	50/60	21/20	.19/.18	.29/.28	—	1	2800/3350	215/270	101/127	65
	FF213	ball	220/230	50/60	21/20	.09/.09	.14/.14	—	1	2800/3350	215/270	101/127	65
Scout	KM2AF	sleeve	115	50/60	14	.20/.17	.26/.24	—	1	2700/3100	88/105	42/50	70
	KM3AF	sleeve	220/230	50/60	14	.10/.09	.14/.12	—	1	2700/3100	88/105	42/50	70
	KS2AC	sleeve	115	50/60	11	.17/.14	.23/.21	—	1	2750/3300	29/35	14/17	70
Tarzan	TN3A2(T)	ball	115	50/60	87/85	1.3/1.1	2.4/2.0	—	1	2800/3350	285/340	135/160	55
	TN3C2(L)	ball	115	50/60	87/85	1.3/1.1	2.4/2.0	—	1	2800/3350	285/340	135/160	55
	TN3A3(T)	ball	220/230	50/60	87/85	.61/.56	1.2/1.0	—	1	2800/3350	285/340	135/160	55
Biscuit	BT2A1	sleeve	115	50/60	18/16	.19/.19	.27/.27	—	1	2550/2900	22/25	10.4/11.8	70
	BT3A1	sleeve	220/230	50/60	17/17	.13/.12	.13/.12	—	1	2550/2900	22/25	10.4/11.8	70
Caravel	CL2L2(L)	ball	115	50/60	65/61	1.0/.87	1.6/1.4	—	1	1400/1650	460/550	218/260	60
	CL2T2(T)	ball	115	50/60	65/61	1.0/.87	1.6/1.4	—	1	1400/1650	460/550	218/260	60
	CL3L2(L)	ball	220/230	50/60	61/61	.47/.44	.75/.69	—	1	1400/1650	460/550	218/260	60
Sparten	682YF	ball	115	50/60	13.0	0.12	0.15	1.0	1	3,250	113	53	100
	810DF	ball	115	400	13.0	0.12	0.13	0.39	1	3,750	132	62	100
	682YF(SM*)	ball	115	50/60	13.0	0.12	0.15	1.0	1	3,250	113	53	100
Saucer	340ZH	ball	115	50/60	24.0	0.21	0.31	2.0	1	3,300	280	132	125
	650TH	ball	200	400	25.0	0.13	0.18	—	3	3,500	300	142	125
	340ZH(SM*)	ball	115	50/60	24.0	0.21	0.31	2.0	1	3,300	280	132	125
Aximax 1	623YH	ball	115	400	18.0	.16	.40	0.25	1	22,000	21	10	125
Aximax 2	606NH	ball	115	50/60	7.0	0.06	0.06	1.0	1	3,000	7	3.3	100
Aximax 2H	606NH	ball	115	50/60	7.0	0.06	0.06	1.0	1	3,000	7	3	100
	464YH	ball	115	400	11.0	0.11	0.16	0.15	1	10,200	28	13	125
Aximax 3	528YH	ball	115	400	135.0	1.20	2.1	2.0	1	22,300	155	73	100
	422DH	ball	115	400	26.0	0.31	0.71	1.0	1	11,200	76	56	125
Propimax 2	366ZH	ball	115	400	41.0	0.40	0.51	0.75	1	21,000	120	57	100
	464ZH	ball	115	400	11.0	0.11	0.16	0.15	1	10,500	58	27	125
Propimax 3	341JH	ball	200	400	80.0	0.32	1.70	—	3	22,800	220	104	125
Propimax 3B	473JH	ball	200	400	62.0	0.28	0.75	—	3	10,900	190	90	100
	718ZH	ball	115	400	27.0	0.31	0.48	0.25	1	7,200	120	57	125
Propimax 38M(SM*)	473JH	ball	200	400	62.0	0.28	0.75	—	3	10,900	190	90	100
Spartan ECDC	1928SF		24	—	10.3	.43	1.00	—		3,580	126	59	100
	1937SF		26	—	26.0	1.00	2.5	—		5,000	165	78	70
	1940SF		12	—	8.3	.689	2.93	—		3,200	119	56	100
	1941SF		12	—	14.6	1.22	3.5	—		3,800	142	20	100
	1942SF		12	—	—	—	—	—		—	—	—	50
	1943SF		26**	—	9.6	.371	.82	—		3,420	119	56	100
Saucer ECDC	1945SF		26	—	18	.7	1.5	—		3,200	250	118	100
	1949SF		48	—	18	.38	.80	—		3,200	250	118	110
	1950SF		12	—	18	1.5	3.2	—		3,200	250	118	70
	1960SF		26	—	30	.64	1.8	—		3,800	300	142	100
Mil 80 ECDC	1929SF		12	—	2.9	.240	.81	—		3,360	34	16	100
	1930SF		12	—	4.4	.368	1.24	—		4,017	41	19	100
	1933SF		12	—	10.1	.84	3.04	—		5,938	64	30	100
	1934SF		26**	—	3.8	.147	.49	—		3,800	38	18	100
	1935SF		26**	—	5.9	.228	.54	—		4,050	41	19	100
	1936SF		26**	—	12.6	.485	1.72	—		6,460	66	31	100

*MIL Connection is QPL Listed.
**Suitable for both 24 and 26 VDC operation.

NOTE: Specifications subject to change without notice.

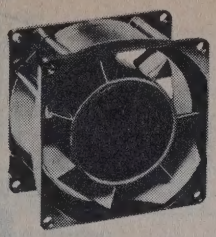
(L) = leadwire models
(T) = terminal models

Make Newark your Complete 1-Point Stock Source

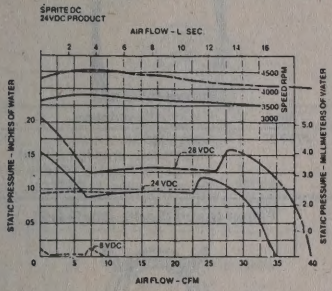
At Newark—fast, efficient service always!

Quantity Prices Competitive with Manufacturer

SPRITE DC FAN

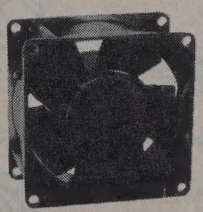


- 3.14" sq. x 1.64" depth (79.2 mm x 41.7 mm)
- rugged die-cast zinc housing
- solid state brushless motor
- made by Rotron in the U.S.A.
- low power consumption

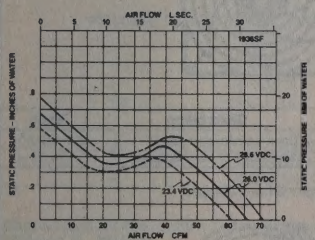


Stock No.	Model	Part	1-9	10-23	24-47	48-95	96-239	240-479	480-999
81F2773	SD12B1	028933	53.55	46.00	40.10	36.00	33.70	31.55	29.75
81F2774	SD24B1	028934	53.55	46.00	40.10	36.00	33.70	31.55	29.75
81F2775	SD48B1	028935	53.55	46.00	40.10	36.00	33.70	31.55	29.75

MIL-80 ECDC FAN



- Up to 71 cfm (33.5 L/Sec) free air delivery
- 12 and 24 VDC (nominal)
- 3.14" sq. x 1.64" deep (79.2 mm x 41.7 mm)
- rugged die-cast zinc housing
- built-in performance sensor

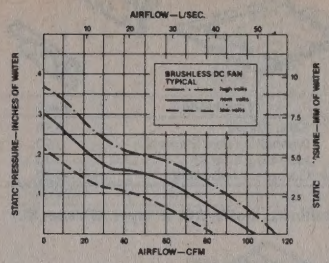


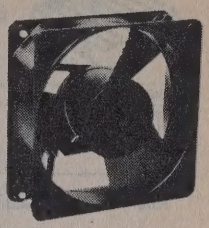
MIL80

High pressures from a 3" fan, with military/aerospace dependability and built-in performance sensors.

Stock No.	Model	Part	1-9	10-24	25-49	50-99
81F2779	ML8T1929SF	011066	221.50	171.80	146.15	141.65
81F2780	ML8T1934SF	011070	223.60	173.40	147.55	143.00

MUFFIN® DC FAN (BRUSHLESS)





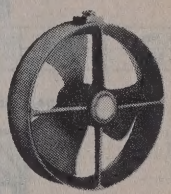
MUFFIN DC (Brushless)

- 55 to 120 cfm (26 to 56.6 L/Sec)
- 12.24 and 48 VDC (nominal)
- solid state brushless motor
- made by Rotron in the U.S.A.
- low power consumption
- size: 4 1/16" square x 1.5" deep (119.13 mm x 39.12 mm)
- weight: 21.5 oz. (0.61 kg)
- polarity protected
- terminal or leadwire versions
- all-metal housing
- maximum operating temperature 70° C

Electronically commutated airmovers that contain all their necessary solid state circuitry within an extremely compact motor housing.

Stock No.	Model	Part	1-23	24-47	48-95	96-239	240-479
81F8117	MD48B1	028867	59.50	51.85	46.55	43.60	40.85
81F8119	MD12B2	028868					
81F8118	MD24B2	028869					

SAUCER ECDC FAN

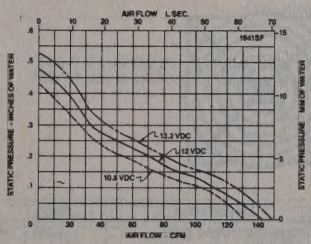


- Up to 277 cfm (130.7 L/Sec) free air delivery
- 12, 24 and 48 VDC (nominal)
- 7" (177.8 mm) diameter by 2.5" (63.5 mm) deep
- pre-lubricated stainless steel ball bearings
- clamping rings at venturi ends for easy mounting
- built-in performance sensor

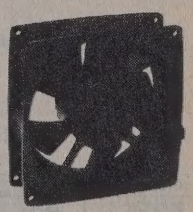
High volume, high pressure, low energy use...with built-in performance sensor.

Stock No.	Model	Part	1-9	10-24	25-49	50-99
81F2776	SCR1950SF	011056	287.45	222.95	189.70	183.85
81F2777	SCR1960SF	011071				
81F2778	SCR1949SF	011075				

SPARTAN ECDC FAN



SPARTAN



MIL-SPEC version of the Muffin DC, with a built-in performance sensor.

- Up to 148 cfm (69.8 L/Sec) free air delivery
- 12 and 24 VDC (nominal)
- 4.71" sq. x 1.50" deep (119.6 mm x 38.1 mm)
- double-shielded stainless steel ball bearings, lubricated for life
- cast aluminum housing for shock and vibration resistance
- built-in performance sensor

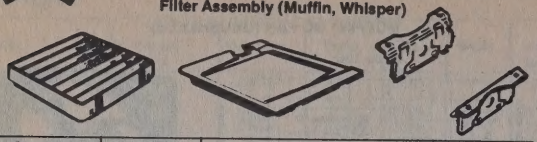
Stock No.	Model	Part	1-9	10-24	25-49	50-99
81F2781	SPTST1940SF	011032	228.70	177.35	150.90	146.25
81F2782	SPTST1943SF	011035	225.75	175.10	149.00	144.35

18

EG&G ROTRON

Fan Accessories

Filter Assembly (Muffin, Whisper)



Stock No.	Type	Description	Each
81F2729	476000	Filter Frame	2.50
81F2730	271018	Washable Filter Element	5.90
81F8131	271016	Mounting Clip (2)	.70
81F8134	477712	Complete Assembly	10.50

Filter Assembly (Muffin, Muffin XL, Muffin DC, Whisper, Whisper XL)

Stock No.	Type	Description	Each
81F2733	551590	Complete Assembly	12.75

Screen Guard (Muffin, Muffin XL, Muffin DC, Whisper, Whisper XL)

Stock No.	Type	Description	Each
81F2735	550214	Aluminum wire and mesh	1.20

Finger Guard (Sprite, Sprite DC)

Stock No.	Type	Description	Each
81F2736	550648	Glass-reinforced poly-carbonate or polyester	2.65

Finger Guard (Muffin, Muffin XL, Muffin DC, Whisper, Whisper XL)

Stock No.	Type	Description	Each
81F8128	550481	Glass-reinforced poly-carbonate	1.15

Finger Guard (Muffin, Muffin XL, Muffin DC, Whisper, Whisper XL)

Stock No.	Type	Description	Each
81F2738	552934	Zinc-plated steel wire	2.65

Grille Kit (Muffin, Whisper)

Stock No.	Type	Description	Each
81F2731	476015	Grille (Spiral)	3.30
81F8131	271016	Mounting Clip (2)	.70
81F2732	478031	Complete Assembly	5.10

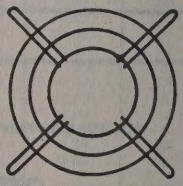
Metal Grille (Muffin, Whisper)

Stock No.	Type	Description	Each
81F2734	477727	Expanded aluminum mesh-snaps onto fan venturi with use of Part No. 271016 mounting clips. (2 REQ'D)	3.65

Finger Guard (Sprite, Sprite DC)

Stock No.	Type	Description	Each
81F8130	476143	Zinc plated steel wire	2.80

Finger Guard (Muffin, Muffin XL, Muffin DC, Whisper, Whisper XL)

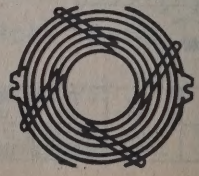


Stock No.	Type	Description	Each
81F8127	476042	Zinc plated steel wire	1.85

Finger Guard (Muffin, Muffin XL, Muffin DC, Whisper, Whisper XL)

Stock No.	Type	Description	Each
81F2737	551147	Glass-reinforced poly-carbonate or polyester	1.20

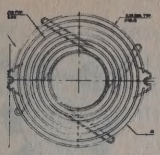
Finger Guard (Major)



Stock No.	Type	Description	Each
81F2739	550272	Zinc-plated steel wire	4.95

EG&G ROTRON

Finger Guard (Patriot)

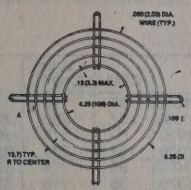


Stock No.	Type	Description	Each
81F2740	551199	Zinc-plated steel wire	4.80

Panel Mount Finger Guard (Feather)

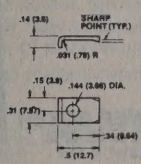
Stock No.	Type	Description	Each
81F2742	476651	Zinc-plated steel wire	9.30
81F8133	476649	Mounting Clips	.29

Finger Guard (Caravel)



Stock No.	Type	Description	Each
81F8132	476323	Zinc-plated steel wire	4.95

Mounting Clip (Feather)

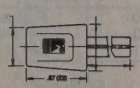


Stock No.	Type	Description	Each
81F2745	476154	Stainless steel Package of three	.80

Mounting Clip (Muffin XL, Whisper XL, Muffin DC)

Stock No.	Type	Description	Each
81F8129	550113	Spring steel, black phosphate finish with oil dip	.14

Plug & Cord (Sprite, Muffin XL, Major, Patriot, Caravel, Tarzan, Biscuit, Whisper XL, Wafer)

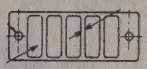


Stock No.	Type	Description	Each
81F2747	550440	#18 AWG Stranded Wire Type SPT-1, 24" to 26"	2.10

Rim Mount Finger Guard (Feather)

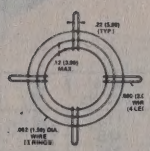
Stock No.	Type	Description	Each
81F2741	476646	Zinc-plated steel wire	9.10

Finger Guard (Biscuit)



Stock No.	Type	Description	Each
81F2743	477626	Stainless steel	1.25

Finger Guard (Tarzan)

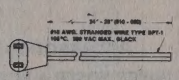


Stock No.	Type	Description	Each
81F2746	476136	Zinc plated steel wire	3.70

Mounting Clips (Muffin, Whisper, Major, Patriot)

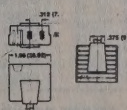
Stock No.	Type	Description	Each
81F8126	477663	Flush	.23
81F2744	477670	Stand off Tempered Spring Steel finished in black phosphate with oil dip.	.23

Plug & Cord (Sprite, Muffin, Muffin XL, Whisper, Whisper XL, Major, Patriot, Caravel, Tarzan, Biscuit, Wafer)



Stock No.	Type	Description	Each
81F8125	428056	#18 AWG Stranded Wire Type SPT-1, 24" to 26".	1.50

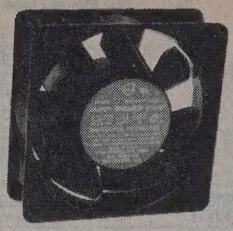
Plug & Cord (Feather)



Stock No.	Type	Description	Each
81F2748	428023	#18 AWG Stranded Wire Type SPT-1, 24" to 26"	2.40

Equipment Cooling Fans

SUPER BOXER
113 CFM
4 11/16" × 1 1/2"

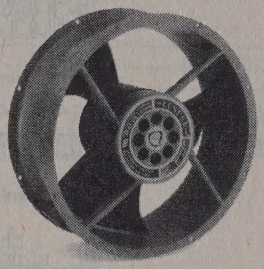


Stock No.	Type	CFM	Volts 50/60 Hz.	1-9	10-49	50-99	100-249
62F1571	WS2107F-1110	113	115	21.95	19.70	18.05	16.70
62F1570	BS2107F-1110	113	115	33.00	29.70	27.20	25.10

MINI BOXER
23 to 46 CFM
2 3/16" × 1 5/8"

Stock No.	Type	CFM	Volts 50/60 Hz.	1-9	10-49	50-99	100-249
60F1642	MWS2107FL-1000	46	115	21.95	19.75	18.05	16.70
81F3916	MWS2107FL-1002	25	115	22.80	20.50	18.80	17.35
81F3917	MWS2107FL-1004	42/23	115	31.10	28.00	25.60	23.65
81F3918	MWS2107FL-1007	46	115/230	38.30	34.45	31.55	29.10
81F3919	MBS2107FL-1007	46	115/230	47.00	42.25	38.70	35.75

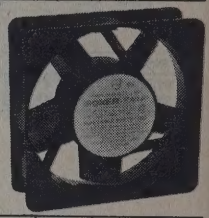
CONDOR
560 CFM
10" × 3 1/2"



Stock No.	Type	CFM	Volts 50/60 Hz.	1-9	10-49	50-99	100-249
60F1645	10*	560	115	50.25	45.20	41.40	38.25
62F1675	12**	560	115				
81F3920	20*	560	230	50.10	46.00	42.10	38.90
81F3921	22**	560	230				

BALL BEARINGS *TERMINALS **12" LEADS

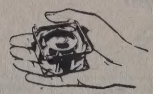
BOXER
50 to 170 CFM
4 11/16" × 1 1/2"



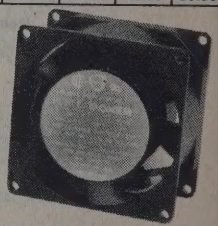
Stock No.	Type	CFM	Volts 50/60 Hz.	1-9	10-49	50-99	100-249
62F1600	WS2107FL-1000	107	115	19.95	17.95	16.45	15.15
81F3906	WS2107FL-1006	107	230	20.50	18.45	16.90	15.60
62F1577	BS2107FL-1000		115	30.05	27.05	24.75	22.90
81F3907	BS2107FL-1006	107	230	30.60	27.55	25.25	23.30
81F3908	WS2107FL-1070	95	115	19.95	17.95	16.45	15.15
81F3909	BS2107FL-1070	95	115	30.05	27.05	24.75	22.90
81F3910	WS2107FL-1072	75	115	20.50	18.45	16.90	15.60
60F1625	WS2107FL-1002	60	115				
60F1639	WS2107FL-1009	50	115	18.45	16.90	15.60	14.60
81F3911	WS2107FL-1004	107/170	115	29.00	26.10	23.90	22.10
81F3912	WS2107FL-1007	107	115/230				
81F3913	BS2107FL-1007	107	115/230	39.90	35.90	32.85	30.35

FULMAR
230 CFM
6 3/4" × 5 23/32" × 2"

Stock No.	Type	CFM	Volts 50/60 Hz.	1-9	10-49	50-99	100-249
60F1610	10	230	115	51.50	46.35	42.45	39.20
81F3922	20	230	230				



PEWEE BOXER
15 to 36 CFM
3 1/8" × 1 5/8"



Stock No.	Type	CFM	Volts 50/60 Hz.	1-9	10-49	50-99	100-249
60F1586	PWS2142FL	36	115	20.50	18.45	16.90	15.60
60F1585	PBS2142FL	36	115	30.55	27.45	22.15	23.25
81F3923	PWS2142FL-2	23	115	21.10	18.95	17.40	39.60
81F3926	PWS2142FL-9						
81F3927	PWS2142FL-4M	27/20	115	33.10	29.75	27.25	25.20
81F3928	PWS2142FL-7M	36	115/230				
81F3929	PWS2142FL-M	36	115	20.50	18.45	16.90	15.60
81F3930	PWS2142FL-6M	36	230				
81F3931	PWS2142FL-2M	23	115	21.10	18.95	17.40	16.05
81F3932	PWS2142FL-9M	15	115				

Accessories

SUPER BOXER & BOXER

Stk. No.	Type	Description	Net
61F1973	055009	OSHA fan guard	1.35
60F1623	432000	24" plug & cord	1.05
62F1576	432001	36" plug & cord	1.35
81F3879	512011	Fastening clips	.18
60F1643	531000	Mntg. Bracket (pr)	.65
81F3880	060002	Filter panel	2.50
60F1607	060003	Screen kit	2.90
60F1637	060010	Clear filter	2.50
81F3881	060011	Clear screen	2.50
81F3882	070000	Filter frame	2.25
81F3938	070001	Screen assy.	2.25
60F1606	531001	Filter kit	5.45

PEWEE BOXER

81F3937	055007	Fan guard	1.05
60F1623	432000	24" plug & cord	1.05
62F1576	432001	36" plug & cord	1.35

MINI BOXER

81F3933	055005	Fan guard	1.05
81F3934	060006	Slim line screen	2.50
81F3935	060007	Slim line filter	2.50

FULMAR

81F3936	055010	Fulmar fan guard	2.50
60F1623	432000	24" plug & cord	1.05
62F1576	432001	36" plug & cord	1.35

CONDOR

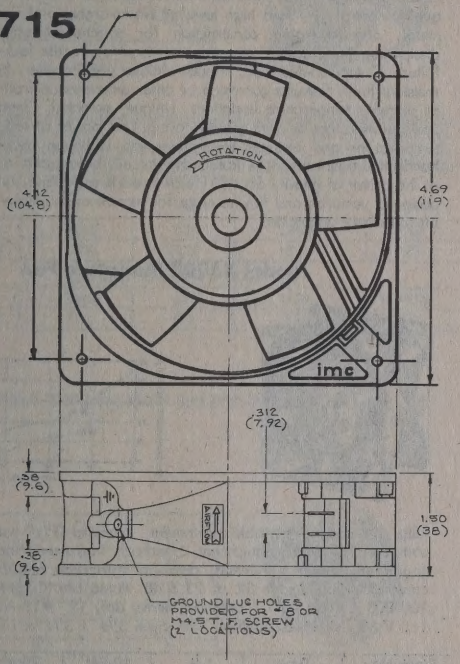
60F1644	055014	Condor fan guard	3.75
60F1623	432000	24" plug & cord	1.05
60F1576	432001	36" plug & cord	1.35

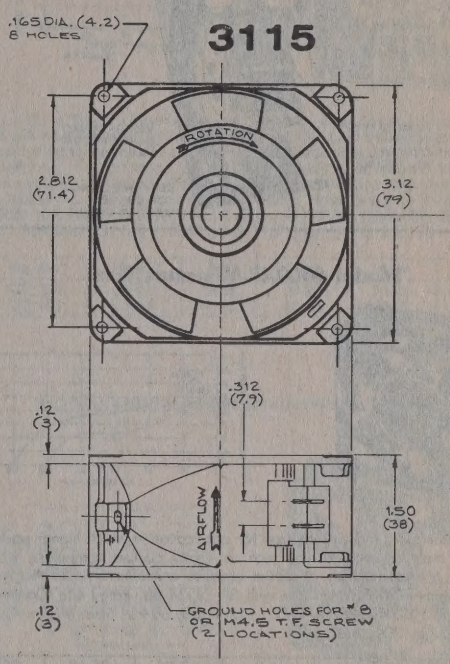
WS = SLEEVE BEARING
BS = BALL BEARING
*12" LEADS

3115 PeeWee Boxer & 4715 Boxer

THE FANS FOR THE 80'S & 90'S

IMC introduces two completely new lines with energy saving motors, acoustically superior impellers and rugged one piece zinc die-cast venturis. Combined with new low friction sleeve or ball bearing systems these airmovers provide higher performance under load and better acoustical characteristics than previous models.





Both 3115/PeeWee Boxer and 4715/Boxer lines provide optimum design flexibility such as:

- ☐ 115 volt, 230 volt or 115/230 dual voltage
- ☐ .120 reversable solder terminals or 12"-22 gauge lead wire
- ☐ Bi-directional air flow selection
- ☐ Broad selection of performance levels, including 2 speed models

All models designed to meet international agency requirements.

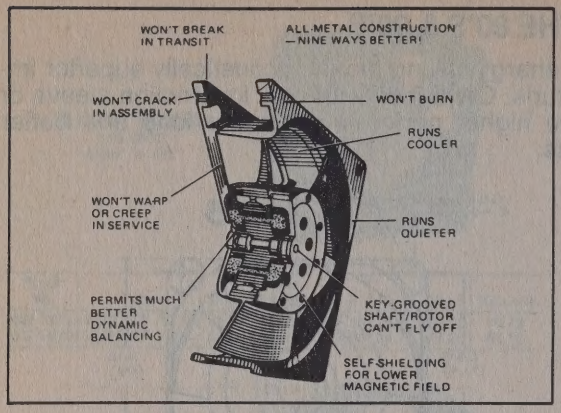
4715 Boxer

Cross Reference Guide BOXER		Stock			Volts				
Old 2107 No.	New 4715 No.	No.	CFM	BRGS	50/60 Hz	1-9	10-49	50-99	100
WS2107F-1110	DS115AAAS	**81F3895**	110	Sleeve	115	18.50	16.65	15.25	14.10
WS2107FL-3110	DS230AAAS	**81F3896**	110	Sleeve	230	19.20	17.25	15.80	14.60
BS2107F-1110	DB115AAAS	**81F3897**	110	Ball	115	25.75	23.20	21.25	19.60
BS2107FL-3110	DB230AAAS	**81F3899**	110	Ball	230	26.45	23.80	21.80	20.15
WS2107FL-1000	DS115ABAS	**81F3900**	100	Sleeve	115	18.50	16.65	15.25	14.10
WS2107FL-1070	DS115ACAS	**81F3901**	90	Sleeve	115	18.50	16.65	15.25	14.10
WS2107FL-1072	DS115ADAS	**81F3902**	70	Sleeve	115	18.50	16.65	15.25	14.10
WS2107FL-1002	DS115AEAS	**81F3903**	60	Sleeve	115	18.50	16.65	15.25	14.10
WS2107FL-1009	DS115AFAS	**81F5415**	50	Sleeve	115	18.50	16.65	15.25	14.10
WS2107FL-1007	DS230BBES	**81F3904**	100	Sleeve	115/230	24.35	21.90	20.05	18.85
BS2107FL-1007	DB230BBES	**81F3905**	100	Ball	115/230	31.60	28.40	26.05	24.85

3115 PeeWee Boxer

Cross Reference Guide PeeWee Boxer		Stock			Volts				
Old 2142 No.	New 3115 No.	No.	CFM	BRGS	50/60 Hz	1-9	10-49	50-99	100-249
PWS2142FL	AS115AAAS	**81F3883**	36	Sleeve	115	18.50	16.65	15.25	14.10
PBS2142FL	AB115AAAS	**81F3884**	36	Ball	115	25.75	23.20	21.25	19.60
PWS2142FL-6	AS230AAAS	**81F3885**	36	Sleeve	230	19.20	17.25	15.80	14.60
PBS2142FL-6	AB230AAAS	**81F3886**	36	Ball	230	26.45	23.80	21.80	20.15
PWS2142FL-2	AS115ACAS	**81F3887**	23	Sleeve	115	18.50	16.65	15.25	14.10
PWS2142FL-9	AS115ADAS	**81F3888**	15	Sleeve	115	18.50	16.65	15.25	14.10
PWS2142FL-4M	AS115AEES	**81F3889**	27/20	Sleeve	115	24.35	21.90	20.05	18.50
PWS2142FL-7M	AS230BAES	**81F3890**	36	Sleeve	115/230	24.35	21.90	20.05	18.50
PWS2142FL-M	AS115AAES	**81F3891**	36	Sleeve	115	18.50	16.65	15.25	14.10
PWS2142FL-6M	AS230AAES	**81F3892**	36	Sleeve	230	19.20	17.25	15.85	14.60
PWS2142FL-2M	AS115ACES	**81F3893**	23	Sleeve	115	18.50	16.65	15.25	14.10
PWS2142FL-9M	AS115ADES	**81F3894**	15	Sleeve	115	18.50	16.65	15.25	14.10

PAMOTOR Air Cooling Devices

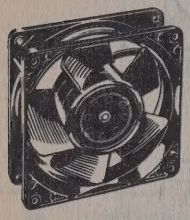

WON'T BREAK IN TRANSIT
ALL-METAL CONSTRUCTION —NINE WAYS BETTER!
WON'T CRACK IN ASSEMBLY
WON'T BURN
RUNS COOLER
WON'T WARP OR CREEP IN SERVICE
RUNS QUIETER
PERMITS MUCH BETTER DYNAMIC BALANCING
KEY-GROOVED SHAFT/ROTOR CAN'T FLY OFF
SELF-SHIELDING FOR LOWER MAGNETIC FIELD

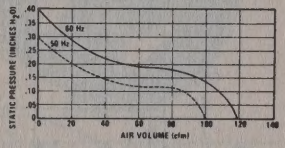
DESIGNED TO OUTLAST THE EQUIPMENT THEY COOL

- **All metal Construction**
- **Low Noise Level**
- **Maintenance Free Operating Life**
- **Low Operating Temperature**

Patented design yields maximum performance at minimum cost. Rigorous quality control assures a high level of workmanship and performance. All metal, non-flammable construction for greater durability and heat dissipation. No cracking, creeping or warping to cause lock-up or bearing failure. Computer-designed, impulse welded steel impeller. Special moisture resistant finish prevents corrosion or other deterioration from high humidity or extreme temperature variations. Unique, patented, "inside/out" motor configuration that delivers greater torque and power at reduced operating temperature and reduces electromagnetic radiation. Maintenance-free, hand-fitted bearing system. Rotors dynamically balanced to a maximum shift of the center of gravity of .0001 inch in each end plane. Aerodynamically designed venturies and fan housings for maximum air intake with minimum air turbulence and noise.

Model 4600XP Miniature Fan

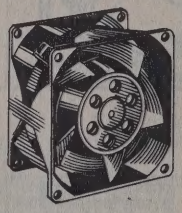


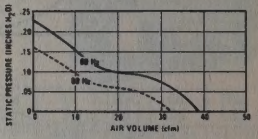


Supplies the extra margin required for application in which higher package densities may be encountered, such as tightly packed computers, power supplies, process controls, airborne consoles and electronic RF/Microwave transmissions. 120 CFM airflow with SIL of 34 dB. Rated Life (Continuous Operation) 100,000 hrs. @ 25°C, 115 V, 50, 60 Hz. Size: 4½" x 4½" x 1½". Weight: 20 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F2600	4600XP	29.80	26.80	25.55	23.85

Model 8500P Miniature Fan

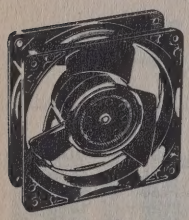


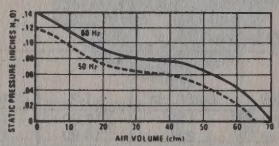


Ideal for cooling portable equipment, standard 3½" rack applications, computer terminal equipment, medical instrumentation, audio-visual equipment, bench instruments, desk-top instruments and broadcast studio consoles. 40 CFM with SIL of 23.3 dB. Rated Life (Continuous Operation) 100,000 hrs. @ 25°C. Terminals: heavy duty 12" #18 AWG wire leads. 115 V 50, 60 Hz. 3250 RPM. 15W Size: 3½" x 3½" x 1½". 18 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1041	8500P	31.20	28.05	26.75	24.95

Model 4800X Shaded-Pole Miniature

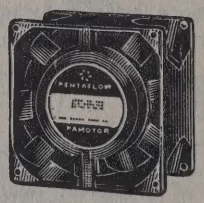


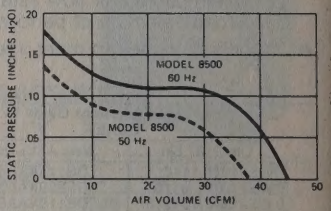


Miniature, shade-pole, axial fan. Moderate air flow, low noise fan. Less than 18 dB. SIL. 70 cfm. Ideal for Hi/Fi stereo equipment, television equipment, medical or office equipment. Fan functions as a natural heat sink, assuring cooler operation. Universal mounting, 4" all metal construction. Moisture resistant finish. Terminals are designed for use with #18 AWG wire or with a plug and cord assembly. 115V, 50, 60 Hz, 1900 RPM. 10 W. Size: $4^{11}/_{16}$" x $4^{11}/_{16}$" x 1½". Wt. 19 oz.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1028	4800X	24.95	22.45	21.40	19.95

Model 8500D Shaded-Pole Miniature





Sub-miniature, shaded pole, axial fan for general cooling purposes. Delivers 43cfm @ less than 29.2 dB SIL. Rated life (continuous operation) 100,000 hours @ 25°C. Heavy duty, 12 inch. No. 22 AWG wire leads are standard. Built to U.L. standards. Size 3⅛" x 3⅛" x 1½". Wt. 18½ oz.
8500D and 8506D 115V, 50/60 Hz 3200 RPM 13
8550D and 8556D 230 V, 50/60 Hz 3200 RPM 13

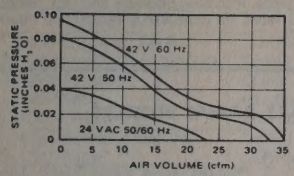
Stock No.	Type	1-9	10-24	25-49	50-99
57F1038	8500D	19.95	17.95	17.10	15.95
81F1361	8506D	39.80	35.80	34.10	31.85
81F1362	8550D	25.10	22.60	21.50	20.10
81F1363	8556D	40.45	36.40	34.70	32.40

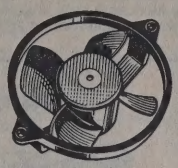
MAKE NEWARK YOUR DEPENDABLE SOURCE FOR ALL ELECTRONIC PARTS AND EQUIPMENT

UL/CSA Air Cooling Fans

PAMOTOR

MODEL 900 SUB-MINIATURE INDUCTION TYPE





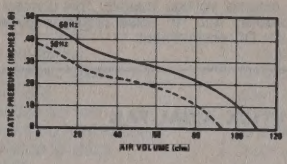
Extremely small, ultra-quiet general purpose fan. Air enters fan radially as well as axially. Induction type motor requires a 5.6 mfd. capacitor. Extremely low electro-magnetic radiation. 34 CFM. 16.8 dB SIL. Terminals: three standard 6" leads, #24 AWG, UL approved insulated wire, 1700 RPM. 2.5 W. 24-42 VAC, 50-60 Hz. Size: 3.129" dia. x 1.46". Wt.: 4.0 oz.

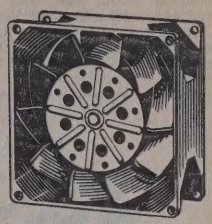
Stock No.	Type	1-9	10-24	25-49
57F2603	900	20.20	18.15	16.85

CAPACITOR FOR MODEL 900

Stk. No.	Type	μF	1-99	100-Up
57F2606	1011	5.6	3.20	2.90

MODELS 2500S and 2550S SHADED-POLE MINIATURE

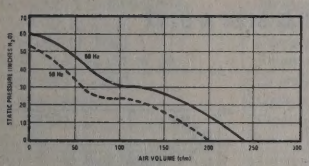


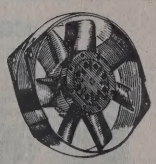


4 7/16 x 4 7/16 x 1 31/32 in. Universal 4 1/8 in. mounting. Stator laminations, winding, and splices are varnish treated and baked at 130° C. Moisture resistant finish prevents corrosion under extreme temp. variations and humid atmospheric conditions. Performance characteristics with variations and humid atmospheric conditions. Performance characteristics with variable back pressures are illustrated on adjacent graph. Noise level, 43 dB SIL. **Model 2500S:** 105-125 VAC, 50/60 Hz.; 25 watts; 3300 RPM. **Model 2550S:** 115-125 VAC, 50/60 Hz.; 31 watts; 3300 RPM. −20° C to +55° C. Wt. 2 lbs.

Stk. No.	Model	1-9	10-24	25-49	50-99
57F1019	2500S	42.55	38.25	36.45	33.90
57F1021	2550S	43.35	39.00	37.15	34.65

MODELS 7600S and 7650S SHADED-POLE MINIATURE



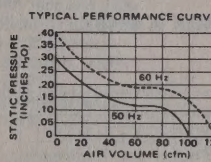


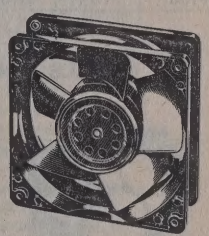
Lightweight fans for use where high air volume is essential, or to replace several similar fans. Delivers 250 CFM at a noise level of less than 48 dB SIL. Unit measure 6" in diameter by 2 3/16" in depth. Provides more than 2½ times the air flow of the conventional miniature fan.

These units are rated at 100,000 hours of continuous operation at room temperature. Model **7600S** rated at 115-125 VAC, 50/60 Hz. 40 Watts. Model **7650S** rated at 220 VAC, 50/60 Hz, 40 Watts. Operating temperature: −20° C to +55° C. Weight: 2 lbs. 6 oz.

Stk. No.	Model	1-9	10-24	25-49	50-99
57F1023 57F1044	7600S 7650S	40.95	36.80	35.10	32.75

MODELS 4600X and 4606X SHADED-POLE MINIATURE

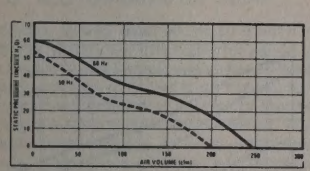


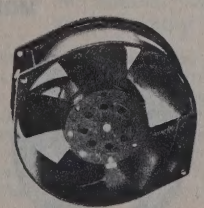


Model 4600X provides 120 CFM @ 34 dB SIL; 4606X provides 120 CFM @ 35.6 dB SIL. 4 1/8" universal mount. Over 100,000 hrs. of continuous operation in normal room temperature. Terminals; heavy duty plug-in (also solderable—#18 AWG wire). 115-125 VAC, 50/60 Hz. 3100 RPM. 18 W. Size: 4 1/16" x 4 1/16" x 1½". Weight: 18 ounces.

Stk. No.	Model	1-9	10-24	25-49	50-99
57F2601	4600X	19.25	17.35	16.50	15.40
57F1027	4606X	41.30	37.15	35.40	33.05
57F1043	4650X	24.95	22.45	21.40	19.95
81F1356	4656X	40.45	36.40	34.70	32.40

MODELS 7606

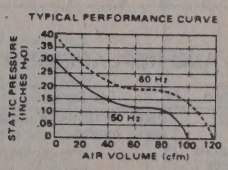


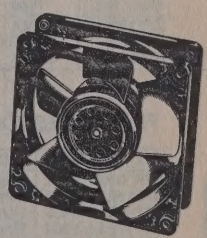


Acoustical characteristics: 48.4 SIL @ 115 VAC/60 Hz, 43.6 dB SIL @ 115 VAC/50 Hz, 60 dB (A) @ 115 VAC/60 Hz, 55 dB (A) @ 115 VAC/50 Hz. 12" long leads are UL & CSA approved #18 AWG wire leads. Weight: 38 ounces. Rated power at 38 watts @ 115 VAC/60 Hz, and 41 watts at 115 VAC/50 Hz, zero static pressure.

Stk. No.	Type	1-9	10-24	25-49	50-99
81F1357	7606	70.40	63.30	60.35	52.25

MODELS 8800 & 8850





8800: Dual sleeve, broached sintered iron bearings; Moisture resistant black varnish finish. Wt.: 18 ounces; 17 inch # 18 AWG UL, CSA approved wire leads. Clockwise rotation. 2 pole shaded pole motor continuous duty. Rated voltage at 115 volts @ 50/60 Hz. Voltage range 100 to 125 @ 50 Hz 105 to 125 @ 60 Hz. Noise level @ 115V/50 Hz = 23SIL, 30 dB @ 115V/60 Hz = 27SIL, 34 dB.

Stk. No.	Model	1-9	10-24	25-49	50-99
81F1358	8800D	25.10	22.60	21.50	20.10
81F1359	8850D	25.95	23.35	22.25	20.75

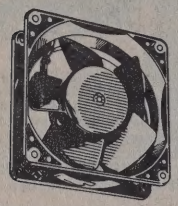
PAMOTOR Solid State DC Fans

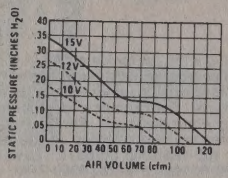
Conforms to UL, CSA, IEC, and VDE standards. Feature single phase brushless motor with all electronics mounted on PC card within motor frame.

These fans do not require an external voltage inverter. This concept has eliminated many of inherent reliability and RF noise problems generally associated with using AC motors in DC environment.

Brushless motor design, reverse polarity protection, minimum magnetic and RF radiation. Power drain at maximum back pressure is approximately 25% of that required in conventional AC units. Precision bearings and high temperature lubricants help to achieve a rated life expectancy of 100,000 hours of continuous operation at 25°C.

MODEL 4112X AXIAL FAN

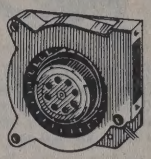


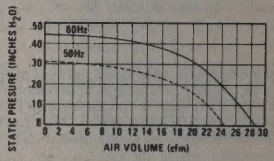


All metal fan is rated at 12 VDC, develops air flow of 122 CFM @ 14 VDC and 0 static pressure. Power consumption at 12 VDC and 0 static pressure is 4.0 Watts; @ maximum static pressure, 5.3 Watts. Typical noise level at 14 VDC is 35.6 dB SIL. Fan is lubricated for life and finished in electrophoretic black varnish. Operating temperature: −20°C to +80°C. Size: 4 11/16" square x 1½" deep. Wt. 21 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1001	4112X	66.55	59.85	55.45	51.90

SERIES RL90-18 RADIAL BLOWERS

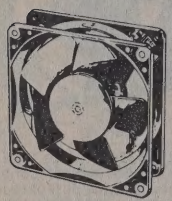


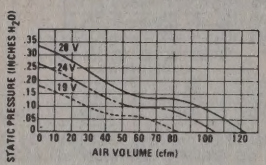


Rated at 100,000 hours of continuous operation at 20°C, these blowers can deliver 29 CFM of air. Model RL90:18/00: Input power 21 watts @ noise level of 42.7 dB SIL, 115 VAC. Model RL90-18/50: 19 watts @ 42.7 dB SIL, 220 VAC. Size: 4.75" square x 1.50" deep. Weight: 23 ounces. UL recognized.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1002	RL90-18/00	32.95	26.95	27.45	25.70

MODELS 4124X, 4124GX & 4148X

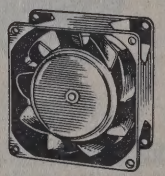


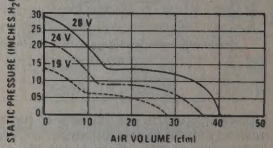


4124X: Rated at 24 VDC; Input Power 4.1 watts; 108 CFM; Noise level 35.6 dB @ 28 VDC. Size: 4.5" sq. x 1.5" depth. 4124GX:CFM 120; All metal, brushless electronic motor, terminal block. Conforms to UL, CSA, IEC and VDE standards. Rated voltage 24 VDC; Voltage range: 19-30 VDC. Size: 4.5" sq. x 1.5" depth. 4148X: 122CFM (variable) Size: 4.5" square x 1.5" depth. Conforms to UL, CSA, IEC and VDE standards. Terminals use No. 18 AWG wire or a quick disconnect plug. Weights: 4124X & GX:18 ounces; 4148X:21 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
57F1020 81F1351 81F1352	4124X 4124GX 4148X	66.55	59.85	55.45	51.90

MODELS 8124 & 8112





MODEL 8124

8124 rated @ 24 VDC; Input power 2.8 watts; Airflow: 37 CFM; Noise level 27.9 dB SIL. Size: 3.13" sq. x 1.5" depth. Weight: 19 ounces. 8112:12 VDC axial fan; 41 CFM; Size 3.13 sq. x 1.5" depth. Conforms to UL, CSA, IEC and VDE standards. Terminals supplied with two 12" leads of 24 AWG UL approved wire.

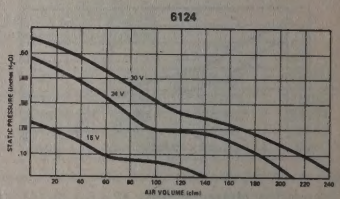
Stock No.	Type	1-9	10-24	25-49	50-99
57F1022 81F1348	8124 8112	66.55	59.85	55.45	51.90

FAN ACCESSORIES AND REPLACEMENT PARTS

Stk. No.	Type	Description	For Series	Each
57F1030	5501	Brackets (2)	2500, 4112, 4124, 4148, 4600, 4800	1.10/pair
57F1031	5502	Filter		2.85
57F1032	5503	Screen Assem.		6.95
57F1033	5504	Fingerguards		2.70
57F1034	5505	24" Plug & Cord	4112, 4124, 4148, 4600, 4800	1.20
57F1035	5506	Fingerguards	7600, 7900	6.95
57F1039	5508	Fingerguards	8112, 8124, 8148, 8500	2.35

NEWARK Your Dependable Source For all Your Electronic Needs

MODELS 6124 & 6148



Brushless DC fans. CFM: 250; Size: 6.75" dia. x 2.17" depth. Rated voltage: 24 VDC (6124); 48 VDC (6148). Voltage range 16-32 (6124); 32-60 (6148). Wt: 6124 & 6148 38 ounces.

Stock No.	Type	1-9	10-24	25-49	50-99
81F1349 81F1350	6124 6148	103.75	93.30	86.45	80.85

BUD INDEX

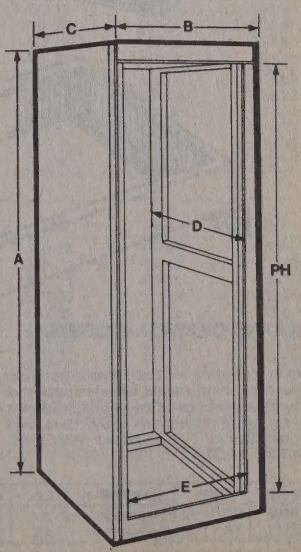
Newark stocks a complete line of Bud products available for immediate delivery. Consult us about your special enclosure problems. We are an extension of the Bud factory's engineering department and can recommend the proper design and size for your equipment. Our advice will save you time and money. Our long years of experience assure you that we can readily understand your problems and solve them economically.

Type	Description	Page
AC 400 and AC1400 Series	Aluminum Chassis	734
AGC 9267/-9280, AGD/-367/380	Classic cabinets and doors	724
AGR 9302 to -9306	Classic II Cabinet Racks	724
AU-1000 Series	Aluminum Utility Cabinets	732
BB 1800 to -1809	Showcase Enclosures	733
BF-24 to -28, BF-53 and -55	Trans-Aire Filters	727
BPA-1500 Series	Aluminum Bottom Plates	734
B-23A, B-25A, B27A, B-50, B52, B-54	Trans-Aire Blowers	727
C1440 to -1442	Prestige Cabinets	735
C-1500 Series	Sloping Panel Cabinets	736
C1550/1552, C1555/1557	Prestige Cabinets	735
C20901 to 20916	Edge Connectors	729
CB-1370 to -1377	Vertical Panel Chassis	734
CB-1976 to -1977	Rack Shelves	736
CB-21401 to -21408	Circuit Boards	729
CBH-21501 Series	Sub-Unit Kits	729
CD-1480 to -1485	Streamlined Cabinets	735
CD17000	Compustation	728
CEF-21001	Connector End Feet	729
CM-1935, CMA-1930, 1936	Connector Mounting Rails	735
CMR 21201	Connector Mounting Rails	729
CR-1700 Series	Metal Cabinet Racks with Panels	732
CR-1771 to 1774, 2071 to 2074	Relay Racks	727
CU-123, 124, 234, 247, 347	Die Cast Utility Boxes	731
CU-341, -452, -482	Converta-Boxes	730
CU-463, -465, -585, -587	Contour Utility Cabinets	734
CU-700, -800, 1000 Series	Steel Utility Cabinets	732
CU-2100, CU-3000 Series	Miniboxes	732
CU-7125 to -7127	Contour Utility Cabinets	734
DB-1680 to -1683	Contempo Small Cabinets	731
POS-4, -7, -9, -11, 6, 66	Power Outlet Strips	724
DW-3230 to -3233	Contempo Small Cabinets	731
E-2000 Series	Upright Cabinet Racks	725
FL-22700	Floating Locks	729
H3360	Lever Type Door Handles	737
H-9100, H-9347 Series	Handles	737
HC-925 and -926	Horizon Cabinets	728
HC-14100 to 14109	Valu/Line Cabinets	730
JB-1650 to -1655	Contempo Small Cabinets	731
JW-3200 to -3205	Contempo Small Cabinets	731
KDR-2572, -2761, -2770, -2778	Cabinet Racks	723
LB-1660 to -1665	Contempo Small Cabinets	731
LW-3210 to -3215	Contempo Small Cabinets	731
MB-400 Series	Chassis Mounting Brackets	736
MB-1670 to -1657	Contempo Small Cabinets	731
MD-1 to 3	Grand Prix Cabinets	733
MD-1960 to -1965	"Futura" Cabinets	733
MS-2150 and 3050 Series	Minislides	730
MW-3220 to -3225	Contempo Small Cabinets	731
N-9233	Nut and Guides	729
OFP-21101, 21102, 21103	Overall Front Panels	729
PA-1100, PA-3100	Aluminum Rack Panels	736
PBU Series	Hardware for PC Boards	729
PC-1700 to -1704	Prestige Versa Cabinets	735
PS-1200 Series	Steel Rack Panels	736
RC-7756, -7758, -7760	Casters	737
RC-7775	H.D. Caster	728
RC-11100 to -11101	Linear Enclosures	733
RL-7765 to -7767	Levelers	737
RR-1248 and -1249	Desk Type Open Relay Racks	727
RR-1263/1265, 1363/1369	Open Type Relay Racks	727
S-30, -2064 to -2066	Extra Deep Cabinet Racks	725
S-1640–1645	Stylist Cabinets	735
S-9089	Screw	729
SB-2140 to -2143	Shadow Cabinets	730
SC-2130 to -2133	Cowl Type Miniboxes	732
SC-3030 to -3033	Cowl Type Miniboxes	732
SC-12100 to -12101	Slope Enclosure	733
SC-13100 to -13101	Compucab Cabinets	730
SD-1717	Sliding Drawer Assembly	724
SE-2064 to -2066	Cabinet Racks	725
SFA-1800 and 3100	"Surface Shield" Rack Panels	736
SR-20101 to -20108	Sub-Racks	729
SU-22100 Series	Sub-Units Kits	728
TBC-20801, 20802	Top or Bottom Covers	729
TP-1718	Sliding Drawer Assembly	724
TR-6100 to -6103	Enclosures	735
TS-15	"Tem-Stat" Temperature Control	727
TV2155-2157	Tilt-A-View Cabinets	730
UH-70A, -71A	Aluminum Handles	773
W-9556	Washer	729
WA-1540 to -1544	Portacabs	734
V-9060–9070	Plexiglass Doors for Cabinets	726
30-2300	Upright Panel Cabinet Racks	726
30-2330	Inclined Panel Cabinet Racks	726
60-2300, -2500	Series 60	726

SERIES 20 CABINET RACKS

- 2 Pairs of Adjustable Mounting Rails
- Two Sets of Louvers
- 6" K.O. on Base for Cable
- Royal Blue Texture Finish
- Accepts Bud Casters & Levelers
- No Special Tools Required for Assembly

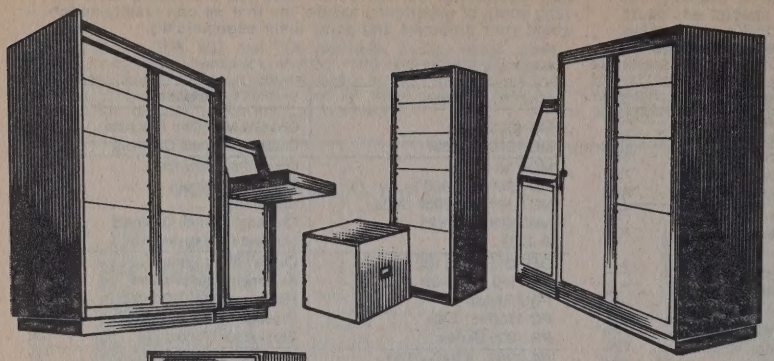
Includes etched clear anodized aluminum extrusions and decorative nameplate frame. Features include two pairs of adjustable mounting rails attached to horizontal rail supports. Two sets of louvers on the top provide ample ventilation. 6" circular knockout in base provided for cable access. Rear door fitted with cam lock and flush handle. Royal Blue texture enamel finish. Caster mounting brackets drilled to accommodate casters or levelers. Available in four different sizes with 30 inch depth and accepts a wide range of accessories. Which includes, drawers with or without an adjustable slide mechanism, desk top drawers with hinged drawer tops, sliding desk tops, heavy-duty shelves, and power outlet strips with thermal type circuit breaker and grounding type 125 volt receptacle, all rated at 15 amps and U.L. approved.



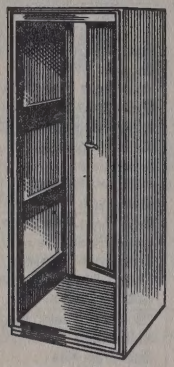
Stk. No.	Type	PH	A	B	C	D	E	Wt. (lbs.)	1-2	3-4	5-7	8-10
93F690	KDR-2752	52½"	58$^{5}/_{16}$"	24$^{1}/_{16}$"	32⅜"	29¼"	17$^{15}/_{16}$"	174	438.60	394.75	350.90	328.95
93F691	KDR-2761	61¼"	66$^{15}/_{16}$"	24$^{1}/_{16}$"	32⅜"	29¼"	17$^{15}/_{16}$"	194	462.40	416.15	369.90	346.80
93F692	KDR-2770	70"	75$^{11}/_{16}$"	24$^{1}/_{16}$"	32⅜"	29¼"	17$^{15}/_{16}$"	214	502.35	452.10	401.90	376.75
93F693	KDR-2778	78¾"	84$^{7}/_{16}$"	24$^{1}/_{16}$"	32⅜"	29¼"	17$^{15}/_{16}$"	234	535.30	481.75	428.25	401.50

18

BUD Designers' Group



Designers' Group sets the pace for contemporary-styled enclosures. These are the enclosures with that custom-made look, but far from a custom-made price. Yet, there's more to the Designers' Group than appearance. Here's the quality line designed and built by Bud, the industry's leading manufacturer of cabinets, racks, enclosures and accessories. That means proven craftsmanship; enclosures produced to meet Bud's high-quality standards and yours. And regardless of the style or size enclosure you need, you're assured of immediate delivery. Assured of value.



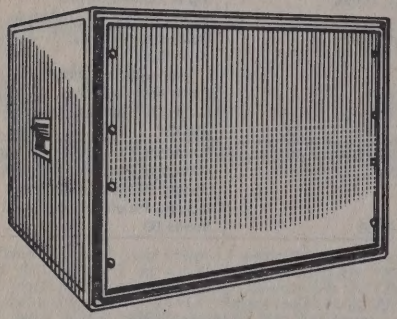
CLASSIC II CABINET RACKS

Front framed with double-rimmed brushed aluminum extrusion. All steel. 14 ga. frame; 16 ga. top, bottom; 18 ga. sides. Takes 19" panels. Front rails tapped 10-32 with EIA universal spacing. Pierced rear rails. Rails adjustable along support braces. Drilled for Bud RC-7756 casters. Gray and royal blue textured enamel. Select white panels. Comes assembled, including rear door.

CLASSIC II CABINET RACK

Gray Stk. No.	R. Blue Stk. No.	Type No.	W.	D.	Ht.	Panel Ht.	Lbs.	1-2	3-4	5-7
99F1032	99F1033	AGR-9302	22"	22"	47 5/16"	42"	126	435.00	391.50	348.00
99F1034	99F1035	AGR-9303	22"	22"	57 13/16"	52 1/2"	146	470.80	423.70	376.65
99F1036	99F1037	AGR-9304	22"	22"	68 5/16"	61 1/4"	162	506.35	455.70	405.10
99F1038	99F1039	AGR-9306	22"	22"	82 5/16"	77"	181	581.95	523.75	465.55

Doors are available; if required contact your local Newark office.



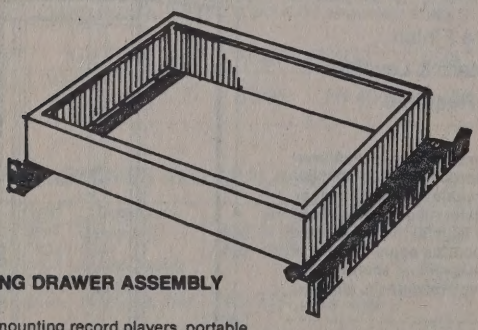
CLASSIC II CABINETS

Double-rimmed brushed aluminum extrusion frames front. Recessed chrome handles attached to two steel flanges extending along interior, provide carrying safety and support. Clear inside depth, 20 5/16"; overall depth, 21 7/16"; overall width, 20 13/16". Takes 19" panels. Made of .060 aluminum; frame, 6063-T aluminum trusions. Front and rear mounting rails tapped 10-32 EIA universal spacing. Two 16 ga. vertically adjustable chassis supports. B-50, 52 and 54 blowers fit cabinets. For gray texture (GT) or royal blue (RB) cabinets use white door. Comes assembled with two aluminum handles and four feet.

CABINETS

GT Stk. No.	RB Stk. No.	Type AGC	Height Inches	Wt. Lbs.	Panel Ht., In.	1-2	3-4	5-7
80W689	91F1684	9267	7 1/16	29 1/4	5 5/16	227.25	204.55	181.80
80W691	91F1685	9268	8 13/16	30 1/2	7 1/16	233.50	210.15	186.80
80W693	91F1686	9269	10 5/16	32 1/4	8 13/16	239.35	215.40	191.50
80W695	91F1687	9270	12 5/16	33 1/4	10 5/16	240.30	216.25	192.25
80W697	91F1688	9271	14 1/16	34 1/4	12 5/16	248.40	233.55	198.70
80W699	91F1689	9272	15 13/16	35	14 1/16	254.20	228.80	203.35
80W701	91F1690	9273	17 5/16	36	15 13/16	259.20	233.30	207.35
80W703	91F1691	9274	19 5/16	36 3/4	17 5/16	264.85	238.35	211.90
80W705	91F1692	9275	21 1/16	37 3/4	19 5/16	267.30	240.55	213.85
80W707	91F1693	9276	22 13/16	38 1/2	21 1/16	271.50	244.35	217.20
80W681	91F1694	9277	24 5/16	39 1/2	22 13/16	285.25	256.75	228.20
80W683	91F1695	9278	26 5/16	40 1/4	24 5/16	288.60	259.75	230.90
80W685	91F1696	9279	28 1/16	41 1/4	26 5/16	292.50	263.25	234.00
80W687	91F1697	9280	29 13/16	42	28 1/16	298.50	268.65	238.80

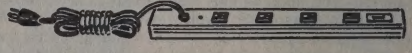
Doors are available; if required contact your local Newark office.



SLIDING DRAWER ASSEMBLY

Used in mounting record players, portable typewriters, instruments, drawer space and many other purposes. Chassis and slide are luster gray. Brackets are 11GA-steel. Will support 50 lbs. Fits standard relay rack. Size 16 3/4 x 14 x 3".

Stk. No.	Type	Description	Lb.	Each	2-24	25-34	35-49
91F826	SD-1717	Assembly	5	41.65	41.65	37.50	33.30
91F827	TP-1718	Drawer Plate	1 1/2	13.00	10.85	9.75	8.70



POWER OUTLET STRIPS

Aluminum, silver-finished channels. Strips snap into mntg. clips. Internal wire, 14 AWG solid TW conductor. Internal ground, 16 AWG solid bare conductor. 6' cord 16/3 AWG. 125 V receptacles all components. U.L. approved.

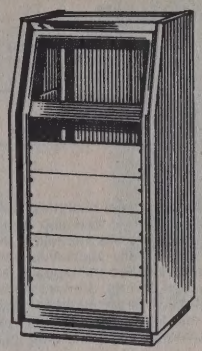
Stk. No.	Type	Outlets	Lgth.	Lbs.	1-14	15-24	25-34
90F396	POS-4	4	17 1/2"	2	60.70	54.65	48.55
90F397	POS-7	7	48"	3 1/2	63.90	57.50	51.10
90F398	POS-9	9	60"	4 1/4	70.20	63.20	56.15
90F399	POS-11	11	72"	4 3/4	76.60	68.95	61.30
81F4472	POS-6	6	12 1/4"	1 3/4	45.00	45.00	40.50
81F4473	*POS-66	6	12 1/4"	1 3/16	61.75	55.70	49.60

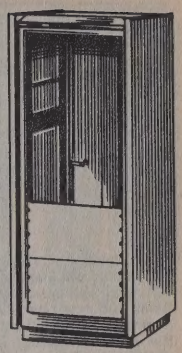
*SURGE SUPPRESSOR

Series 2000 Cabinet Racks

BUD

Frame is all-welded. 14 ga. steel members; 18 ga. steel door, sides, and top. "U" braces welded to sides of frame augment strength, rigidity; act as mounting for vertical rails which can be adjusted horizontally. Front and rear panel mounting rails tapped 10-32. Base drilled for Bud RC-7758 casters. Standard finishes: royal blue (RB) or gray textured (GT) enamel with clear anodized aluminum extrusion.





INCLINED PANEL AND EXTRA-DEEP CABINET RACKS

Inclined panel positioned 20° off vertical. Panel mounting rails in the front vertical section, inclined panel section and rear are adjustable front to rear. Ht. 51¼"; wid. 24³⁄₁₆"; outside dep. 23⅞"; inside dep. 20½"; wgt. 173 lbs.

Extra-deep cabinet rack has 32⅝" outside depth. 14 ga. steel frame; doors, sides, tops 18 ga. Front and rear panel mounting rails tapped 10-32. Drilled for BUD RC-7758 casters. Wgt. 223 lbs.

PLAIN SIDES AND DOOR

R. Blue Stk. No.	Gray Stk. No.	Type	Height	Width	Outside Depth	Clear Ins. Dep.	Inclined Panel	Vertical Panel	1-2	3-4	5-7
80W650	**80W512**	SE-2064	51¼"	24³⁄₁₆"	23⅞"	20½"	10½"	29¾"	564.75	508.30	451.80
80W513	**80W652**	SE-2065	51¼"	24³⁄₁₆"	23⅞"	20½"	15¾"	24½"	564.75	508.30	451.80
80W654	**80W514**	SE-2066	51¼"	24³⁄₁₆"	23⅞"	20½"	17½"	22¾"	564.75	508.30	451.80

SERIES 30-2000 EXTRA DEEP

99F1055	**99F1058**	S-30-2064	51¼"	24³⁄₁₆"	32⅝"	29¼"	10½"	29¾"	597.15	537.45	477.70
99F1056	**99F1059**	S-30-2065	51¼"	24³⁄₁₆"	32⅝"	29¼"	15¾"	24½"	597.15	537.45	477.70
99F1057	**99F1060**	S-30-2066	51¼"	24³⁄₁₆"	32⅝"	29¼"	17½"	22¾"	597.15	537.45	477.70

UPRIGHT CABINET RACKS

Series below include plain sides, rear door and solid top. Width, 24³⁄₁₆"; outside depth 23⅞" for 20½" inside depth; 27⅜" for 24" inside depth. Take 19" panels.

PLAIN SIDES AND DOORS

R. Blue Stk. No.	Gray Stk. No.	Type	Height	Clear Ins. Dept.	Panel Space	Wt. Lbs.	1-2	3-4	5-7
80W500	**80W638**	E-2000	30¼"	20½"	21"	125	441.00	396.90	352.80
80W640	**80W501**	E-2001	40¾"	20½"	31½"	150	472.95	425.65	378.35
80W502	**80W503**	E-2002	44¼"	20½"	35"	155	489.00	440.10	391.20
80W643	**80W644**	E-2003	51¼"	20½"	42"	167	532.65	479.40	426.10
80W646	**80W647**	E-2004	61¾"	20½"	52½"	205	589.30	530.35	471.45
80W649	**80W625**	E-2005	70¼"	20½"	61¼"	219	644.50	580.05	515.60
80W621	**80W622**	E-2006	79¼"	20½"	70"	240	675.15	607.65	540.10
80W624	**80W505**	E-2007	88"	20½"	78¾"	262	733.20	659.90	586.55
80W627	**80W628**	E-2008	30¼"	24"	21"	135	447.30	402.55	357.85
80W630	**80W631**	E-2009	40¾"	24"	31½"	160	489.30	440.35	391.45
80W633	**80W634**	E-2010	44¼"	24"	35"	165	510.00	459.00	408.00
80W506	**80W636**	E-2011	51¼"	24"	42"	187	561.15	505.05	448.90
80W604	**80W605**	E-2012	61¾"	24"	52½"	222	615.70	554.15	492.55
80W607	**80W507**	E-2013	70½"	24"	61¼"	229	666.70	600.05	533.35
80W609	**80W610**	E-2014	70¼"	24"	70"	256	690.15	621.15	552.10
80W612	**80W613**	E-2015	88"	24"	78¾"	280	747.90	673.10	598.30

SERIES 30-2000 (EXTRA DEEP) UPRIGHT CABINET RACKS

R. Blue Stk. No.	Gray Stk. No.	Type	Height	Width	Outside Depth	Clear Ins. Dep.	Panel Space	Wt. Lbs.	1-2	3-4	5-7
99F1064	**99F1072**	E-30-2000	30¼"	24³⁄₁₆"	32⅝"	29¼"	21"	150	513.55	462.20	410.85
99F1065	**99F1073**	E-30-2001	40¾"	24³⁄₁₆"	32⅝"	29¼"	31½"	175	513.55	462.20	410.85
99F1066	**99F1074**	E-30-2002	44¼"	24³⁄₁₆"	32⅝"	29¼"	35"	180	543.85	489.45	435.10
99F1067	**99F1075**	E-30-2003	51¼"	24³⁄₁₆"	32⅝"	29¼"	42"	217	579.00	521.10	463.20
99F1068	**99F1076**	E-30-2004	61¾"	24³⁄₁₆"	32⅝"	29¼"	52½"	248	647.25	582.55	517.80
99F1069	**99F1077**	E-30-2005	70½"	24³⁄₁₆"	32⅝"	29¼"	61¼"	259	689.95	620.95	551.95
99F1070	**99F1078**	E-30-2006	79¼"	24³⁄₁₆"	32⅝"	29¼"	70"	303	740.85	666.75	592.70
99F1071	**99F1079**	E-30-2007	88"	24³⁄₁₆"	32⅝"	29¼"	78¾"	307	789.75	710.80	631.80

DESK TOPS

For Series 2000 racks only. Two pre-slotted supporting channels quickly bolted to rails. White Formica. Dimensions: 24³⁄₁₆" × 19½" × 3¹⁄₁₆". Supports in excess of 200 lbs.

RB	GT	Type	Fits. Ser. 2000	Supp. Channel	Wt.	1-2	3-4	5-7
78F002	**78F000**	DT-2960	with 23⅞" d.	21¼"	29 lbs.	129.50	116.55	103.60
78F003	**78F004**	DT-2962	with 27⅜" d.	24¾"	30 lbs.	133.85	120.45	107.10

Series 60 Cabinet Racks

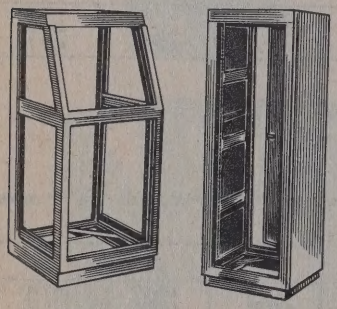
Stock No. Gray	Ht.	Panel Space	Wt. Lbs.	With Plain Sides & Door—OD 22"—Net Each, Lots of			
				Type	1-2	3-4	5-7
92F900	29⅝"	21"	118	60-2300GT	417.60	375.85	334.10
92F901	40⅛"	31½"	149	60-2301GT	454.50	409.05	363.60
92F902	50⅝"	42"	173	60-2302GT	514.60	463.15	411.70
92F903	61⅛"	52½"	203	60-2303GT	563.70	507.35	450.95
92F904	69⅞"	61¼"	220	60-2304GT	611.55	550.40	489.25
92F905	78⅝"	70"	235	60-2305GT	651.85	586.65	521.50
92F906	87⅜"	78¾"	258	60-2306GT	702.55	632.30	562.05

Stock No. Gray	Ht.	Panel Space	Wt. Lbs.	With Plain Sides & Door—OD 25½"—Net Each, Lots of			
				Type	1-2	3-4	5-7
92F907	29⅝"	21"	130	60-2307GT	433.65	390.30	346.90
92F908	40⅛"	31½"	155	60-2308GT	465.15	418.65	372.10
92F909	50⅝"	42"	176	60-2309GT	526.65	474.00	421.30
92F910	61⅛"	52½"	211	60-2310GT	570.10	513.10	456.10
92F911	69⅞"	61¼"	240	60-2311GT	626.55	563.90	501.25
92F912	78⅝"	70"	241	60-2312GT	661.95	595.75	529.55
92F913	87⅜"	78¾"	270	60-2313GT	718.95	647.05	575.15

All welded frame: 14 ga. cold rolled steel channels. Sides "U" braced with perforated channesl for fastening vertical mounting rails and to support brackets, shelves, slides, etc. Sides and rear door. Two pairs of fully adjustable panel mounting rails. Front and rear rails drilled and tapped 10-32 EIA universal spacing. Desk tops, turrets, drawers, slides, sloping panel supports, front door easily installed. Relay rack panels in white texture and luster gray. Available with louvered door and side, louvered door, plain side; plain door louvered side.

UPRIGHT CABINET RACKS

Dimensions: width, 24$^{1}/_{16}$"; inside depth, 20½" clear on units with 22" outside depth, 24" on all others; top opening, 18$^{5}/_{16}$" wide × 17" deep on units with 22" depth; top opening on all others, 18$^{5}/_{16}$" wide, 20½" deep.



INCLINED PANEL CABINET RACKS

Dimensions: height, 50⅝"; width, 24$^{1}/_{16}$"; depth, 22"; clear inside depth, 20½"; weight, 165 lbs. Gray textured finish.

Stk. No.	Type	Incline Panel Hght.	Vert. Panel Hght.	Top Opening W. × D.	Plain Sides and Door Net Each, Lots of		
					1-2	3-4	5-7
93F023	60-2330-GT	10½"	29¾"	18$^{5}/_{16}$" × 11$^{13}/_{16}$"	517.60	465.85	414.10
93F024	60-2331-GT	15¾"	24½"	18$^{5}/_{16}$" × 10"	517.60	465.85	414.10
93F025	60-2332-GT	17½"	22¾"	18$^{5}/_{16}$" × 9$^{7}/_{16}$"	517.60	465.85	414.10

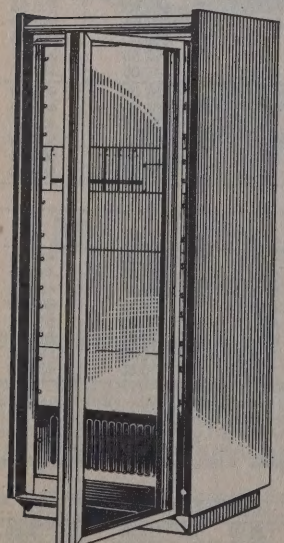
Stk. No.	Type	Top Opening—W × D	Incl. Panel	Vert. Panel	1-2	3-4	5-7
99F1029	30-2330-GT	18$^{5}/_{16}$" × 20$^{9}/_{16}$"	10½"	29¾"	569.35	512.40	455.50
99F1030	30-2331-GT	18$^{5}/_{16}$" × 18¾"	15¾"	24½"	569.35	512.40	455.50
99F1031	30-2332-GT	18$^{5}/_{16}$" × 18$^{9}/_{16}$"	17½"	22¾"	569.35	512.40	455.50

SERIES 30 (EXTRA DEEP) UPRIGHT PANEL CABINET RACKS

Width, 24$^{3}/_{16}$"; clear inside depth, 29¼".

Stk. No.	Type	Ht.	Wid.	Panel Space	Wt. Lbs.	1-2	3-4	5-7
99F1022	30-2300-GT	29⅝"	24$^{1}/_{16}$"	21"	154	461.55	415.40	369.25
99F1023	30-2301-GT	40⅛"	24$^{1}/_{16}$"	31½"	174	504.10	453.70	403.30
99F1024	30-2302-GT	50⅝"	24$^{1}/_{16}$"	42"	202	566.95	510.25	453.55
99F1025	30-2303-GT	61⅛"	24$^{1}/_{16}$"	52½"	225	621.90	559.70	497.50
99F1026	30-2304-GT	69⅞"	24$^{1}/_{16}$"	61¼"	245	665.40	598.85	532.30
99F1027	30-2305-GT	78⅝"	24$^{1}/_{16}$"	70"	268	716.50	644.85	573.20
99F1028	30-2306-GT	87⅜"	24$^{1}/_{16}$"	78¾"	294	765.00	688.50	612.00

PLEXIGLASS DOORS FOR SERIES 20, SERIES 60, SERIES 2000, AND CONCORDE RACKS



⅛" smoke gray plexiglass offers full visibility of all rack and panel instruments. Edges of plexiglass embedded in polyurethane to prevent rattling. Door is magnetically held in secure, closed position. When closed, inner surface of door is at least ¾" from front of panels, allowing clearance for protruding knobs, switches, etc. Door is easily positioned on cabinet with top and bottom supports by spring-loaded hinge pins, and is reversible to achieve right or left opening. Finished in anodized aluminum.

FOR VERTICAL CABINETS

Stk. No.	Type	Panel Space	Wid.	1-2	3-4	5-7
93F964	V-9060	21"	21"	260.85	234.75	208.70
93F695	V-9061	31½"	21"	275.05	247.55	220.05
93F704	V-9062	35"	21"	282.85	254.55	226.30
93F696	V-9063	42"	21"	307.20	276.50	245.75
93F697	V-9064	52½"	21"	318.25	286.45	254.60
93F698	V-9065	61¼"	21"	357.60	321.85	286.10
93F699	V-9066	70"	21"	395.20	355.70	316.15
93F700	V-9067	78¾"	21"	415.45	373.90	332.35

FOR INCLINED CABINETS

Stk. No.	Type	Panel Space	Wid.	1-2	3-4	5-7
93F701	V-9068	29¾"	21"	271.65	244.50	217.30
93F702	V-9069	24½"	21"	268.30	241.45	214.65
93F703	V-9070	22¾"	21"	262.15	235.95	209.70

PRICES SUBJECT TO CHANGE. SEE PAGE 4.

Cabinet Racks

BUD

BUD ENCLOSED RELAY RACKS

Made of 16 gauge steel with 7/64" panel mtg. supports which are recessed so that panel will be flush with face of rack. Bottom supports use RC 7756 casters. Stk. No. 91F082. Shipped with necesary assembly hardware.

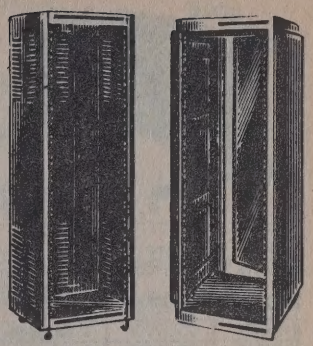
Stk. No.	Type	HxWxD	Panel Space	Lbs.	1-9	10-14	15-19
91F062	CR-1772-LG	66 9/16"x22"x17 1/8"	61 1/4"x19"	115	265.45	238.10	212.35
91F063	CR-1773-LG	82 9/16"x22"x17 1/8"	77" x19"	135	316.15	284.55	252.90
91F078	CR-1771-LG	47 5/16"x22"x17 1/8"	42" x19"	92	215.10	193.60	172.10
91F077	CR-1774-LG	42 1/16"x22"x17 1/8"	36 3/4"x19"	82	200.90	180.80	160.70

ENCLOSED RELAY RACK—LUSTER GRAY FINISH

Stk. No.	Type	Ht.	P.S.	Dep.	Lbs.	1-9	10-14	15-19
91F095	CR-2071-LG	47 5/16"	42"x19"	22 1/8"	102	252.40	227.15	201.90
91F096	CR-2072-LG	66 5/16"	61 1/4"x19"	22 1/8"	137	320.99	228.91	256.78
91F097	CR-2073-LG	82 5/16"	77"x19"	22 1/8"	159	362.90	326.60	290.30
91F098	CR-2074-LG	42 1/16"	36 3/4"x19"	22 1/8"	98	215.75	194.20	172.60

PRESTIGE RELAY CABINET RACKS

Stk. No.	Type	Panel	HxWxD	Lbs.	1-9	10-14	15-19
91F087	CR-2280-LG	61 1/4"x19"	66 9/16"x24 1/8"x23 1/16"	179	432.35	389.10	345.90
91F088	CR-2281-LG	66 1/2"x19"	71 13/16"x24 1/8"x23 1/16"	186	442.80	398.50	354.25
91F089	CR-2282-LG	77"x19"	82 5/16"x24 1/8"x23 1/16"	213	522.75	470.46	418.22

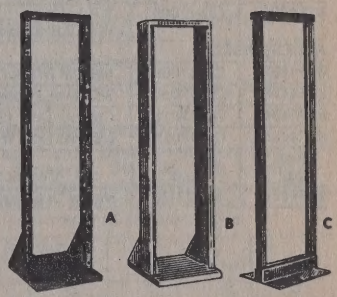


Emc. Relay Rack Prestige Rack

OPEN TYPE RELAY RACKS

For mounting equipment where a complete enclosure is not necessary or advisable. Racks A and B may add casters for mobility. Fig. B. has louvered "U" member for ventilation. Luster gray (LG) except Fig. C, Black texture (BT).

Stk. No.	Type	Fig.	HxWxD	Panel Sp.	Lbs.	1-9	10-14	15-19
91F1740	RR1263LG	A	35 5/8"x19 3/4"x22"	31 1/2x19"	35	76.65	69.00	61.30
91F1741	RR1264LG	A	70 5/8"x19 3/4"x22"	66 1/2x19"	46	95.25	85.75	76.20
91F054	RR1265BT	C	72 1/4"x20 3/8"x12 3/4"	66 1/2x19"	69	134.75	121.30	107.80
91F1743	RR1363LG	A	40 5/8"x19 3/4"x22"	36 3/4x19"	36	78.75	70.90	63.00
91F1744	RR1364LG	A	75 5/8"x19 3/4"x22"	71 3/4x19"	48	99.35	89.40	79.50
91F1745	RR1366LG	A	81 1/8"x19 3/4"x22"	77x19"	49	101.65	91.40	81.25
91F1746	RR1367LG	B	64 5/8"x20 7/8"x26"	61 1/4 x19"	80	187.90	169.10	150.30
91F1747	RR1368LG	B	73 5/8"x20 7/8"x26"	70x19"	89	209.15	188.25	167.30
91F1748	RR1369LG	B	80 5/8"x20 7/8"x26"	77x19"	104	216.16	194.95	173.30



DESK TYPE OPEN RELAY RACKS

Chassis type base for mounting heavy components. Supporting angles assure steady support. Panel mounting rails are recessed so that any standard 19" panel will fit flush with the front. Available in Black Textured (BT) or Luster Gray (LG).

Black Texture		Luster Gray							
Stk. No.	Type	Stk. No.	Type	Hgt.	Space	Lbs.	1-14	15-24	25-49
91F030	RR-1248BT	91F677	RR-1248LG	24"	21"	14 1/4"	46.25	41.65	37.00
91F031	RR-1249BT	91F678	RR-1249LG	31"	28"	16 3/4"	52.00	46.80	41.60

TRANS-AIRE-BLOWERS

Designed for cooling electronic equipment. All are 115 volts, 50/60Hz. single phase.

Model B-27A. Two speed packaged blower for top CFM. Air delivery: 550 CFM high speed, 300 CFM low speed. Motor: 1350/1150 RPM, 550/350 watt shaded pole motor.

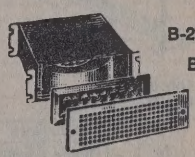
Model B-23A. Low silhouette two speed, requiring just 3 1/2" of panel space. Produces 125 CFM on high, 100 CFM on low speed. Motor: 1450/1250 RPM, 125/100 shaded pole motor.

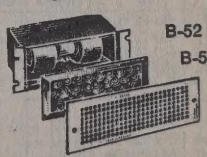
Model B25-A. Two speed 375/200 CFM blower, delivers a turbulent air distribution pattern to eliminate hot spots. Motor: 1420/1075 RPM, 375/200 shaded pole motor.

Model B-52. Produces 150 CFM, equipped with two extra wide, small diam. centrifugal blower wheels. Motor: 3000 RPM, fan cooled, 80 watts.

Model B-54. Dual wheels deliver 300 CFM of clean, cool filtered air. Motor 1550 RPM, rubber mounted. 60-watt shaded pole motor.

Model B-50. Requires only 3 1/2" of panel ht., produces 150 CFM, 12 1/2" wide air stream. Motor: 3150 RPM, 80 watts, shaded pole. Gray finish on all.





BLOWER

Stk. No.	Type	Dim. HxWxD	1-9	10-14	15-19
91F1630	B-27A	7x19x14 1/2"	272.05	244.85	217.65
91F1631	B-23A	3 1/2x19x12"	211.65	190.50	169.30
91F1632	B-25A	5 1/4 x19x14 1/2"	241.45	217.30	193.15
91F1633	B-52	5 1/4 x19x9"	198.15	178.35	158.50
91F1634	B-54	7x19x10 3/16"	234.90	211.40	187.90
91F1635	B-50	3 1/2x19x6 3/8"	195.75	176.20	156.60

USE FILTER

Stk. No.	Type	Each	2-24	25-49
91F905	BF-28	4.30	3.25	2.95
91F904	BF-24	4.80	3.60	3.25
91F638	BF-26	5.40	4.05	3.65
80W723	BF-53	3.80	2.85	2.55
80W724	BF-55	4.00	3.00	2.70
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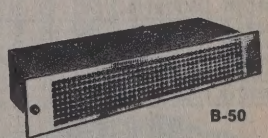
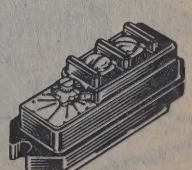


TEM-STAT TEMPERATURE CONTROL

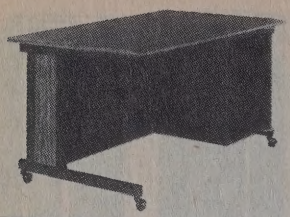
Type TS-15. Prevent shut-downs from overheating of enclosed electronic or electrical equipment. Reacts to gradual or sudden changes. Accuracy ±8° F. Contacts remain closed until there is a 10° ±5° F drop. Also controls convection and radiant heating. Range 80°-170° F.

U.L. ELECTRICAL RANGE. 100,000 cycles: full load 8 amps at 115 VAC, 4 amps at 230 VAC. Motor rating: locked rotor 48 amps at 115 VAC, 24 amps at 230 VAC. Pilot Duty: 125V amps at 115/230 VAC or 250 mV or more. 6,000 cycles: full load 13.8 amps at 120 VAC, 6.9 amps at 240 VAC. Motor rating: locked rotor 82.8 amps at 120 VAC, 41.4 amps at 240 VAC.
91F1636. NET **15.70**



MODEL TS-15

BUD COMPUSTATION



Contemporary styled CompuStation offers versatility in developing individualized work-stations for your specific operations. Now you have the freedom to add or remove modules based on your changing requirements.

The CompuStation Series from Bud has been designed for use with computer systems, data terminals, word processing and communications equipment as well as a variety of other electronic systems.

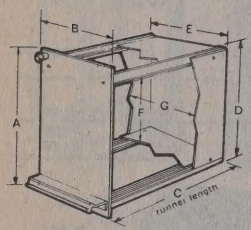
Design features:
- Double strut, welded leg construction for strength and rigidity.
- Scratch resistant wood grain top and matching side panels provide attractive appearance and durability.
- Beveled front edge is standard on all tops for operator comfort.
- Two and three bay tops have steel channels for additional support.
- Quick and easy to assemble. No special tools required.

Finish: All units and accessories are black textured. Top and side panels are wood grain plastic laminate.

Stock No.	Type	Description	Measurements	(Qty. 1) Price	(Qty. 2) Price	3-4 Price	5-7 Price	8-10 Price
81F4475	CD-17000	Printer Stand Bottom or rear feed	30″W × 24″D × 26½″H	242.95	242.95	218.65	194.35	182.20
81F4476	CD-17001	1 Bay Unit	36″W × 33″D × 29½″H	337.70	337.70	303.95	270.20	253.30
81F4477	CD-17002	2 Bay Unit	57″W × 33″D × 29½″H	447.05	447.05	402.35	357.65	335.30
81F4478	CD-17003	2 Bay Unit With Electronic Cabinet	57″W × 33″D × 29½″H 21″W × 30″D × 22 13/16″H	682.15	682.15	613.95	545.75	511.60
81F4479	CD-17004	3 Bay Unit	78″W × 33″D × 29½″H	529.35	529.35	476.40	423.50	397.00
81F4480	CD-17005	3 Bay Unit With Electronic Cabinet	78″W × 33″D × 29½″H 21″W × 30″D × 22 13/16″H	734.40	734.40	660.95	587.50	550.80
81F4481	CD-17006	3 Bay Unit With 2 Electronic Cabinets	78″W × 33″D × 29½″H	939.50	939.50	845.60	751.60	704.65
ACCESSORIES								
81F4482	CD-17009	Manual Drawer	7⅝″W × 18¾″D × 22 13/16″H	192.50	192.50	173.25	154.00	144.40
81F4483	CD-17010	3-Drawer Pedestal	15¼″W × 18¾″D × 20″H	378.10	378.10	340.30	302.50	283.60
81F4484	CD-17015	Cabinet Door (Steel)	20¾″W × 22⅝″H	99.15	99.15	89.25	79.30	74.35
81F4485	CD-17016	Cabinet Door (Plexiglass)	20¾″W × 22⅝″H	145.35	145.35	130.80	116.30	109.00
Stock No.	Type	Description	Measurements	(Qty. 1) Price	2-49 Price	50-99 Price	100-149 Price	150-199 Price
81F4474	RC-7775	Heavy Duty Caster		7.80	6.50	5.85	5.20	4.90

SUB-UNIT KITS

Slide into racks on mounting guides and lock in place. 30 different sizes to choose from. Order guides separately, see previous page, 4 needed for each sub-unit.



Note: C Depth—7.25″
D Depth—9.897″

OPTIONAL EXTRAS

Type UCP. SUB-UNIT COVER PANELS. These slide into grooves on top and bottom of sub-unit runners before rear panel is fitted, no hardware necessary.

Type USP. SCREEN PLATES. Circuit boards may be replaced by screen plates on one or both sides of unit. Supplied with screws and washers, nuts are supplied as part of the sub-unit kits. Choose by height and depth.

Type UDP. DECK PLATES. Can be used on top and bottom. Supplied with screws and washers, nuts are supplied as part of sub-unit kit.

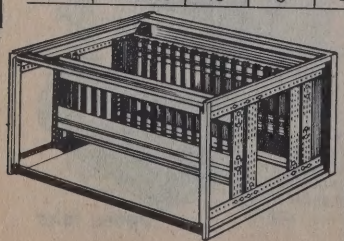
Type SMP. SOCKET MOUNTING PANELS. These panels are used to provide matching plug or socket on sub-rack for the sub-unit to mate with. Hardware supplied. Mounted on guides, if the sub-unit is not the same width, order extra guides. Choose by height.

Type JL-22800. JACKING LOCKS. Jacking locks can be used instead of supplied floating locks.

Stock No.	Kit No.	Sub-Rack Height	Sub-Rack Depth	Sub-Unit Width	Each	2-14	15-24
83F323	SU-22101	3U	C	2.4″	30.30	22.75	20.50
83F329	SU-22102	3U	D	2.4″	31.00	23.25	20.90
83F334	SU-22103	4U	C	2.4″	30.90	23.20	20.90
83F339	SU-22104	4U	D	2.4″	32.60	24.45	22.00
83F372	SU-22105	5U	C	2.4″	31.80	23.85	21.45
83F373	SU-22106	5U	D	2.4″	33.40	25.05	22.55
83F349	SU-22107	3U	C	2.8″	30.40	22.80	20.80
83F364	SU-22108	3U	D	2.8″	32.10	24.10	21.70
83F358	SU-22109	4U	C	2.8″	31.00	23.25	20.95
83F370	SU-22110	4U	D	2.8″	32.70	24.55	22.10
83F374	SU-22111	5U	C	2.8″	32.00	24.00	21.60
83F375	SU-22112	5U	D	2.8″	34.20	25.65	23.10
83F347	SU-22113	3U	C	4.2″	32.30	24.25	21.85
83F341	SU-22114	3U	D	4.2″	34.10	25.60	23.05
83F319	SU-22115	4U	C	4.2″	33.50	25.35	22.80

Stock No.	Kit No.	Sub-Rack Height	Sub-Rack Depth	Sub-Unit Width	Each	2-14	15-24
83F337	SU-22116	4U	D	4.2″	35.40	26.55	23.90
83F376	SU-22117	5U	C	4.2″	36.00	27.00	24.30
83F377	SU-22118	5U	D	4.2″	37.60	28.20	25.40
83F368	SU-22119	3U	C	5.6″	37.60	28.20	25.40
83F354	SU-22120	3U	D	5.6″	39.00	29.55	26.60
83F343	SU-22121	4U	C	5.6″	39.20	29.85	26.85
83F312	SU-22122	4U	D	5.6″	40.00	31.00	27.90
83F378	SU-22123	5U	C	5.6″	40.50	31.50	28.35
83F379	SU-22124	5U	D	5.6″	41.00	32.85	29.55
83F380	SU-22125	3U	C	8.4″	40.60	31.60	28.45
83F381	SU-22126	3U	D	8.4″	41.50	33.60	30.25
83F382	SU-22127	4U	C	8.4″	41.40	33.55	30.20
83F383	SU-22128	4U	D	8.4″	42.50	35.70	32.15
83F384	SU-22129	5U	C	8.4″	42.60	35.80	32.20
83F385	SU-22130	5U	D	8.4″	43.00	37.80	34.00

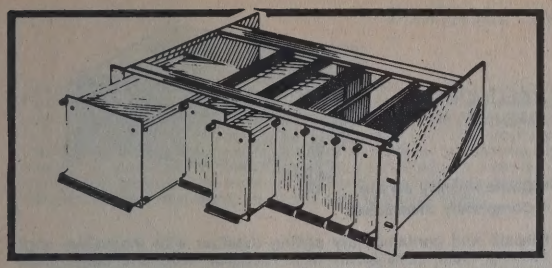
HORIZON CABINETS

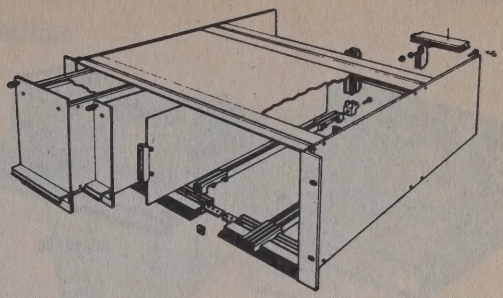


Ideal for microprocessor and microcomputer applications. Developed to provide a range of options for effective housing of printed circuit boards, mother boards, power supplies, plug-in modules, connectors, and other chassis-mounted components. Contemporary styling with no exposed screws on front, top, bottom and sides. Sturdy anodized aluminum extrusion frame. Top, bottom, sides and rear panel are blue vinyl-clad aluminum, and slide out for easy access to cabinet interior. Four fully adjustable interior mounting rails allow complete flexibility when mounting optional chassis, or other accessories.

Stk. No.	Type	Front Panel Space	Overall Height	Rear Panel Space	Clear Inside Height	1-9	10-14	15-19
91F630	HC-925	7.000″	7.875″	6.281″	7.531″	182.85	164.55	146.30
91F631	HC-926	8.750″	9.625″	8.031″	9.281″	195.20	175.70	156.15
91F632	HC-927	10.500″	11.375″	9.781″	11.031″	209.50	188.55	167.60

Modular Packaging Systems





Simple in design, highly functional, easy to use and handsome in appearance. This is the proven System that assures quick and accurate alignment of circuit boards and connectors. Since guides do not carry the weight of boards or sub-unit chassis, there's no guide distortion. Circuit boards go directly into the connectors securely mounted at the end of the guides. Shipped in easy-to-assemble kits.
Size by code:

Height: 2U, 3.50" (88.90mm); 3U, 5.25" (133.35mm); 4U, 7.00" (177.80mm); 5U, 8.75" (222.25mm).
Overall depth: C, 11.4" (290mm); D, 14.1" (358mm).
Overall width: 19" (483mm).

SUB-RACK KITS

Stock No.	Type	Sub-Rack Ht.	Sub-Rack Depth	1-9	10-14	15-19
83F417	SR-20101	2U	C	40.95	36.85	32.75
83F418	SR-20102	2U	D	41.85	37.65	33.50
83F300	SR-20103	3U	C	43.30	38.95	34.65
83F310	SR-20104	3U	D	44.70	40.25	35.75
83F351	SR-20105	4U	C	46.15	41.55	36.90
83F360	SR-20106	4U	D	47.70	42.95	38.15
83F419	SR-20107	5U	C	49.05	44.15	39.25
83F420	SR-20108	5U	D	51.30	46.15	41.05

CIRCUIT BOARDS

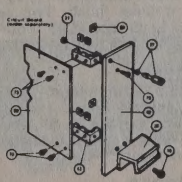
.062" thick, single-sided copper, circuit boards with contact fingers for edge connectors. Use with handles or printed board units.

Stock No.	Type	Sub-Unit Hght	Sub-Unit Dpth	No. Contacts	Each	2-14	15-24
83F402	CB-21401	2U	C	24	31.20	23.40	17.95
83F403	CB-21402	2U	D	24	31.20	23.40	19.85
83F301	CB-21403	3U	C	40	37.05	37.05	23.85
83F311	CB-21404	3U	D	40	37.05	37.05	28.10
83F320	CB-21405	4U	C	58	49.20	49.20	31.75
83F328	CB-21406	4U	D	58	49.20	49.20	37.95
83F404	CB-21407	5U	C	76	75.70	75.70	42.60
83F405	CB-21408	5U	D	76	75.70	75.70	45.60

CBH-21501. Circuit Board Handles; with hardware.
83F406. NET **2.40**

PRINTED BOARD UNITS

Consists of a handle, finished front panel, floating lock, and all necessary hardware needed to attach a printed circuit board. Compatible boards listed above.



Stock No.	Type	Rack Height	Width	Each	2-49	50-99
83F306	PBU-24101	3U	1.2"	10.90	8.20	7.40
83F316	PBU-24102	4U	1.2"	10.90	8.20	7.40
83F415	PBU-24103	5U	1.2"	12.10	9.10	8.20
83F352	PBU-24104	3U	1.8"	11.40	8.55	7.70
83F369	PBU-24105	4U	1.8"	12.30	9.25	8.35
83F416	PBU-24106	5U	1.8"	12.70	9.55	8.60

OPTIONAL EXTRAS FOR SUB-RACKS

GUIDES

Type G—Used on top and bottom of sub-rack to guide sub-units and circuit cards into position. Nuts N-9234 are used on front for locks, N-9226 on back for connector or panel mounting. Order nuts separately.

TOP OR BOTTOM COVERS

Type TBC—No mounting screws are required—simply slip into grooves and depress lugs. Order by rack depth.

OVERALL FRONT PANELS

Type OFP—Order by rack height. 4 FL-22700 floating locks required per panel, order separately.

CONNECTOR MOUNTING RAILS

Type CMR-21201. To be used only when connectors are not mounted direct to guides, 2 needed. Supplied with screws to mount to side plates. Order hardware separately: screw—S-9089, nut—N-9233, washer—W-9556 for mounting connectors to connector mounting rail, 2 of each required per connector.

Stk. No.	Type	Sub-Rack HT	Sub-Rack Depth	Each	101-299	300-499
83F302	G-20601	...	C	.70	.52	.47
83F359	G-20602	...	D	.83	.63	.56
Stk. No.	Type	HT	Depth	Each	2-24	25-49
83F313	TBC-20801	...	C	11.10	8.35	7.50
83F327	TBC-20802	...	D	13.30	10.00	9.00
Stk. No.	Type	HT	Depth	Each	2-49	50-99
83F421	OFP-21101	3U	...	15.10	11.35	10.20
83F422	OFP-21102	4U	...	16.30	12.25	11.05
83F423	OFP-21103	5U	...	18.90	14.20	12.80
83F363	CMR-21201	...	...	4.60	3.45	3.10

Stk. No.	Type	...	...	Each	2-49	50-99
83F424	FL-22700	...	...	2.20	1.65	1.50

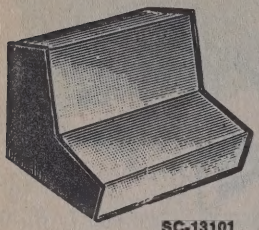
Stk. No.	Type	...	...	Package of 100 Each	2-49	50-99
83F345	S-9089	...	...	5.20	3.90	3.12
83F324	N-9233	...	...	4.40	3.30	3.00
83F309	W-9556	...	...	4.40	3.30	3.00

EDGE CONNECTORS

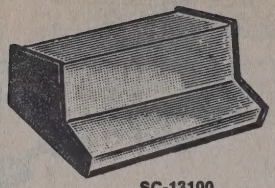
Mount on the mounting guides used for the circuit boards. With single or double row pins, in miniwrap or solder form. End feet needed.

Stock No.	Type	Unit Hght	No. Rows	Pin Type	Pins /Row	Each	2-14	15-24
83F407	C-20901	2U	1	Solder	24	9.00	6.75	6.10
83F408	C-20902	2U	1	Wrap	24	9.00	6.75	6.10
83F409	C-20903	2U	2	Solder	24	11.90	8.95	8.05
83F410	C-20904	2U	2	Wrap	24	11.90	8.95	8.05
83F314	C-20905	3U	1	Solder	40	13.50	10.15	9.15
83F322	C-20906	3U	1	Wrap	40	13.50	10.15	9.15
83F326	C-20907	3U	2	Solder	40	18.40	13.80	12.40
83F332	C-20908	3U	2	Wrap	40	18.40	13.80	12.40
83F338	C-20909	4U	1	Solder	58	18.80	14.10	12.70
83F350	C-20910	4U	1	Wrap	58	18.80	14.10	12.70
83F357	C-20911	4U	2	Solder	58	25.70	19.30	17.35
83F346	C-20912	4U	2	Wrap	58	25.70	19.30	17.35
83F411	C-20913	5U	1	Solder	76	24.10	18.10	16.30
83F412	C-20914	5U	1	Wrap	76	24.10	18.10	16.30
83F413	C-20915	5U	2	Solder	76	32.80	24.60	22.15
83F414	C-20916	5U	2	Wrap	76	32.80	24.60	22.15

CEF-21001. Connector End Feet used to mount edge connectors to mounting guides. Supplied in pairs with hardware.
83F303. NET ..... **2.70 pr.**



SC-13101



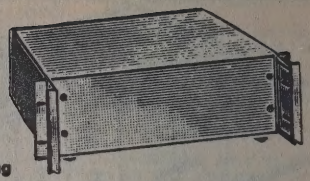
SC-13100

COMPUCAB SERIES

Practical and adaptable to many types of instruments. Keyboard look matches today's advanced digital technology concept. All aluminum construction combines beauty, utility and sturdiness. Base and sides are ⅛" aluminum with black textured enamel finish. Cover and back are .057" aluminum with smooth, white enamel finish. SC-13100 rear panel has one ⅞" knockout. SC-13101 rear panel has two ⅞" knockouts and 4 sets of louvers. Shipped completely assembled.

Stock No.	Type	W×D×H	1	2-5	6-9
91F1730	SC-13100	10"×8 11/16"×5 11/32"	34.80	31.30	27.85
91F1731	SC-13101	14"×10¾"×9 61/64"	71.15	64.05	56.90

VALU/LINE CABINETS

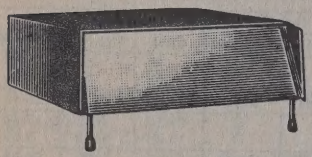


- Contemporary styling
- Completely assembled

Classic and contemporary styling together with innovative engineering techniques result in a ruggedly built enclosure. Completely assembled with separate detachable rack mounting brackets and rubber feet. Adhesive paper covering on ⅛" brushed aluminum front panel provides an excellent surface for indicating position when drilling or punching panel. ⅞" diameter knockout in rear. Base, rear and top are .057" aluminum with white, smooth enamel finish. Sides are ⅛" aluminum with white, textured enamel finish. Handles are clear, anodized 6063-T5 aluminum extrusions. Balls are available as extras.

Stock No.	Type	D×W×H	1-3	4-7	8-10
99F1010	HC-14100	13"×13¾"×3½"	104.55	94.10	83.65
99F1011	HC-14101	13"×17"×3½"	110.30	99.25	88.25
99F1012	HC-14102	13"×12¾"×5¼"	113.50	102.15	90.80
99F1013	HC-14103	13"×17"×5¼"	113.80	102.40	91.05
99F1014	HC-14104	13"×17"× 7"	119.40	107.45	95.50
99F1015	HC-14105	13"×17"×8¾"	125.15	112.65	100.10
99F1016	HC-14106	13"×17"×10½"	130.85	117.75	104.70
99F1017	HC-14107	15"×17"×10½"	136.50	122.85	109.20
99F1018	HC-14108	15"×17"×12¼"	142.05	127.85	113.65
99F1019	HC-14109	15"×17"× 14"	153.40	138.05	122.70

TILT-A-VIEW CABINET

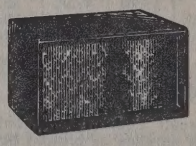


- 18 Gauge Steel
- Adjustable Tilt

Designed to present selective angles of vision to the viewer who may be observing the action of meters or the position of dials and recorders. Detachable legs change the position of the cabinet. Two piece construction permits immediate access to interior for installation and service. Cabinet fasteners are also positioned on the lower portion of the cabinet so that no fasteners appear on the front or rear panels. Color is gray textured with white body. All models 18 gauge steel.

Stk. No.	Type	Lbs.	H	W	D	Each	2-14	15-24	25-34
90F393	TV2155	8½	4½"	15"	10"	33.20	27.70	24.95	22.15
90F394	TV2156	13	6½"	16"	12"	37.50	33.90	30.50	27.10
90F395	TV2157	17	8½"	17"	14"	42.40	42.40	38.15	33.90

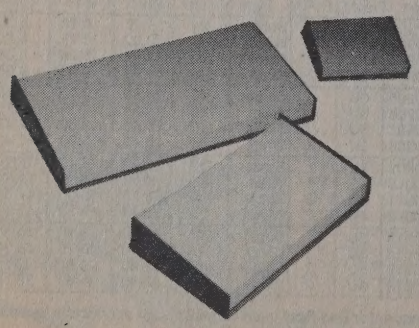
SHADOW CABINET



Extremely versatile housing since front, rear and bottom may be removed for installation or servicing. One inch recessed front panel prevents accidental movement of controls, knobs, and switches attached to it. Body made of 18 gauge steel and panels of 16 gauge steel. Four rubber feet attached to base eliminate scratching. Finished in luster gray.

Stk. No.	Type	W×H×D	Lbs.	Each	2-24	25-49
91F892	SB-2140	14¼×8×10"	11½	34.90	31.40	27.90
91F893	SB-2141	13¼×7½×9"	9¾	31.30	28.15	25.05
91F894	SB-2142	17×9½×11"	15¼	42.15	37.95	33.70
91F895	SB-2143	15½×6×9"	9½	30.80	27.70	24.65

KEYBOARD ENCLOSURES



Lightweight aluminum enclosures designed exclusively by Bud to house the most popular keyboard units available.

KB-13200

Base 0.090 aluminum—gray textured enamel. Cover 0.050 aluminum—white enamel finish. Two rear knockouts ½ inch diameter. Angle of operating surface 7° 46'. Four flat, self-adhesive black rubber feet. Four 6-32 x ⅜" flat head, posidrive, zinc-plated screws fasten base to cover.

KB-13201

Base is 0.120 aluminum—gray textured enamel. Cover 0.050 aluminum—white enamel finish. Two rear knockouts ⅞ inch diameter. Angle of operating surface 7° 40'. Four flat, self-adhesive black rubber feet. Four quick-release ¼ turn, flat head slotted studs and clip-on receptacles fasten base to cover.

KB-13202

Base 0.120 aluminum—gray textured anemel. Cover 0.050 aluminum—white enamel finish. Two rear knockouts ⅞ inch diameter. Angle of operating surface 7° 32'. Four flat, self-adhesive black rubber feet. Four quck-release ¼ turn, flat head slotted studs and clip-on receptacles fasten base to cover.

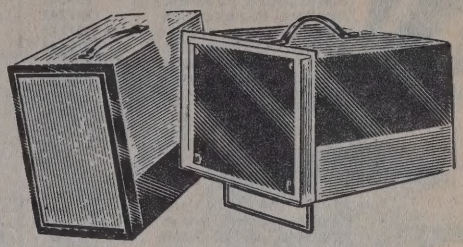
Stk. No.	Type	Each	2-14	15-24	25-34
81F021	KB-13200	25.40	21.20	19.10	16.95
81F020	KB-13201	43.90	43.90	39.50	35.10
81F019	KB-13202	53.70	53.70	48.35	42.95

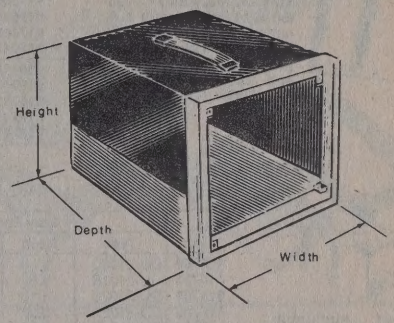
Show Case Enclosures

BUD

PORTABLE ENCLOSURES

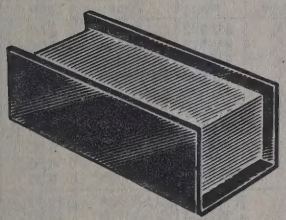
Use as desk top instrument cases, in systems, in racks, as portable enclosures. Function plus design gives your products the competitive edge...the value edge. Lightweight, but sturdy. Top, sides, rear panel and base are .050 aluminum; front panel is .090. For added strength, gussets have been engineered into the sides of the unit. Strong, flexible handles, recessed and secured firmly into the top, assure safe handling. Front and rear panels and fold-away bail are standard equipment and are included. Two standard color combinations: black textured (BT) and white frame, royal blue (RB) and white frame.





Stock No. BT	Stock No. RB	Type	H×W×D	Lbs.	1-4	15-24
93F670	93F671	BB-1800	6 7/16" × 5 1/2" × 11"	3 3/4	73.55	66.20
93F672	93F673	BB-1801	6 7/16" × 8 5/16" × 11"	4	76.75	69.10
93F674	.....	BB-1802	8 3/16" × 5 1/2" × 11"	3 3/4	78.15	70.35
93F675	.....	BB-1803	8 3/16" × 8 5/16" × 11"	5 1/2	79.40	71.45
93F676	93F677	BB-1804	8 3/16" × 11 1/16" × 11"	5 3/4	86.65	78.00
93F678	.....	BB-1805	9 15/16" × 5 1/2" × 11"	4 3/4	80.40	72.35
93F679	.....	BB-1806	9 15/16" × 8 5/16" × 11"	5 1/4	83.75	75.40
93F680	93F681	BB-1807	9 15/16" × 8 5/16" × 15"	6 1/4	89.50	80.55
96F682	.....	BB-1808	9 15/16" × 11 1/16" × 11"	6	87.10	78.40
93F683	.....	BB-1809	9 15/16" × 11 1/16" × 15"	7	92.45	83.20

LINEAR SERIES

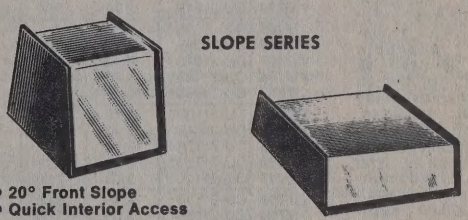


- For Housing Small Elements
- One Piece Aluminum Body
- No Visible Fasteners

Practical for housing small elements and electronic sub-systems. The one piece body of .057 aluminum has a smooth white enamel finish and has knockouts in the rear. The frame is made of 1/8" aluminum with a black textured finish. Two components are easily detached from each other. No visible fasteners are employed and rubber feet are furnished.

Stock No.	Type	O.D. H×W×D	Panel Space H×W×D	Each	2-24	25-34	35-49
91F235	RC-11100	3 1/4" × 5" × 10"	2 7/8" × 4 3/4" × 9 1/8"	27.50	22.95	20.65	18.35
91F236	RC-11101	8" × 12" × 10"	7 5/8" × 11 3/4" × 9 1/2"	50.50	50.50	45.45	40.40

SLOPE SERIES



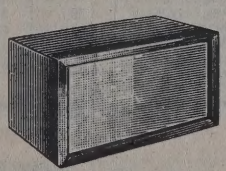
- 20° Front Slope
- Quick Interior Access

Clean vertical and horizontal lines provide quick access to the interior. The frame is of 1/8" aluminum with black textured finish, while the one piece body is .057 aluminum in smooth white enamel finish. The two elements are quickly separated, with knockouts in the rear. Front panel has a 20° slope.

Stock No.	Type	O.D. H×W×D	Panel Space H×W×D	Each	2-24	25-34	35-49
91F237	SC-12100	4 1/4" × 5" × 5"	4 1/8" × 4 3/4" × 3 1/16"	18.70	15.60	14.05	12.50
91F238	SC-12101	3 1/4" × 12" × 10"	3 1/8" × 11 3/4" × 8 7/16"	35.00	32.50	29.25	26.00

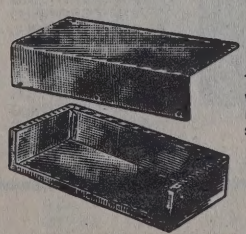
"FUTURA" CABINETS

Versatile housing for small equipment. Made of 20-gauge steel except for front panel, which is 18-ga. Top and sides are one piece, easily removable to expose interior. Front panel is held by flanges (no screws to mar appearance); is vertical, except † rises vertically 2", then has 15° incline. Chassis may be attached to base, rear, or front panels. Has four rubber feet. Royal blue body & rear panel with white textured front panel.



Blue Stk. No.	Type	H×W×D	Lbs.	Each	2-14	15-24	25-34
91F1356	MD-1960	7×13×8"	6 3/4	28.80	25.90	23.05	21.60
91F1357	MD-1961	8×14×9"	7 3/4	32.55	29.30	26.05	24.40
91F1358	MD-1962	8×16×9"	8 1/2	34.75	31.30	27.80	26.05
91F1359	MD-1963†	7×13×8"	7	29.25	26.35	23.40	21.95
91F1360	MD-1964†	8×14×9"	8	33.40	30.05	26.70	25.05
91F1361	MD-1965†	8×16×9"	8 3/4	35.50	31.95	28.40	26.05

CONVERTA-BOX



This new box enclosure consists of a welded base and a two sided cover. Box may be easily mounted to any type of surface. Converta-Box is made of 20 gauge steel. Hardware furnished: 4 self-tapping screws. The box has a zinc-plated finish.

Stk. No.	Type	H×W×D	Lbs.	Each	2-99	100-199	200-299
91F554	CU-341	1 1/2" × 4 × 3"	1/2	7.90	6.60	5.95	5.30
91F555	CU-452	2×5×4"	3/4	8.00	6.70	6.05	5.35
				Each	2-49	50-99	100-149
91F556	CU-482	2×8×4"	1 1/4	8.90	7.45	6.70	5.95
91F557	CU-592	2 1/2 × 9 1/2 × 5"	1 3/4	9.60	8.00	7.20	6.40
91F558	CU-622	2 1/2 × 12 × 6"	2 1/4	11.60	9.70	8.70	7.75
91F559	CU-712	2 1/2 × 15 × 7"	3	14.40	12.00	10.80	9.60

BUD Cabinets & Miniboxes

Steel utility cabinets for electronic equipment, monitors, frequency meters, etc. Ideal for the amateur, experimenter. Accurately formed of sheet steel for rugged use. Have two removable sides. Luster gray finish.

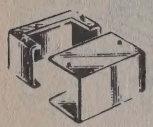
STEEL UTILITY CABINETS

Stk. No.	Type	HxWxD	Lbs.	Each	2-99	100-199
91F640	CU-883LG	4x4x2"	¾	5.90	4.95	8.35
91F641	CU-728LG	4x5x3"	1	6.50	5.45	4.90
91F642	CU-729LG	6x5x4"	1¾	8.00	6.70	6.05
91F643	CU-1098LG	6x6x6"	2¼	12.40	10.35	9.30
91F644	CU-1099LG	9x6x5"	3	13.60	11.35	10.20
91F645	CU-880LG	10x10x8"	6¼	21.70	18.10	16.30
91F646	CU-882LG	15x9x7"	8¼	27.30	22.80	20.50
91F647	CU-879LG	10x8x7"	3¼	20.00	16.70	15.05
91F648	CU-881LG	12x11x8"	8½	26.50	22.15	19.95
91F649	CU-1124LG	12x7x6"	5	17.50	14.60	13.15

Ideal for mounting amplifiers, meters, test instruments, etc. Removable front and back may be fastened to cabinet with self-tapping screws provided. Available in natural or luster gray finish (LG). Rugged and attractive. Aluminum alloy 500S H-14.

ALUMINUM UTILITY CABINETS

Stk. No.	Type	HxWxD	Lbs.	Each	2-99	100-199
91F543	AU-1028	4x5x3"	½	6.50	5.45	4.90
91F544	AU-1029	6x5x4"	¾	7.30	6.10	5.50
91F545	AU-1039	6x6x6"	1	11.30	9.45	8.50
91F546	AU-1040	9x6x5"	1½	12.50	10.45	9.40
91F547	AU-1083	4x4x2"	¼	6.30	5.25	4.75
91F716	AU-1083LG	4x4x2"	¼	7.70	6.45	5.80
91F717	AU-1028LG	4x5x3"	½	8.30	6.95	6.25
91F718	AU-1029LG	6x5x4"	¾	9.50	7.95	7.15
91F719	AU-1039LG	6x6x6"	1	14.30	11.95	10.75
91F720	AU-1040LG	9x6x5"	1½	16.10	13.45	12.10

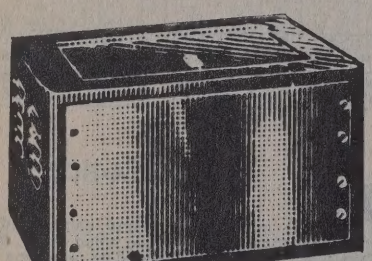


Two-piece aluminum design insures maximum degree of accessibility, adequate shielding as well as complete protection from mechanical injury and dust particles. Formed of .040 gauge aluminum. Comb. snap lock and screw type fastening. Excellent for constructing amplifiers, shielded oscillators, etc.

MINIBOXES

Stk. No.	Grey Enamel Type	Each	2-99	100-199	LxWxH	Wt. Lbs.	Stk. No.	Natural Aluminum Type	Each	2-99	100-199
91F700	CU-2100B	2.80	2.35	2.10	2¾x2⅛x1⅝"	¼	91F572	CU-3000A	2.00	1.65	1.50
91F701	CU-2101B	2.90	2.40	2.15	3¼x2⅛x1⅝"	¼	91F573	CU-3001A	2.60	1.75	1.60
91F702	CU-2102B	3.10	2.60	2.35	4x2¼x1⅝	¼	91F574	CU-3002A	2.20	1.85	1.65
91F703	CU-2103B	3.20	2.65	2.40	4x2¼x2¼"	¼	91F575	CU-3003A	2.60	2.15	1.95
91F704	CU-2104B	3.70	3.10	2.80	5x2¼x2¼"	¼	91F576	CU-3004A	2.80	2.35	2.10
91F705	CU-2105B	4.60	3.85	3.45	5x4x3"	½	91F577	CU-3005A	4.00	3.35	3.00
91F706	CU-2106B	4.50	3.15	2.85	5¼x3x2⅛	¼	91F578	CU-3006A	3.30	2.75	2.50
91F707	CU-2107B	6.40	5.35	4.80	6x5x4"	¾	91F579	CU-3007A	5.90	4.95	4.45
91F708	CU-2108B*	5.90	4.95	4.45	7x5x3"	¾	91F580	CU-3008A*	5.30	4.45	4.00
91F709	CU-2109B*	12.40	10.35	9.30	8x6x3½"	1	91F581	CU-3009A*	8.20	6.85	6.15
91F697	CU-2110B*	13.20	11.00	9.90	10x6x3½"	1¼	91F582	CU-3010A*	10.40	8.70	7.85
91F698	CU-2111B*	17.40	14.55	13.10	12x7x4"	1¾	91F583	CU-3011A*	13.20	11.00	9.90
91F535	CU-2112B*	18.40	15.35	13.80	17x5x4"	2¼	91F584	CU-3012A*	13.90	11.60	10.45
91F536	CU-2113B*	6.10	5.10	4.60	10x2x1⅝"	½	91F585	CU-3013A*	4.60	3.85	3.45
91F537	CU-2114B*	9.00	7.50	6.75	12x2½x2¼"	¾	91F586	CU-3014A*	6.50	5.45	4.90
91F538	CU-2115B	4.40	3.65	3.30	4x2x2¾"	¼	91F587	CU-3015A	3.20	2.65	2.40
91F539	CU-2116B	3.60	3.00	2.70	4¼x2¼x1½"	¼	91F588	CU-3016A	2.80	2.35	2.10
91F540	CU-2117B	3.00	2.50	2.25	3¼x2⅛x1⅛"	¼	91F589	CU-3017A	2.40	2.00	1.80

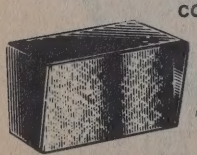
(*) Made of .050" aluminum



DELUXE METAL CABINET RACKS

Will accommodate standard 19" panels. Five larger sizes only have hinged door. All sizes have top door for easy servicing or inspection. "No scratch" metal feet are embossed on bottom to minimize marring. Luster gray (LG) finish.

LG Fin.	Type	DxWxH	Pane	Wt. Lbs.	1-9	10-14	15-19
91F689	CR-1726LG	14¾x22x8 13/16"	7"	28	77.00	69.30	61.60
91F671	CR-1741LG	14¾x22x10 9/16"	8¾"	30	84.65	76.20	67.70
91F668	CR-1740LG	14¾x22x12 5/16"	10½"	34	86.90	78.20	69.50
91F672	CR-1742LG	14¾x22x14 1/16"	12½"	37	93.45	84.10	74.75
91F673	CR-1739LG	14¾x22x15 13/16"	14"	40	121.60	109.45	97.30
91F669	CR-1743LG	14¾x22x19 5/16"	17½"	47	124.35	111.90	99.50
91F670	CR-1744LG	14¾x22x28 1/16"	26¼"	58	137.25	123.55	109.80
91F674	CR-1728LG	14¾x22x33 5/16"	31½"	68	146.40	131.75	117.10
91F675	CR-1745LG	14¾x22x36 13/16"	35"	78	153.40	138.05	122.70
91F676	CR-1727LG	14¾x22x22 13/16"	21"	51	133.35	120.00	106.70



COWL TYPE MINIBOX

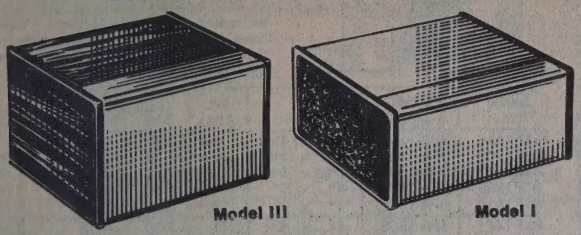
Has projecting cover which reduces glare on panel from overhead lighting and provides protection for controls and dials. Cover has two box braces to which bottom is attached with sheet metal screws. When assembled this type of construction results in a sturdy, rigid housing. Fabricated of .040 aluminum. Overall dimensions and wt.: SC-2130 and SC-3030. 6x10x7". 1¾ lb. SC-2131 and SC-3031, 7x12x8", 2 lbs. SC-2132 and SC-3032, 3x8x5". 1 lb.; SC-2133 and SC-3033, 5x5x5", ¾ lb.

Stock No.	Type	Each	2-99	100-199	200-299
Luster Gray Finish					
91F884	SC-2130	23.90	19.95	17.95	15.95
91F885	SC-2131	26.20	21.90	19.70	17.50
91F886	SC-2132	13.70	11.45	10.30	9.15
91F887	SC-2133	14.10	11.75	10.60	9.40
Natural Finish					
91F888	SC-3030	17.50	14.60	13.15	11.70
91F889	SC-3031	18.80	15.70	14.15	12.55
91F890	SC-3032	9.90	8.25	7.45	6.60
91F891	SC-3033	10.50	8.75	7.90	7.00

Contempo Enclosures

BUD

CONTEMPO SMALL CABINETS



Model III

Model I

Body constructed of .062" aluminum with end panels of 5/16" molded Cycolac plastic. Letter "B" designates black pebble end panels with smooth gray body. Letter "W" designates woodgrain finish on end panels and top with eggshell white on front, rear panels and body.

Model I. Height: 2 1/8" inside, 2 7/16" outside. Depth: 5 5/8" inside, 5 13/16" outside. **Model II.** Height: 3" inside, 3 1/4" outside. Depth: 6 3/4" inside, 7" outside. **Model III.** Height: 4 1/16" inside, 4 7/16" outside. Depth: 6 5/16" inside, 6 7/16" outside. **Model IV.** Height: 4 3/16" inside, 4 7/16" outside. Depth: 10 9/32" inside, 10 1/2" outside.

CONTEMPO SERIES MODEL I

Stock No.	Type	Inside Width	Outside Width	Wgt. Ozs.	Each
99F1747	JB-1650	3 7/8"	4 1/8"	11	14.80
99F1748	JB-1651	4 15/16"	5 3/16"	13	15.60
99F1749	JB-1652	5 15/16"	6 3/16"	15	16.40
99F1750	JB-1653	6 15/16"	7 3/16"	16	17.60
99F1751	JB-1654	8	8 1/4"	18	19.80
99F1752	JB-1655	10 1/8"	10 3/8"	21	25.10
99F1753	JW-3200	3 7/8"	4 1/8"	11	15.00
99F1754	JW-3201	4 15/16"	5 3/16"	13	15.80
99F1755	JW-3202	5 15/16"	6 3/16"	15	16.70
99F1756	JW-3203	6 15/16"	7 3/16"	16	18.90
99F1757	JW-3204	8"	8 1/4"	18	18.90
99F1758	JW-3205	10 1/8"	10 3/8"	21	27.50

CONTEMPO SERIES MODEL II

Stock No.	Type	Inside Width	Outside Width	Wgt. Ozs.	Each
99F1767	LB-1660	3 7/8"	4 1/8"	13	15.80
99F1768	LB-1661	4 15/16'	5 3/16"	14	16.40
99F1769	LB-1662	5 15/16"	6 3/16"	15	18.20
99F1770	LB-1663	6 15/16"	7 3/16"	17	21.10
99F1771	LB-1664	8"	8 1/4"	19	23.50
99F1772	LB-1665	10 1/8"	10 3/8"	24	29.40
99F1773	LW-3210	3 7/8"	4 1/8"	13	15.80
99F1774	LW-3211	4 15/16"	5 3/16"	14	17.50
99F1775	LW-3212	5 15/16"	6 3/16"	15	20.10
99F1776	LW-3213	6 15/16"	7 3/16"	17	22.70
99F1777	LW-3214	8"	8 1/4"	19	25.90
99F1778	LW-3215	10 1/8"	10 3/8"	24	31.00

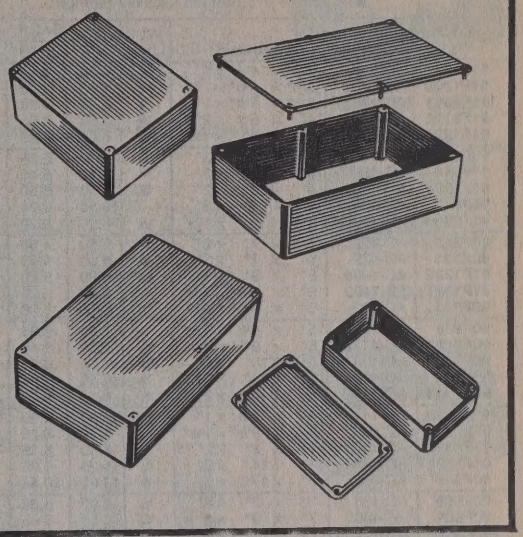
CONTEMPO SERIES MODEL III

Stock No.	Type	Inside Width	Outside Width	Wgt. Ozs.	Each
99F1779	MB-1670	4 15/16"	5 3/16"	16	16.70
99F1780	MB-1671	5 15/16"	6 3/16"	18	18.00
99F1781	MB-1672	6 15/16"	7 3/16"	20	20.75
99F1782	MB-1673	8"	8 1/4"	22	23.50
99F1783	MB-1674	10 1/8"	10 3/8"	27	29.60
99F1784	MB-1675	12 1/8"	12 3/8"	32	36.60
99F1785	MW-3200	4 15/16"	5 3/16"	16	17.40
99F1786	MW-3221	5 15/16"	6 3/16"	18	19.90
99F1787	MW-3222	6 15/16"	7 3/16"	20	22.70
99F1788	MW-3223	8"	8 1/4"	22	25.80
99F1789	MW-3224	10 1/8"	10 3/8"	27	31.00
99F1790	MW-3225	12 1/8"	12 3/8"	32	34.00

CONTEMPO SERIES MODEL IV

Stock No.	Type	Inside Width	Outside Width	Wgt. Ozs.	Each
99F1759	DB-1680	8"	8 1 1/32"	32	38.30
99F1760	DB-1681	10"	10 1 1/32"	37	40.80
99F1761	DB-1682	12"	12 1 1/32"	44	41.50
99F1762	DB-1683	14"	14 1 1/32"	48	42.00
99F1763	DW-3230	8"	8 1 1/32"	32	35.65
99F1764	DW-3231	10"	10 1 1/32"	37	39.00
99F1765	DW-3232	12"	12 1 1/32"	44	43.15
99F1766	DW-3233	14"	14 1 1/32"	48	49.85

PRECISION DIE CAST UTILITY BOXES

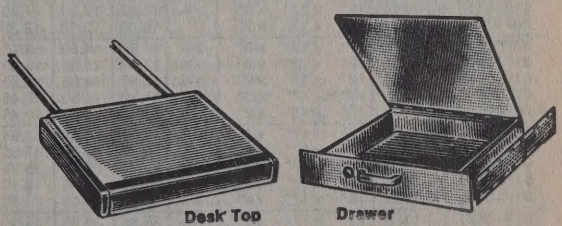


For applications requiring sturdier structure than sheet metal utility cabinet. LM-380 aluminum, lightweight and easy to machine. Close-fitting flanged lids fasten to bosses in body with screws. Interiors are dust and moisture-proof; excellent screening properties. Suitable for instrument and meter cases, filter networks, junction boxes, switches, audio and radio frequency distributors, etc.

Stk. No.	Type	Thickness	Wt. Lbs.	L × W × H"*	Each	2-99	100-199	200-299
93F689	CU-123	.063	1/2	3.63 × 1.5 × 1.06	4.20	3.50	3.15	2.80
91F1603	CU-124	.063	1/2	4.38 × 2.38 × 1.06	4.80	4.00	3.60	3.20
91F1604	CU-234	.094	3/4	4.69 × 3.69 × 2.06	7.90	6.60	5.95	5.30
91F1605	CU-247	.094	1 1/4	7.38 × 4.69 × 2.06	12.70	10.60	9.55	8.50
91F1606	CU-347	.094	1 1/2	7.38 × 4.69 × 3.06	13.20	11.00	9.90	8.80

(*) Height less cover

SERIES 60 DESK TOP



Desk Top

Drawer

Two pre-drilled full-length supporting channels are quickly bolted to panel mounting rails. Antique white Formica 24 1/8" x19 1/2"x3 1/16". Supports 200 lbs. Color: gray texture.

Stk. No.	Type	Fits "60" Series	Sup. Channel	Lbs.	1-2	3-4	5-7
93F016	60-2360	W/22"d	21 1/4"	22	112.80	101.50	90.25
93F039	60-2362	W/25 1/2"d	24 3/4"	23	116.50	104.85	93.20

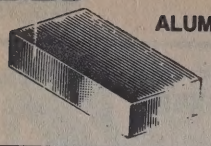
SERIES 60 DESK DRAWERS

Front panel, 3 1/2"x19". Piano type hinged desk top is Formica bonded to aluminum. Latch on front panel locks and releases drawer, as well as releasing top. Hardware included. Luster gray panel.

Stk. No.	Type	Size Inside	Lbs.	1-2	3-4	5-7
93F050	60-2363	16 11/16 × 3 1/2 × 15"	19	152.35	137.10	121.90

CALL YOUR NEWARK BRANCH FOR PRICES ON LARGER QUANTITIES.

BUD Chassis & Cabinets

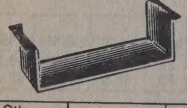


ALUMINUM CHASSIS

Unsurpassed range of standard sizes. Made of one piece of 5005-H-14 aluminum alloy. Reinforced, welded corners to insure utmost strength and long lasting qualities. Folded over on bottom for extra strength.

Stock No.	Type No.	Dimen.	Wt. Lbs.	EACH 2-24	25-49	50-99
91F1319	AC-1401	2½" × 4½" × 1"	⅛	4.60	3.85	3.45
91F1320	AC-1402	3½" × 4½" × 1"	⅛	4.80	4.00	3.60
91F1321	AC-1403	3½" × 5½" × 1"	⅛	4.80	4.00	3.60
91F3122	AC-1404	4" × 5" × 2"	¼	5.50	4.60	4.15
91F1323	AC-1405	4" × 6" × 1½"	¼	5.00	4.20	3.80
90F940	AC-430	4" × 6" × 3"	⅓	6.30	5.25	4.75
90F941	AC-431	4" × 6" × 2"	¼	5.30	5.45	4.00
91F1324	AC-1406	4" × 8" × 2"	¼	6.60	5.50	4.95
90F942	AC-432	4" × 17" × 3"	1	10.50	8.75	7.90
91F1325	AC-1407	4½" × 8" × 1½"	¼	6.20	5.20	4.70
90F943	AC-402	5" × 7" × 2"	⅓	5.50	4.60	4.15
90F944	AC-429	5" × 7" × 3"	½	6.60	5.50	4.95
91F1326	AC-1408	5" × 9" × 1½"	½	6.20	5.20	4.70
91F1327	AC-1409	5" × 9½" × 1½"	⅓	6.20	5.20	4.70
90F945	AC-403	5" × 9½" × 2"	½	6.00	5.00	4.50
90F939	AC-401	5" × 9½" × 2½"	½	7.10	5.95	5.35
90F946	AC-421	5" × 9½" × 3"	⅝	7.70	6.45	5.80
90F947	AC-404	5" × 10" × 3"	⅝	7.70	6.45	5.80
90F948	AC-422	5" × 13" × 3"	¾	8.60	7.20	6.50
91F1328	AC-1410	5" × 13½" × 2½"	¾	8.10	6.75	6.10
91F1329	AC-1411	5½" × 5½" × 1"	⅛	5.40	4.50	4.05
91F1330	AC-1412	5½" × 9½" × 1½"	⅓	6.20	5.20	4.70
91F1331	AC-1413	6" × 8" × 2"	⅓	6.30	5.25	4.75
91F1332	AC-1414	6" × 14" × 3"	1⅞	11.20	9.35	8.40
90F949	AC-433	6" × 17" × 3"	1¼	13.00	10.85	9.75
90F950	AC-405	7" × 7" × 2"	½	6.00	5.00	4.50
90F951	AC-406	7" × 9" × 2"	½	6.50	5.45	4.90
90F952	AC-407	7" × 11" × 2"	⅝	7.60	6.35	5.70
90F953	AC-408	7" × 12" × 3"	⅞	9.30	7.75	7.00
90F954	AC-409	7" × 13" × 2"	¾	7.70	6.45	5.80
91F1333	AC-1415	7" × 15" × 2"	1	12.10	10.10	9.10
90F955	AC-411	7" × 15" × 3"	1¼	12.10	10.10	9.10
91F1334	AC-1416	7" × 17" × 2"	1⅛	14.40	12.00	10.80
91F1335	AC-1417	7" × 17" × 2½"	1¼	14.90	12.45	11.20
90F956	AC-423	7" × 17" × 3"	1½	13.00	10.55	9.70
91F1336	AC-1418	8" × 10" × 2½"	1	9.40	7.85	7.05
91F1337	AC-1419	8" × 12" × 2½"	1⅛	11.20	10.10	9.10
90F957	AC-424	8" × 12" × 3"	1¼	11.00	9.20	8.30
90F958	AC-425	8" × 17" × 2"	1½	11.40	9.50	8.55
90F959	AC-412	8" × 17" × 3"	1¾	13.40	11.20	10.10
91F1338	AC-1420	8½" × 15" × 3"	1½	12.70	10.60	9.55
91F1339	AC-1421	9" × 15" × 3"	1½	14.40	12.00	10.80
90F960	AC-413	10" × 12" × 3"	1¼	13.40	11.20	10.10
90F961	AC-414	10" × 14" × 3"	1½	13.40	11.20	10.10
90F962	AC-415	10" × 17" × 2"	1½	12.70	10.60	9.55
90F963	AC-416	10" × 17" × 3"	1¾	13.80	11.50	10.35
90F969	AC-427	10" × 17" × 4"	2½	20.70	17.30	15.55
91F1340	AC-1422	10" × 17" × 5"	2¼	29.40	24.55	22.10
91F1341	AC-1423	10" × 23" × 3"	2¾	23.00	19.20	17.30
90F964	AC-426	11" × 17" × 2"	2	16.30	13.60	12.25
90F965	AC-417	11" × 17" × 3"	2¼	17.60	14.70	13.25
91F1342	AC-1424	12" × 12" × 3"	1½	17.80	14.85	13.35
91F1343	AC-1425	12" × 17" × 2"	1⅝	16.80	14.05	12.65
90F966	AC-418	12" × 17" × 3"	2¼	17.90	14.95	13.45
90F967	AC-419	13" × 17" × 2"	2⅝	16.60	13.85	12.45
90F968	AC-420	13" × 17" × 3"	2¾	19.50	16.30	14.65
90F970	AC-428	13" × 17" × 4"	3¼	23.80	19.85	17.85
91F1344	AC-1426	13" × 17" × 5"	3½	33.70	28.15	25.35
91F1345	AC-1427	14" × 17" × 3"	2¾	24.50	20.45	18.40
91F1346	AC-1428	15" × 17" × 4"	3¼	33.70	28.15	25.35
91F1347	AC-1429	15" × 17" × 6"	4¼	38.85	38.85	34.95
91F1348	AC-1430	17" × 17" × 3"	3¼	28.60	23.90	21.50
91F1349	AC-1431	17" × 17" × 4"	3⅞	31.90	26.65	24.00

VERTICAL PANEL CHASSIS



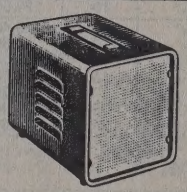
Panel mounting chassis for vertical installation where depth is limited or front service is desired. Made of .060" aluminum alloy 5005 H-14 in natural; finish. Front flange has standard notching. Fits standard 19" panel space.

Stk. No.	Type	Ht.	Wt. Lbs.	2-24	25-49	50-99
91F493	CB1370	1¾"	¾	9.40	7.85	7.05
91F494	CB1371	3½"	1¼	10.50	8.75	7.90
91F495	CB1372	5¼"	1½	12.10	10.10	9.10
91F496	CB1373	7"	2	14.50	12.10	10.90
91F947	CB1374	8¾"	2¼	16.80	14.05	12.65
91F498	CB1375	10½"	2¾	19.50	16.30	14.65
91F499	CB1376	12¼"	3	21.70	18.10	16.30
91F479	CB1377	14"	3¼	24.20	20.20	18.20

ALUMINUM BOTTOM PLATES

Widest variety of standard sizes. Fit all BUD chassis. Made of 5005-H-14 aluminum alloy. Natural finish. Plates have four embossed feet to prevent damage to surface. Fit snugly on bottom of chassis.

Stock No.	Type No.	Dimen.	Wt. Lbs.	EACH 2-49	50-99	100-149
91F1406	BPA-1501	2½" × 4½"	1/16	2.30	1.90	1.70
91F1407	BPA-1502	3½" × 4½"	1/16	2.40	2.00	1.80
91F1408	BPA-1503	3½" × 5½"	⅛	2.40	2.00	1.80
91F1409	BPA-1504	4" × 5"	⅛	2.40	2.00	1.80
91F1410	BPA-1505	4" × 6"	⅛	2.60	2.15	1.95
91F1411	BPA-1506	4" × 8"	⅛	3.30	2.75	2.50
91F1413	BPA-1532	4" × 17"	¼	3.30	2.75	2.50
91F1412	BPA-1507	4½" × 8"	3/16	3.50	2.90	2.60
90F860	BPA-1589	5" × 7"	⅛	2.80	2.35	2.10
91F1414	BPA-1508	5" × 9"	3/16	2.70	2.25	2.05
90F861	BPA-1590	5" × 9½"	⅛	2.80	2.35	2.10
90F862	BPA-1591	5" × 10"	¼	2.80	2.35	2.10
91F1415	BPA-1509	5" × 13"	¼	4.50	3.75	3.40
91F1416	BPA-1510	5" × 13½"	¼	4.50	3.75	3.40
91F1417	BPA-1511	5½" × 5½"	⅛	2.70	2.25	2.05
91F1418	BPA-1512	5½" × 9½"	3/16	3.30	2.75	2.50
91F1419	BPA-1513	6" × 8"	3/16	3.50	2.90	2.60
91F1420	BPA-1514	6" × 14"	5/16	4.50	3.75	3.40
91F1421	BPA-1515	6" × 17"	⅜	5.40	4.50	4.05
90F863	BPA-1592	7" × 7"	3/16	2.80	2.35	2.10
90F864	BPA-1593	7" × 9"	¼	3.60	3.00	2.70
90F865	BPA-1594	7" × 11"	¼	3.70	3.10	2.80
90F866	BPA-1595	7" × 12"	5/16	4.20	3.50	3.15
90F867	BPA-1596	7" × 13"	½	4.80	4.00	3.60
91F1422	BPA-1516	7" × 15"	½	4.80	4.00	3.60
91F1423	BPA-1517	7" × 17"	½	4.80	4.00	3.60
91F1424	BPA-1518	8" × 10"	¼	4.60	3.85	3.45
91F1425	BPA-1519	8" × 12"	⅜	5.80	4.85	4.35
91F1426	BPA-1520	8" × 17"	½	5.90	4.95	4.45
91F1427	BPA-1521	8½" × 15"	½	7.00	5.85	5.25
91F1428	BPA-1522	9" × 15"	½	7.30	6.10	5.50
91F1429	BPA-1523	10" × 12"	½	5.80	4.85	4.35
91F1430	BPA-1524	10" × 14"	½	5.80	4.85	4.35
90F868	BPA-1597	10" × 17"	5/8	6.20	5.20	4.70
91F1431	BPA-1525	10" × 23"	⅞	8.30	6.95	6.25
91F1432	BPA-1526	11" × 17"	¾	6.00	5.00	4.50
91F1433	BPA-1527	12" × 12"	5/8	6.00	5.00	4.50
91F1434	BPA-1528	12" × 17"	¾	7.70	6.45	5.80
90F869	BPA-1598	13" × 17"	⅞	8.50	7.10	6.40
91F1435	BPA-1529	14" × 17"	15/16	7.90	6.60	5.95
91F1436	BPA-1530	15" × 17"	1	10.90	9.10	8.20
91F1437	BPA-1531	17" × 17"	1 1/16	11.00	9.20	8.30



PORTACAB

Desirable as housing for instrumentation requiring high stylized appearance. Body is one piece aluminum with contoured corners. Panel is also aluminum. Flexible recessed handle permits easy portability as well as vertical stacking. Louvers point inward permitting side-to-side placement without loss of space. Welded back has opening. Front panel recessed ½". Four detachable rubber feet provided. Luster gray finish.

Stk. No.	Type	Lbs.	Dimensions D	W	H	EACH 2-24	25-49	50-99
91F615	WA-1540	2	8"	6⅛"	8"	27.95	25.15	22.35
91F616	WA-1541	3½	12"	8⅛"	9"	38.50	34.65	30.80
91F617	WA-1542	3¾	8"	10⅛"	8"	32.75	29.50	26.20
91F618	WA-1543	5½	18"	11⅛"	11"	47.60	42.85	38.10
91F619	WA-1544	8	18"	14⅛"	12"	60.20	54.20	48.15

CONTOUR UTILITY CABINETS

Housing and flanged panels have rounded corners. Solid front and louvered rear panels are removeable. Four rubber feet attached to base prevent scratching. Gray textured body and white textured panel. All parts are 20 gauge steel.

Stk. No.	Type	Overall Size	Lbs.	EACH 2-24	25-49	50-99
91F896	CU-463	4 7/32 × 6 7/32 × 3¾"	1½	18.10	15.10	13.60
91F897	CU-465	4 7/32 × 6 7/32 × 5¾"	2	20.80	17.35	15.60
91F898	CU-585	5 7/32 × 8 7/32 × 5¾"	3	26.70	22.30	20.05
91F899	CU-587	5 7/32 × 8 7/32 × 7¾"	3½	29.40	24.55	22.10

Stk. No.	Type	Overall Size	Lbs.	EACH 2-24	25-49	50-99
91F900	CU-7125	7 7/32 × 12 7/32 × 5¾	5	28.40	23.70	21.35
91F901	CU-7127	7 7/32 × 12 7/32 × 7¾"	5¾	30.00	25.05	22.55

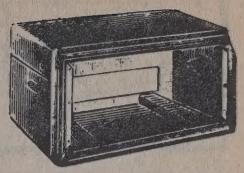
18

Cabinets and Cases

BUD

"PRESTIGE" CABINETS

Stock cabinets of 16 gauge steel for housing quality instruments, etc. Hinged covers . . . solid or perforated. Grommeted finger holes for easy cover lifting. Cover closes by pressure fasteners. Chassis supporting channels and embossed feet. Width 21⅝, Depth 14¾. Luster gray finish.

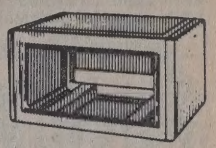


PRESTIGE CABINET

Stock No.	Type No.	Cover	Overall Height	Panel Space	Lbs.	1-14	15-24	25-34
91F6064	C-1440	Solid	9 9/16	7"	25	118.75	106.90	95.00
91F6065	C-1441	Solid	11 5/16	8¾"	26	125.00	112.50	100.00
91F6066	C-1442	Solid	13 1/16	10½"	28½	130.45	117.40	104.35
91F6069	C-1552	Perf.	13 1/16	10½"	27½	130.70	117.65	104.55

PRESTIGE VERSA CABINETS

Has sturdy framework with ball cornered sides. Unit also has solid bottom plate and two supporting channels. All of these parts are removable. Unit uses standard 19" panels. Cabinets are made to be stacked, or may be fastened side by side. Luster gray finish.

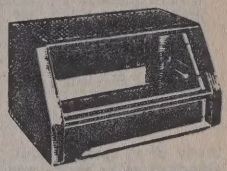


PRESTIGE VERSA CABINET

Stk. No.	Type	Overall Height	Panel Space	Rear Panel	Lbs.	Net Each 1-14	15-24	25-34
91F906	PC-1700	8 ¾"	5¼"	3½"	27	125.15	112.65	100.10
91F907	PC-1701	10½"	7"	5¼"	28¼	132.35	119.10	105.90
91F908	PC-1702	12¼"	8 ¾"	7"	32	135.95	122.35	108.75
91F909	PC-1703	14"	10½"	8¾"	33	140.05	126.05	112.05
91F910	PC-1704	15¾"	12¼"	10½"	34¾	148.45	133.60	118.75

SLOPING PANEL PRESTIGE CABINETS

Cabinet has ventilated top, full top opening, recessed handle, shielded handles in sides. Top panel swept back for easy viewing, rear opening for easy cable or control access. Panel trim bar removable. Provides for installation or removal of panels. Luster gray finish. Rear opening is 2½" x 18", panel offset: 1¼" overall width: 22" pnl. ht. vert: 3½".

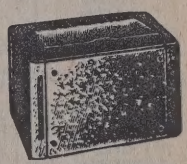


SLOPING PANEL PRESTIGE CABINET

Stock No.	Type	Ht. x Depth	Pan. Ht. Slope	Lbs.	1-14	15-24	25-34
91F743	C-1555	11⅞ x 14⅜"	7"	25	104.20	93.80	83.35
91F744	C-1556	13¼ x 15⅛"	8¾"	27	110.95	99.85	88.75
91F745	C-1557	14¾ x 16⅛"	10½"	30	118.90	107.00	95.10

STREAMLINED CABINETS

Ideal cabinets for electronic devices. They have recessed hinged cover with convenient finger lift. Luster gray (LG) finish. Overall ht. is 8" and overall depth is 8¼". Complete with panel.

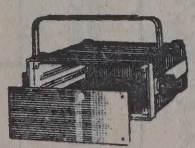


STREAMLINED CABINET

Stk. No. LG	Type	Wid.	Panel	Top Opening	Lbs.	1-24	25-49	50-99
91F775	CD-1480	10½"	8 x 8"	5⅝" x 7⅞"	6¼	26.05	23.45	20.85
91F776	CD-1481	12½"	8 x 10"	5⅝" x 9⅛"	6¾	26.70	24.05	21.35
91F777	CD-1482	14½"	8 x 12"	5⅝" x 11⅛"	7½	28.55	25.70	22.85
91F778	CD-1483	16½"	8 x 14"	5⅝" x 13⅛"	7¾	30.05	27.05	24.05
91F779	CD-1484	18½"	8 x 16"	5⅝" x 15⅞"	9¼	31.50	28.35	25.20
91F780	CD-1485*	20⅝"	12 x 18"	10½" x 15½"	17½	59.60	53.65	47.70

*Has 12" overall depth.

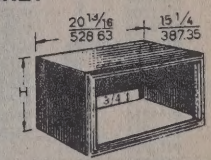
TR SERIES ENCLOSURES



Can be used as desk top instrument cases, in systems, or as portable enclosures. The TR series is designed to accommodate an accessory chassis, or 1/16" thick printed circuit boards. Top and bottom of instrument enclosures are .060" aluminum; front panel .090" aluminum. Top and bottom can be removed. Carrying handle is also used as tilting bail. Royal blue textured body with white frame. Enclosure includes front panel, rubber feet and carrying handle. Weight TR-6100, 4½ lbs.; TR-6101, 5½ lbs.; TR-6102, 7 lbs.; TR-6103, 9½ lbs.

RB Stk. No.	Type	Size, In. W	D	H	Panel Space, In.	Each 1-14	15-24	25-34
86F918	TR-6100	8 5/16	10 3/4	3½	3¼ x 8 3/64	110.45	99.40	88.35
86F920	TR-6101	8 5/16	13 1/4	5¼	5 x 8 3/64	118.25	106.45	94.60
86F922	TR-6102	11 1/16	13 1/4	7	6¾ x 10 53/64	135.35	121.80	108.30
86F936	TR-6103	12	18 3/4	8	7¾ x 11¾	163.75	147.40	131.00

STYLIST CABINET



Square corner design, aluminum extrusion framing of front. Full width flanges along top and bottom of cabinet add strength. No tilt, no sway when cabinet is loaded, capacity of 500 lbs. Self-supporting 16 gauge cold rolled steel, no internal framework. Louvered rear panel. 1¾" high opening for cable accessories meet E.I.A. standards, accept either 19" panels or Stylist Series doors. Rubber feet furnished. RB, royal blue; GT, Gray textured Size 20 13/16" width by 15¼" depth overall.

RB Stk. No.	GT Stk. No.	Type	Size, In. Height	Panel	Wt. Lbs.	Each 1-9	10-14	15-19
86F925	86F924	S-1640	8 13/16	7	26¾	108.65	97.80	86.90
86F927	86F926	S-1641	10 9/16	8¾	29	113.80	102.40	91.05
91F024	91F025	S-1642	12 5/16	10½	31	119.80	107.80	95.85
91F026	86F928	S-1643	14 1/16	12¼	33	124.85	112.35	99.90
91F027	86F929	S-1644	15 13/16	14	35¼	130.10	117.10	104.10
86F931	86F930	S-1645	17 9/16	15¾	37¼	144.35	129.90	115.50

CHASSIS AND DOORS ARE AVAILABLE, CONTACT NEAREST NEWARK OFFICE FOR INFORMATION.

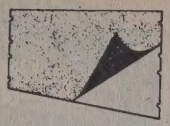
UNIVERSAL METER CASES

Can accommodate either a 2" or 3" meter. Center hole is punched for 2" meter and has an easily removed knock-out ring which increases size of hole to fit 3" meter. One piece, detachable back and sides fastened to the body of cases with four self tapping screws. Two ⅜" knock-out holes in top for installation of feed through insulators if required. Available in steel or aluminum luster gray. 4¼"H. x 4"W. x 4"D. †CMA-1930. 4¼ x 6 x 4".

Stk. No.	Type	Lbs.	Each	2-49	50-99
91F598	CM-1935 Steel	¾	6.50	5.45	4.90
91F599	CMA-1936 Alum.	¼	7.80	6.50	5.85
91F597	†CMA-1930 Alum.	½	12.30	10.25	9.25

18

Cabinet Accessories



Surface Shield

Rack Shelves

Chassis Brackets

"SURFACE SHIELD" RACK PANELS

Each panel is covered on one side with sturdy pressure sensitive white paper for indicating size and position of drilling or milling.

Panels have standard notching. Made of aluminum alloy.

1/8" Panels 19" Wide

Stk. No.	Type	Height	Lbs.	Each	2-49	50-99	100-149
91F265	SFA-1831	1¾"	⅜	5.40	4.50	4.05	3.60
91F266	SFA-1832	3½"	¾	7.80	6.50	5.85	5.20
91F267	SFA-1833	5¼"	1⅛	10.00	8.35	7.50	6.70
91F268	SFA-1834	7"	1¾	12.90	10.75	9.70	8.60
91F269	SFA-1835	8¾"	2	14.10	11.75	10.60	9.40
91F270	SFA-1836	10½"	2½	18.30	15.30	13.75	12.25
91F271	SFA-1837	12¼"	2¾	21.20	17.70	15.95	14.15
91F272	SFA-1838	14"	3¼	22.70	18.95	17.05	15.15
91F273	SFA-1839	15¾"	3⅝	26.90	22.45	20.20	17.95
91F274	SFA-1840	17½"	4	32.90	24.70	22.25	19.75
91F275	SFA-1841	19¼"	4¼	33.90	27.45	24.70	21.95
91F276	SFA-1842	21"	5	35.20	30.00	27.00	24.00

3/16" Panels 19" Wide

Each Stk. No.	Type	Height	Lbs.	Each	2-49	50-99	100-149
91F277	SFA-3161	1¾"	¾	10.00	8.35	7.50	6.70
91F278	SFA-3162	3½"	1¼	13.90	11.60	10.45	9.30
91F279	SFA-3163	5¼"	1¾	18.30	15.30	13.75	12.25
91F280	SFA-3164	7"	2½	23.10	19.30	17.35	15.45
91F281	SFA-3165	8¾"	3	27.10	22.65	20.40	18.10
91F282	SFA-3166	10½"	3¾	31.80	26.55	23.90	21.25
91F283	SFA-3167	12¼"	4½	36.00	33.55	30.20	26.85
91F284	SFA-3168	14"	5	38.35	38.35	34.50	30.70
91F285	SFA-3169	15¾"	5¾	42.85	42.85	38.55	34.30
91F286	SFA-3170	17½"	6¼	44.75	44.75	40.30	35.80
91F287	SFA-3171	19¼"	7	52.20	52.20	47.00	41.75
91F288	SFA-3172	21"	7¼	56.35	56.35	50.70	45.10

STEEL RACK PANELS

Made of 11 gauge steel. 19" widths. Have standard notched edges which are able to fit the normal mounting screw spacing of all standard relay racks and telephone type relay racks.

Stock No. White	Stock No. Grey	Type	Lbs.	Height	Price Each	2-49	50-99	100-149
91F1574	91F320	PS-1250	1¼	1¾"	5.20	4.35	3.90	3.50
91F1576	91F321	PS-1251	2¼	3½"	6.30	5.25	4.38	4.20
91F1578	91F322	PS-1252	3¼	5¼"	9.90	8.25	7.45	6.60
91F1580	91F323	PS-1253	4½	7"	10.80	9.00	8.10	7.20
91F1582	....	PS-1254	6	8¾"	12.30	10.25	9.25	8.20
91F1584	91F325	PS-1255	7	10½"	13.80	11.50	10.35	9.20
91F1586	....	PS-1256	8¼	12¼"	15.40	12.85	11.55	10.30
91F1588	....	PS-1257	9½	14"	18.20	15.20	13.70	12.15
91F1590	....	PS-1258	10¾	15¾"	19.30	17.80	16.00	14.25
91F1592	91F329	PS-1259	11¾	17½"	21.30	17.80	16.00	14.25
91F1594	....	PS-1260	13	19¼"	23.20	21.05	18.95	16.85
91F1596	91F331	PS-1261	14¼	21"	26.40	22.05	19.85	16.85

ALUMINUM—RACK—PANELS—1/8 PANELS (5005 H-36)

91F1700	91F360	PA-1101	⅜	1¾"	6.20	5.20	4.70	4.15
91F1702	91F361	PA-1102	¾	3½"	8.40	7.00	6.30	5.60
91F1704	91F362	PA-1103	1⅛	5¼"	11.30	9.45	8.50	7.55
91F1706	91F363	PA-1104	1¾	7"	14.20	11.85	10.65	9.50
91F1708	91F364	PA-1105	2	8¾"	16.80	14.05	12.65	11.25
91F1710	91F365	PA-1106	2½	10½"	20.00	16.70	15.05	13.35
91F1712	91F366	PA-1107	2¾	12¼"	23.00	19.20	17.30	15.35
91F1714	91F367	PA-1108	3	14"	26.60	22.20	20.00	17.75
91F1716	91F368	PA-1109	3¼	15¾"	29.30	24.45	22.00	19.55
91F1718	....	PA-1110	3⅜	17½"	32.10	26.80	24.10	21.45
91F1720	....	PA-1111	4¼	19¼"	33.80	29.05	26.15	23.25
91F1722	....	PA-1112	5	21"	34.50	32.50	29.25	26.00

BLACK RACK SHELVES

Stk. No.	Type	Size	Lbs.	Each	2-49	50-99	100-149
91F092	CB-1976	19x1x15"	6	17.60	14.70	13.25	11.75
91F093	CB-1977	19x1x12"	5	13.70	11.45	10.30	9.45

CHASSIS SUPPORTING ANGLES

7/64" steel. Black. Supplied in pairs.

Stk. No.	Type	Length	Width	Lbs.	Each	2-49	50-99	100-149
91F090	SA-1349	14½"	3"	3½	11.90	9.95	8.95	7.95
91F091	SA-1350	12"	3"	3	11.90	9.95	8.95	7.95

CHASSIS MOUNTING BRACKETS

BLACK. For 4" chassis. Sold in pair/each.

Stk. No.	Type	Dimensions	Lbs.	Each	2-99	100-199	200-299
91F070	MB-458	6½x8"	1¼	8.30	6.95	6.25	5.55
91F071	MB-448	6½x10"	1¾	9.70	8.10	7.30	6.50
91F072	MB-459	6½x11"	2	9.00	7.50	6.75	6.00
91F073	MB-449	6½x12"	2	10.90	9.10	8.20	7.30
91F074	MB-460	6½x13"	2½	12.40	10.35	9.30	8.30
91F075	MB-450*	8½x10"	2¼	11.80	9.85	8.85	7.90
91F076	MB-451*	8½x13"	3	13.10	10.95	9.85	8.75

SLOPING PANEL CABINETS

LG Fin. Stk. No.	Type	HxWxD	Lbs.	Each	2-24	25-49
91F791	C-1584LG	6½x7 1/16x7 5/16"	2¾	17.50	14.60	13.15
91F792	C-1587LG	8x8 1/16x8"	4	21.80	18.20	16.40
91F793	C-1585LG	6½x9 1/16x7 5/16"	2½	19.10	15.95	14.35
91F794	C-1588LG	8x10 1/16x8"	4½	23.20	19.35	17.40
91F795	C-1586LG	6½x11 1/16x7 5/16"	3¾	22.40	18.70	16.85
Stk. No.	**Type**	**HxWxD**	**Lbs.**	**1-24**	**25-49**	**50-99**
91F796	C-1594LG	8x14 1/16x8"	6	21.30	19.15	17.05
91F797	C-1592LG	8x13 1/16x8½x8"	5½	25.70	23.15	20.55
91F798	C-1596LG	9x18 1/16x8 3/16"	9¾	32.55	29.30	26.05
91F799	C-1593LG	10x18 1/16x10½x8"	12½	33.30	29.95	26.65

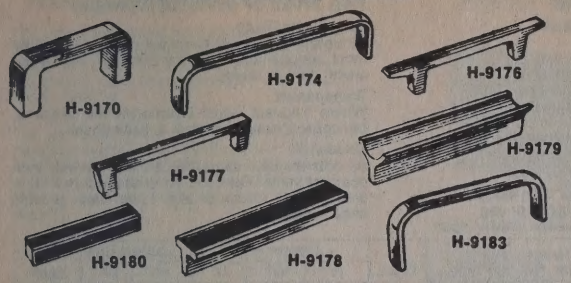
The entire front panel of this cabinet is removable if so desired. This cabinet is also provided with a hinged top for easy accessibility to components that are mounted on the chassis without necessitating removal of the front panel. These cabinets are finished in luster gray.

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Handles, Casters and Levelers

BUD

DIE CAST ALUMINUM HANDLES



H-9170. 2¾" mounting center. 1¼" hand clearance. Clear anodized.

H-9174. 4" mounting center. 1⅛" hand clearance. Clear anodized.

H-9176. 3¼" mounting center. Overall length 5". ¾" hand clearance. Clear anodized.

H-9177. 4⅜" mounting center. ¾" hand clearance. Clear anodized.

H-9178. 4" mounting center. ¾" hand clearance. Clear anodized with black trim.

H-9179. 4" mounting center. ⅝" hand clearance. Clear anodized.

H-9180. 4" mounting center. Clear anodized with black trim.

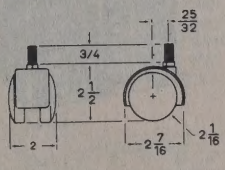
H-9183. 4⁹⁄₁₆" mounting center. 1⅛" to 1⅝" hand clearance.

Stock No.	Type	EACH	2-99	100-199
69F198	H-9170-B	10.40	7.80	7.00
69F199	H-9174-B	6.50	4.90	4.40
69F200	H-9176-B	7.00	5.25	4.75
69F201	H-9177-B	7.00	5.25	4.75
69F202	H-9178-B	8.50	6.40	5.75
69F203	H-9179-B	7.70	5.80	5.20
69F204	H-9180-B	9.00	6.75	6.10
69F205	H-9183-B	7.20	5.40	4.85

CASTERS AND LEVELERS

RC-7775

RC-7756



RL-7760

All casters and levelers have ⅜-16 threaded steel pin.

Type RC-7760. Contemporary-styled, dual-wheel casters. Black nylon hoods and wheels.

Type RC-7756. Heavy-duty casters. Ball-bearing wheels made of hard tread composition. Ht. 2⅝".

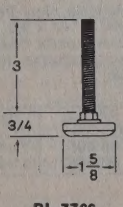
Type RC-7758. Extra-heavy-duty version of type RC-7756. Ht. 3¼"

Type RL-7765. Handsomely-styled levelers complement RC-7760 casters. Black nylon.

Type RL-7766. Stem levelers. Steel cap and stem nickel-plated. Rubber base.

Type RL-7767. Same as RL-7766, except with white nylon base.

Type RC-7775. Head swivel caster. 2½" rubber ball base.



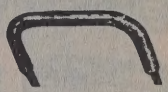
RL-7766

Stock No.	Type	Load Rating	Wt. (2)	EACH	2-49	50-99
91F100	RC-7760	110 lb.	8 oz.	8.30	6.95	6.25
91F082	RC-7756	125 lb.	1¾ oz.	3.60	3.00	2.70
91F094	RC-7758	200 lb.	6 oz.	9.60	8.00	7.20
91F101	RL-7765	110 lb.	4 oz.	4.00	3.35	3.00
91F102	RL-7766	200 lb.	5 oz.	3.30	2.75	2.50
91F103	RL-7767	200 lb.	6 oz.	2.60	2.15	1.95
81F4474	RC-7775	210 lb.	1¼ oz.	7.80	6.50	5.85

Types H-9115 and H-9116. These handles made of ⅜" steel rod, chrome plate finish. Have hand clearance of 1⁵⁄₁₆". Ideal for use where a thin, durable handle is necessary or desirable. Hardware provided: two ¼-28 nuts. Av. shpg. wt. 3 oz.

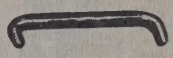
Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F746	H-9115B	4"	5.00	3.75	3.40	3.00
90F732	H-9116B	6"	5.40	4.05	3.65	3.25

Types H-9160, H-9161, H-9162, H-9163B, H-9164, H-9165. All have chrome plated finish and are made of ⅜" diameter steel. All have 1¹¹⁄₁₆" hand clearance. All are provided with two ¼-28 hex nuts as hardware. Types differ in mounting centers only which are listed below.



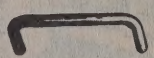
Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F733	H-9160B	3½"	5.80	4.35	3.90	3.50
90F734	H-9161B	5¼"	5.90	4.45	4.00	3.55
90F735	H-9162B	7"	7.70	5.35	4.80	4.30
90F736	H-9163B	8¾"	6.30	4.75	4.30	3.80
90F737	H-9164B	10½"	6.80	5.10	4.60	4.10
90F738	H-9165B	12¼"	8.00	6.00	5.40	4.80

Types H-9166, and H-9168. Both are made of ¼" diameter brass and both have a chrome plated finish. These handles each have 1" hand clearance and are provided with the same hardware: two 6-32x⅜" screws. They differ only in mounting centers which are listed below.



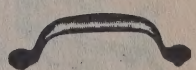
Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F739	H-9166B	1¹⁵⁄₁₆"	2.80	2.10	1.90	1.70
90F740	H-9168B	3"	3.00	2.25	2.05	1.80

Types H-9110-14. ⅜" dia. except H-9114, ½" dia. steel, chrome plated. All provided with two 10-32x⅜" screws except H-9114 two ¼-28x½" screws. Hand clearance 1" except* 1¼" and ** 1½". Shpg. wt. 3 oz.



Stk. No.	Type	Mtg. Ctrs.	Net Each	2-99	100-199	200-499
90F741	H-9110B*	6"	5.40	4.05	3.65	3.25
90F742	H-9111B	4"	4.20	3.15	2.85	2.50
90F743	H-9112B	6"	5.30	4.00	3.60	3.20
90F744	H-9113B	8"	5.50	4.15	3.75	3.30
90F745	H-9114B**	8"	6.80	5.10	4.60	4.10

Type UH-70A. Useful for attaching to any small housing or speaker enclosure to achieve portability. Handle made from aluminum and given an etched finish. Aver. Shpg. wt., 3 oz.



Stock No.	Type	Len.	Mtg. Cen.	Each	2-49	50-99	100-499
91F079	UH-70A	5⅓"	5⅜"	2.20	1.65	1.50	1.30
91F1680	UH-71A	3¾"	3⅜"	1.90	1.45	1.30	1.15

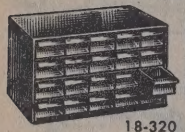
Depend on NEWARK For —Fast Service and the Latest in Electronics

Akro-Mils Drawer Cabinets

MODULAR HEAVY-DUTY CABINETS

17-136

18-228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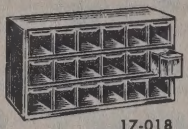
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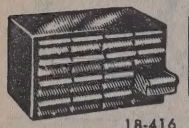
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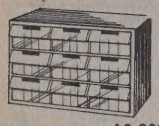
18-715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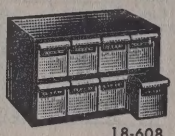
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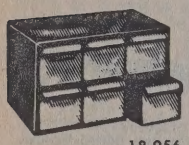
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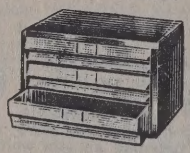

18-803

WELDED STEEL FRAMES

- Chip-proof,scratch resistant baked enamel finish
- Standard 18" width
- Keyhole slots for wall mounting
- Attractive charcoal hammertone finish
- Nesting "feet" for stability in stacking

MOLDED STYRENE DRAWERS

- Long-lasting—rust and corrosion proof
- Safe—no sharp edges
- Lightweight—60% lighter than steel
- Non-Spreading—won't bulge or sag
- Spill-proof—safety tab keeps drawer open

TWO TYPES OF STYRENE DRAWERS

Gray Heavy-Duty
Virtually unbreakable hi-impact styrene—ideal for most requirements. Guaranteed for life, won't crack, dent or break.

Transparent
Where frequent visual inventories are required, transparent drawers permit a quick check.

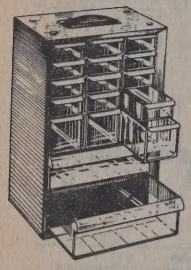
Dividable
All drawers can be partitioned into several sub-compartments. Patented dovetail dividers lock in place—won't creep or slip. Label slots provide easy indexing.

Gray HD Stk. No.	Type	Trans. Stk. No.	Type	Drws.	Drawer Size H"	Drawer Size W"	Drawer Size D"	Cabinet Size H"	Cabinet Size D"	Each
.....		80W057	17-136	36	1¼	2½	5⅞	9½	6	29.55
80W065	18-228	.....	.....	28	2⅛	2⅛	11	11	11	44.00
.....		80W085	17-018	18	2½	2¾	5⅞	9	6	29.55
80W061	18-320	80W062	17-320	20	2⅛	3⅛	11	11	11	
80W056	18-416	80W050	17-416	16	2⅛	4	11	11	11	
80W055	18-715	80W063	17-715	15	3 1/32	3⅛	11	11	11	44.00
80W054	18-909	80W064	17-909	9	3 1/32	5¼	11	11	11	
80W066	18-608	.....	.....	8	4¾	4	11	11	11	
80W067	18-956	.....	.....	6	4¾	5¼	11	11	11	
80W086	18-803	.....	.....	3	3 1/32	16¾	11	11	11	44.00

DIVIDERS FOR AKRO MILS CABINETS

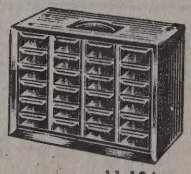
Stk. No.	Type	Description	For Drwrs, in cabinet	Pkg. Qty.	Per Pkg.
82F083	42-121	Long	17-136 11-150 11-124 11-565	25	3.79
82F119	40-501	Cross	17-136 11-150 11-124 11-165	25	1.63
82F030	42-301	Cross	17-320 18-320	25	1.76
82F131	43-301	Cross	17-909 18-909	25	4.98
82F132	43-331	Long	17-715 18-715 17-909 18-909	10	4.69
82F134	43-101	Cross	17-715 18-715	25	4.64
82F137	42-401	Cross	17-416 18-416	25	3.29
82F138	42.431	Long	17-416 18-416 17-320 18-320	10	3.10
82F161	42-201	Cross	18-228	25	4.85
82F162	44-401	Cross	18-608	25	5.45
82F165	44-501	Cross	18-956	25	6.55
82F175	40-902	Cross	17-018 11-565	25	3.10

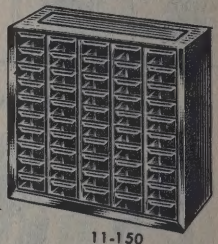
ECONOMY DRAWER CABINETS



STORAGE ORGANIZER PORTABLE 17-DRAWER CABINET

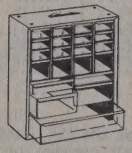
Model 11-117. Steel-frame cabinet measures 10"W x 15"H x 6½"D. 17 dividable transparent drawers. 3 drawer sizes: 12 standard, 2¾"W x 1¼"D x 5¾"L; 3 double deep, 2¾"W x 2¼"D x 5¾"L; 2 jumbo, 8¾"W x 2½"D x 5¾"L. Finish is metallic blue chip-proof enamel. Built-in carrying handle, stamped key-hole slots facilitate wall mounting. Wt. 7 lbs.
80W058. NET 15.20


11-124


11-150

model 11-521

Portable, steel frame, storage organizer cabinet with 21 "See-Thru" styrene drawers. Color: metallic blue with black carrying handle.
81F9002. NET 16.90



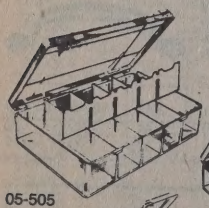
24 DRAWER

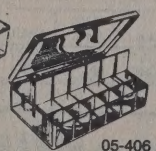
Portable steel frame, 24 Full size 2¾" x 1¼" x 5¾" see-thru drawers. Blue metallic finish, dividable drawers. Stackable frame, wall mountable.

50 DRAWER

Portable steel frame, 50 Full size 2¾" x 1¼" x 5¾" see-thru drawers. Blue metallic finish, dividable drawers. Stackable frame, wall mountable.

Stk. No.	Type	Drwrs.	Cabinet Size	Shpg. Wt.	Each
80W051	11-124	24	13" x 9½" x 6½"	7 lbs.	12.40
80W087	11-150	50	15" x 15" x 6½"	12 lbs.	23.20


05-505


05-406

05-206

PLASTIC UTILITY BOXES

MODEL 05-505, 5-15 COMPARTMENTS

Has 5 permanent compartments that can be subdivided into 15 equal compartments or varied in other combinations. Molded of clear styrene, unbreakable hinges. Snap-tight lid. Size: 11½" wide x 6½" deep x 2⅜" high. Packaged in protective chipboard sleeves.
82F025. NET 3.78

MODEL 05-206, 6 EQUAL COMPARTMENTS

Has six equal compartments, 1¼" x 1⅜" each. Break-away hinges give when lid is closed over overloaded box; top pops off, snaps into position. Size 4⅜" x 2⅜" x 1".
82F136. NET ..... .72

MODEL 05-406, 6-18 COMPARTMENTS

Has six permanent compartments, 1¼" x 4⅛" each. Two removable partitions, scored to snap off at intervals, allowing up to eighteen sub-compartments. Hinged lid. Molded of transparent styrene. Size 8½" wide x 4¾" deep x 1½" high.
82F135. NET 2.30

Storage Bins and PC Equipment

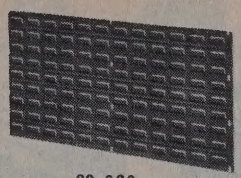
LOUVERED PANELS FOR AKROBINS MODEL 30-636

This heavy duty panel is 16 gauge cold rolled steel with horizontal reinforcing ribs. Slotted holes ¾" L × ⅜"W at 6" centers simplify installation. Gray baked enamel. Panel size: 19"H × 35¾"W.

The louvered panel provides a universal hanging surface for AkroBins and allows unlimited relocation of all bin sizes. No adjustment or relocation of rails or shelves is necessary—just rearrange the bin as desired.

These versatile panels can be mounted on walls, attached to the back of existing shelving, mounted on benches, carts, inside cabinets or fastened to readily available slotted angle components to form free standing storage bays.

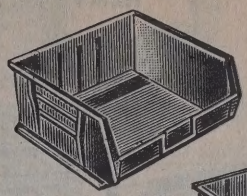
81F226 NET..... 17.73



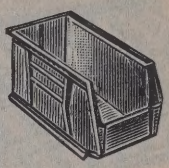
30-636

98-600

AKRO-MILS STACKING STORAGE BINS



30-250



30-240

30-220

30-210

Efficient bins for storing, assembling, and transporting small parts, components, and finished goods. Use on shelving, rail or panel systems, or stacked. Blue-colored molded polypropylene is rust-proof, corrosion-proof, impervious to water, oils, and chemicals.

Model 98-600. Bench Rack. Accommodates 24 of 30-210, 24 of 30-220 or 12 of 30-230

80W059. NET..... 26.05

Stk. No.	Type	Inside Dimension L	W	H	X*	Each
80W089	30-210	4¾	3 7/16	2 13/16	4	.60
80W090	30-220	6¾	3 7/16	2 13/16	6	1.12
80W091	30-230	10¼	4⅜	4¾	9	2.74
80W092	30-240	14	6 9/16	6¾	12	5.46
80W093	30-250	14	14¾	6¾	12	7.65

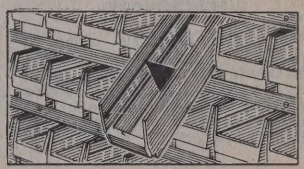
(*) Inside bottom length—front to back

30-230

SHELF BINS WITH DIVIDERS

Permanent Polypropylene. No Assembly. Water, oil & grease proof. Dividers included with 4 largest sizes. Designed to fit 36" wide shelving. Economically priced. Seamless, molded polypropylene bins for 12" deep shelving. Movable dividers included with 2 largest models. Water, oil and grease proof. Built-in hang lock catches underside of above shelf. Handles include large label area. Bins nest to save space. Permanently molded bright yellow color. Outlasts corrugated bins.

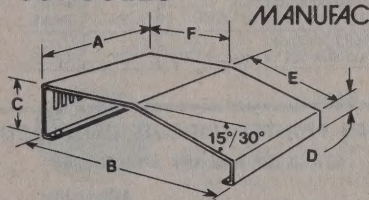
Stk. No.	Type	Inside Dim. (in.) W	H	L	Each
79W323	30-110	1½	4	10⅛	.84
79W325	30-120	2⅞	4	10⅛	1.09
79W326	30-130	5½	4	10⅛	1.83
79W327	30-128	2⅞	4	16½	1.52
81F9006	30-138	6	4	18	2.56



SERIES 1456 MINIATURE DESK TOP CONSOLES

HAMMOND MANUFACTURING™

Miniature consoles with 15° or 30° sloping front panels, offer the same display visibility as most calculators. Cases are available in ½" genuine oil-finished walnut, or in .081" painted aluminum. Panels are available in .064" painted aluminum. Ventilation is provided by slots in the bottom and rear. Cases and panels are sold separately. Rubber feet and hardware are included with the case. Matching cases and panels must have the same type no. For example, a CE2C case will only fit a CE2C panel. Suffix of type no. indicates color: BU, blue; WW, walnut; BK, black; WH, white. Dimension "D" on illustration is approx. 1.2 in. All dimensions are approximate.



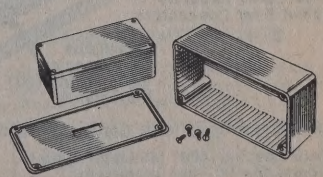
Stk. No.	Type 1456	Each	Stk. No.	Type 1456	Each	Dimensions (in.) A	B	C	E	F
79W281	CE2CBU	8.00	**79W302**	CE2PWH	5.30	4.0	5.5	2	3.3	2.2
79W289	KE3CBU	11.00	**79W310**	KE3PWH	10.00	10	5.5	3	3.7	2.2
79W290	KE3CWW	24.00	**79W311**	KE3PBK	10.00	10	5.5	3	3.7	2.2

Stk. No.	Type 1456	Each	Stk. No.	Type 1456	Each	Dimensions (in.) A	B	C	E	F
79W291	FG4CBU	11.50	**79W313**	FG4PWH	8.50	6.5	7.2	4	5.7	2.2
79W294	KG4CBU	12.50	**79W315**	KG4PWH	11.00	10	7.2	4	5.7	2.2
79W297	KK4CBU	15.50	**79W318**	KK4PWH	12.50	10	10	4	5.7	5.2
79W299	PK4CBU	18.50	**79W321**	PK4PWH	15.00	14	10	4	5.7	5.2

PLASTIC CASES

Types 1591 A, B, C, D and E. Type number suffixes specify colors: -OR=Orange, -BK=Black, -BU=Blue and -GY=Grey. .062" ABS plastic. Comes with 3mm slot head screws, countersunk into lid and threaded into brass bushings. Slots on 0.2" centers hold .062" PC cards.

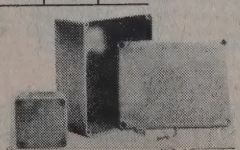
Types 1591L, 1591M, 1591N. .08" ABS plastic. Comes with four slot head screws threaded into integral brass bushings which hold panel recessed into front of case. Rated for 85°C (185°F). 1mm (0.04") thick grey painted aluminum panel. Internal slots on all four sides for holding 1.5mm (0.062") PC boards.



Stk. No.	Type 1591	Each	Stk. No.	Type 1591	Each	Stk. No.	Type 1591	Each	Stk. No.	Type 1591	Each
65F1751	B-OR	3.34	**65F1760**	C-BK	4.10	**65F1766**	A-BU	3.02			
65F1752	C-OR	4.10	**65F1762**	E-BK	7.02	**65F1768**	C-BU	4.10	**65F1774**	A-GY	3.02
65F1754	E-OR	7.02	**65F1763**	L-BK	4.22	**65F1769**	D-BU	4.86	**65F1775**	B-GY	3.34
65F1759	B-BK	3.34				**65F1770**	E-BU	7.02	**65F1776**	C-GY	4.10

1590 DIECAST BOXES

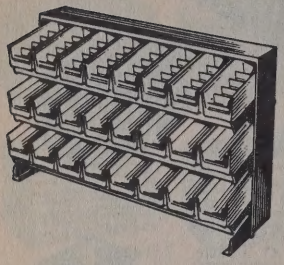
An improved diecast aluminum alloy box with an attractive tumbled surface. Comes drilled and tapped with countersunk lid and four 6-32 × ½ Phillips screws. Interlocking flange on the lid. Provides good R. F. shielding making smaller sizes excellent for R.F connectors. Discounts provided when tumbled surface not required.

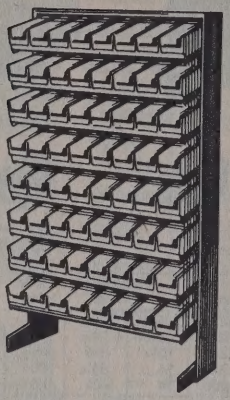


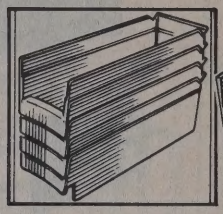
Stk. No.	Type	Dimensions (ins.) H	W	D	Each
81F3790	1590A	3.6	1.5	.98	2.09
81F3791	1590B	4.3	2.3	.98	2.32
81F3792	1590BB	4.6	3.6	1.1	3.48
81F3793	1590C	4.6	3.6	2.0	3.83
81F3794	1590D	7.3	4.7	2.0	6.38
81F3795	1590E	7.3	4.7	3.0	6.61
81F3796	1590F	7.3	7.3	2.5	8.12
81F3797	1590LB	1.98	2.0	.98	3.40

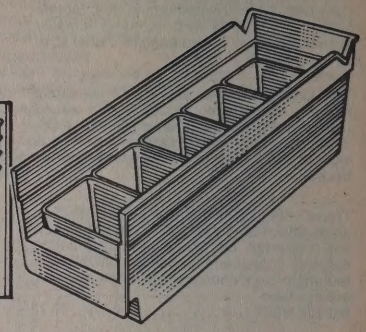
Average wall thickness 2.0 mm (.079")

HEAVY-DUTY SEAMLESS PLASTIC PARTS BINS

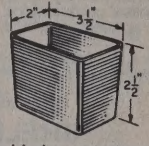




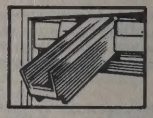




Plastic Bins Nest—Space saving storage



Plastic Mini-Bins fit into larger bins for "sub-storage"



Hanging Notch—Hang bins for easy access

Bottom Runners—Aid bin removal, Reduce friction

BENCH MODEL

Keep work materials close at hand. 24 plastic parts bins are conveniently displayed on a table or work bench. Unit is free standing or can be bolted to bench top. Rack only. Accommodates 24—4″x4″x12″ bins.

FLOOR MODEL

64-bin unit uses a small amount of floor space. Unit is free standing or may be bolted to floor or wall. Rack only. Accommodates 64 — 4″x4″x12″ bins.

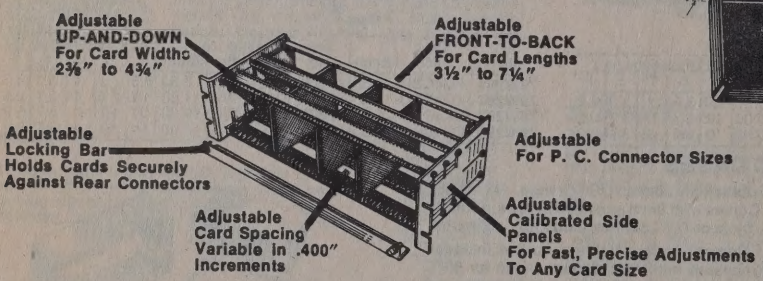
Injection-molded plastic bins are perfect for storing parts. High-density polyethylene resists the ravages of grease, chemicals, and wear like no other bins can! Pull "handle" makes removing from shelf easy . . . without disturbing adjacent bins. Optional Mini-Bins fit neatly inside larger bins to accommodate various size parts. Extra-high sides help prevent spills. In OSHA safety yellow, with convenient label area that accepts standard pressure-sensitive file folder labels (not incl.).

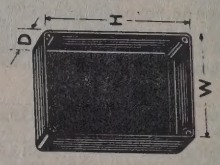
Stk. No.	Type	Description	Ship Weight	ea.
79N698	3868	3-shelf bench-top rack Set-up size: 22″ × 36″ × 13″	29	84.95
79N701	3874	8-shelf floor rack Set-up size: 61″ × 35½″ × 12″	75	137.95

Stock No.	Type	Description	Pcs. carton	Ship. wt.	Less than carton Price Ea.	Per carton
80N353	4668	2½″ × 2″ × 3½″ Mini-Bin	100	5	.70	54.00
80N354	4669	4″ × 4″ × 12″ Parts Bin	50	16½	2.80	130.50
80N355	4670	4″ × 4″ × 12″ Parts Bin	25	18	4.30	93.80

H. H. SMITH PRINTED CIRCUIT CARD EQUIPMENT

STACKING & BLANK END PLATES


Adjustable UP-AND-DOWN For Card Widths 2⅜″ to 4¾″
Adjustable FRONT-TO-BACK For Card Lengths 3½″ to 7¼″
Adjustable Locking Bar Holds Cards Securely Against Rear Connectors
Adjustable For P. C. Connector Sizes
Adjustable Card Spacing Variable in .400″ Increments
Adjustable Calibrated Side Panels For Fast, Precise Adjustments To Any Card Size



- Card Capacity up to 39 Cards, 1/16″ Thick
- Card Spacing .400″ Minimum Centers, Adjustable in .400″ Increments
- Accommodates Card Edge Connectors With Mounting Centers From 0.936″ Minimum to 4.437″ Maximum
- Card Sizes With Locking Bar, 2⅜″ to 4¾″ Maximum Width, 4⅜″ to 6½″ Maximum Length. Without Locking Bar, 3½″ to 7½″ Maximum Length.

P.C. Card Rack. Made of heavy gauge anodized aluminum, guide and alignment members are extrusions. Capacity 39 cards, 1.16″ thick. Card spacing .400″ minimum centers, adjustable in .400″ increments. Accommodates card edge connectors with mounting centers from 0.936″ minimum to 4.437″ maximum. All hardware, plastic card guides (for 1/16″ thick cards), step and assembly instructions included.

Instrument Cases and Covers. Ideal for small instruments and test equipment. The right size and the right mounting for your requirements. Molded of high quality, glass finish, thermosetting plastic. Threaded brass insert for cover mounting. BLACK ONLY. *Self-tapping.

Stk. No.	Type	H	W	D	Insert	Ea.
22F101	2377	4″	2⅞″	1 9/16″	4-40*	1.66
22F102	2291	5″	4¼″	1¾″	6-32	3.86
22F103	2255	6¼″	3¾″	2″	6-32	4.61
22F104	2257	6 13/16″	5 9/64″	2 5/16″	4-40	6.78
22F105	2289	8½″	7 7/16″	3″	6-32	9.23

BOARD GUIDES

Stk. No.	Type	Pkg. of 100
39F1780	3051	9.12

Stk. No.	Type	Each
65F020	3050	44.32

PHENOLIC COVERS

Stk. No.	Type	Description	Each
22F108	2378	For No. 2377	.65
22F109	2292	For No. 2291	1.02
22F110	2256	For No. 2255	2.54
22F111	2260	For No. 2257	4.27
22F112	2390	For No. 2289	6.70

PANEL PLATE

Stk. No.	Type	Description	Each
22F115	2379	For No. 2255	3.14

See Page 632 for Solder.

Control Knobs

RAYTHEON

STANDARD CONTROL KNOBS MEETS MS91528 REV C. SPECS.

Molded plastic knobs fitted with an aluminum insert. Two Allen head screws fasten to the control shaft. * after type number indicates mirror finish for commercial equipment. G after type number indicates a non-reflecting "matte" finish, which conforms to military specifications. Ave. shpg. wt. 3 oz.

50 Series—.45″ Dia. For ⅛″ shafts

Stk. No.	Type	Description	Fig.	1-199	200-499	500-999
26F194	50-1-1*	Unskirted knob	A	1.67	1.37	1.14
26F195	50-1-1G	Unskirted knob	A	1.83	1.52	1.26
26F196	50-2-1*	Skirted knob	B	1.72	1.40	1.17
26F197	50-2-1G	Skirted knob	B	1.88	1.55	1.29
26F199	50-3-1G	Dil. Skt. Rd. w/pt.	C	2.47	2.05	1.69

70 Series—.72″ Dia. ⅛″ Shaft Knobs

26F342	70-2-1G	Skirted Round	E	2.00	1.65	1.37
26F343	70-3-1G	Dil. Skt. Rd. w/pt.	F	2.38	1.95	1.63
26F344	70-5-1*	Skirted Pointer	H	2.08	1.71	1.43
26F345	70-4-1G	Pointer	G	2.17	1.78	1.49
26F346	70-5-LG	Skirted Pointer	H	2.25	1.85	1.54

70 Series—.72″ Dia. For ¼″ Shafts

26F150	70-1-2*	Round	D	1.80	1.48	1.23
26F151	70-1-2G	Round	D	1.97	1.62	1.34
26F152	70-2-2*	Skirted Round	E	1.83	1.51	1.26
26F153	70-2-2G	Skirted Round	E	2.00	1.65	1.37
26F154	70-3-2*	Dil. Skt. Rd. w/pt.	F	2.28	1.89	1.57
26F155	70-3-2G	Dil. Skt. Rd. w/pt.	F	2.47	2.03	1.69
26F156	70-4-2*	Pointer	G	1.97	1.62	1.34
26F157	70-4-2G	Pointer	G	2.13	1.75	1.46
26F158	70-5-2*	Skirted Pointer	H	1.80	1.48	1.23
26F159	70-5-2G	Skirted Pointer	H	1.97	1.62	1.34
26F673	70-8WL-2	Dil. Skt. Bar. Pt.	J	3.50	2.88	2.40
26F674	70-8WL-2G	Dil. Skt. Bar. Pt.	J	3.67	3.02	2.51

90 Series—.928″ Dia. For ¼″ Shafts

26F160	90-1-2*	Round	D	1.83	1.51	1.26
26F161	90-1-2G	Round	D	2.00	1.65	1.37
26F163	90-2-2G	Skirted Round	E	2.17	1.78	1.49
26F164	90-3-2*	Dil. Skt. Rd. w/pt.	F	2.47	2.03	1.69
26F165	90-3-2G	Dil. Skt. Rd. w/pt.	F	2.63	2.17	1.80
26F166	90-4-2*	Pointer	G	1.92	1.57	1.31
26F167	90-4-2G	Pointer	G	2.08	1.71	1.43
26F168	90-5-2*	Skirted Pointer	H	2.00	1.65	1.37
26F169	90-5-2G	Skirted Pointer	H	2.17	1.78	1.49

125 Series—.269″ Dia. For ¼″ Shafts

26F170	125-1-2	Round	D	2.05	1.68	1.40
26F174	125-3-2*	Dil. Skt. Rd. w/pt.	F	2.92	2.40	2.00
26F175	125-3-2G	Dil. Skt. Rd. w/pt.	F	3.08	2.54	2.11

125 Series—2.516″ Dia. For ¼″ Shafts—No skirt

26F338	125-7-2G	Bar Pointer	5.13	4.22	3.51

175 Series—1.772″ Dia. For ¼″ Shafts

26F182	175-3-2*	Dil. Skt. Rd. w/pt.	E	4.92	4.54	3.37
26F183	175-3-2G	Dil. Skt. Rd. w/pt.	F	5.08	4.17	3.49
26F184	175-6-2*	Crank	I	8.80	7.23	6.03
26F185	175-6 2G	Crank	I	8.97	7.37	6.14

225 Series—2.272″ Dia. For ¼″ Shafts

26F186	225-1-2*	Round	D	5.05	4.15	3.46
26F190	225-3-2*	Dil. Skt. Rd. w/pt.	E	6.63	5.45	4.54
26F191	225-3-2G	Dil. Skt. Rd. w/pt.	F	6.80	5.58	4.66
26F193	225-6-2G	Crank	I	11.17	9.17	7.66

"DESIGNER" SERIES

Molded black plastic knobs with spun aluminum cap inserts. Knobs withstand 25 in/lbs. of torque. Temperature: −55°C to 125°C. Av. shp. wt. 3 oz.

70 Series—.252 Shafts

Stk. No.	Type	Description	1-199	200-499	500-999
26F464	DS 70-IBD-2	Rd. No Skt. Dot	2.75	2.26	1.89
26F466	DS 70-1-2	Rd. No Skt.	2.25	1.85	1.54
26F467	DS 70-1-2G	Rd. No Skt.	2.42	1.98	1.66
26F468	DS 70-2-2	Rd. Pin Skt.	2.38	1.95	1.63
26F469	DS 70-2-2G	Rd. Pin Skt.	2.55	2.09	1.74
26F470	DS 70-2BD-2	Rd. Pin Skt. Dot	2.88	2.37	1.97
26F471	DS 70-2BD-2G	Rd. Pin Skt. Dot	3.05	2.51	2.09
26F472	DS 70-3-2	DL Skt. Rd. w/pt.	2.80	2.31	1.91
26F473	DS 70-3-2G	DL Skt. Rd. w/pt.	2.97	2.43	2.03
26F475	DS 70-4-2G	Pt. No Skt.	3.92	3.22	2.69

90 Series—.252 Shafts

26F485	DS 90-1-2G	Rd. No Skt.	3.17	2.60	2.17
26F487	DS 90-1BD-2G	Rd. No Skt. Dot	3.72	3.05	2.54
26F492	DS 90-3-2	Rd. DL Skt. w/pt.	3.67	3.02	2.51
26F493	DS 90-3-2G	DL Skt. Rd. w/pt.	3.83	3.15	2.63

DESIGNER SERIES 400 CONTROL KNOBS

High impact acrylonitrile-styrene (ABS), with lustreless black, finish. Supplied with metal bushings and two set screws.

407 SERIES ⅛″ SHAFTS—.720 DIA.

Stk. No.	Type	Description	Fig.	1-199	200-499	500-999
26F671	407R1K1	Round	A	1.67	1.37	1.14
26F672	407D1K1	Round dial skirted	C	1.83	1.51	1.26

407 SERIES—¼″ SHAFTS—.720 DIA.

26F675	407R2K1	Round	A	1.58	1.31	1.09
26F676	407D2K1	Round dial skirted	C	1.72	1.42	1.17
26F678	407PD2K1	Bar pointer dial skirted	D	2.08	1.71	1.43

409 SERIES—¼″ SHAFTS—.875 DIA.

26F682	409R2K1	Round	A	1.72	1.42	1.17
26F683	409D2K1	Round dial skirted	C	1.92	1.57	1.31
26F685	409P2K1	Bar pointer	B	1.92	1.57	1.31
26F687	409PD2K1	Bar pointer dial skirted	D	2.13	1.75	1.46

412 SERIES—¼″ SHAFTS—1.25 DIA.

Stk. No.	Type	Description	Fig.	1-99	200-499	500-999
26F690	412R2K1	Round	A	1.88	1.55	1.29
26F692	412D2K1	Round dial skirted	C	2.08	1.71	1.43
26F695	412P2K1	Bar pointer	B	2.25	1.85	1.54
26F697	412PD2K1	Bar pointer dial skirted	D	2.42	1.98	1.66

KNOB LOCKS

For standard control knobs. Holds precise or critical control settings under shock or vibration. Use with 70, 90, and 125 round standard control knobs. Mirror finish except * Matte. 6-32 thread. Shpg. wt. 2 oz.

Stk. No.	Type	Series & Dia.	1-199	200-499	500-999
26F308	KL701	Series: 70 1″ dia.	2.92	2.40	2.00
26F309	KL701G*	Series: 70 1″ dia.	3.08	2.54	2.11
26F310	KL901	Series: 90 1 5/16″ dia.	3.63	2.98	2.49
26F311	KL901G*	Series: 90 1 5/16″ dia.	3.80	3.12	2.60
26F312	KL1251	Series: 125 1⅛″ dia.	4.13	3.40	2.83
26F313	KL1251G*	Series: 125 1⅛″ dia.	4.30	3.54	2.94

SPECIAL POINTER KNOB

With knob lock listed below. Knob features pointer arm which curves over skirt at lock toward chassis to increase accuracy. For ¼″ shafts. Shpg. wt. 2 oz.

26F302	70-ILK-2	Mirror Finish	2.67	2.18	1.83
36F303	70-ILK-2G	Mirror Finish	2.83	2.32	1.94
26F307	125-ILK-2G	Matte Finish	3.22	2.65	2.20

SHAFT LOCKS

Mounted on the control bushing in place of the nut and washer, the shaft lock fits snugly around the control shaft, providing a constant drag which resists rotation caused by accidental contact, vibrations, etc., but which permits smooth adjustment. Shpg. wt. 1 oz.

Stock No.	Type	Shaft	Thread NEF2	1-199	200-499	500-999
26F314	SL-100B	¼″	3-32	.92	.75	.63
26F397	SL-101R	¼″				
26F315	SL-105B	⅛″	¼-32	.92	.75	.63
26F938	SL-110B	¼″				

18

ALCO

Plastic Knobs

FOR ORDERING INFORMATION SEE PAGE 744

Aluminum Knobs

ALCO

Specify Finish Code For Types Listed Below

FOR ORDERING INFORMATION SEE PAGE 744

Knobs

PLASTIC KNOBS WITH ALUMINUM INLAYS

Stock No.	Type* No.	Description	1-24	25-49	50-99	250-499
57F2368	PKG-40B-⅛	Straight Knurl	.60	.58	.54	.51
57F2370	PKG-50B-¼	Straight Knurl	.65	.62	.59	.55
57F2369	PKG-50B-⅛	Straight Knurl	.65	.62	.59	.55
57F2371	PKG-70B-¼	Straight Knurl	.70	.67	.63	.60
57F2372	PKG-100B-¼	Straight Knurl	1.25	1.20	1.13	1.06
57F2376	PKGC-570B†	Straight Knurl	1.40	1.34	1.26	1.19
57F2375	PKGC-9108†	Straight Knurl	2.35	2.26	2.12	2.00
57F2374	PKGP-70B-¼	Strght. w/Pntr.	1.00	.96	.90	.85
57F2377	PKGP-90B-¼	Strght. w/Pntr.	1.15	1.10	1.04	.98
57F2350	PH-15-18¼	Tuning Knob	.60	.58	.54	.51
57F2351	PH-14-17¼	Tuning Knob	.70	.67	.63	.60
57F2352	PH-13-16¼	Tuning Knob	.80	.72	.77	.72
57F2343	PKE-60B-¼	Fluted Knob	.60	.58	.54	.51
57F2344	PKE-90B-¼	Fluted Knob	.70	.67	.63	.60
57F2346	PKES-60B-¼	Fluted w/Skirt	.65	.62	.59	.55
57F2345	PKES-60B-⅛	Fluted w/Skirt	.65	.62	.59	.55
57F2347	PKES-70B-¼	Fluted w/Skirt	.70	.67	.63	.60
57F2348	PKES-90B-¼	Fluted w/Skirt	.75	.72	.68	.64
57F2349	PKES-120B-¼	Fluted w/Skirt	.90	.86	.81	.77
57F2357	PKA-50B-¼	Ribbed w/Skirt	.60	.58	.54	.51
61F1176	KN-500A-¼	Straight Knurl	1.20	1.15	1.08	1.02
57F2288	KN-500B-¼	Straight Knurl	1.20	1.15	1.08	1.02
61F1177	KN-500A-⅛	Straight Knurl	1.20	1.15	1.08	1.02
57F2287	KN-500B-⅛	Straight Knurl	1.20	1.15	1.08	1.02
61F1178	KN-700A-¼	Straight Knurl	1.35	1.30	1.22	1.15
81F925	PFM-80B-¼	Flat w/Ind. Line	.85	.82	.77	.72
81F926	PFM-100-¼	Flat w/Ind. Line	1.00	.96	.90	.85
81F927	PKDT-60B-¼	Black Spin Cap	1.10	1.06	.99	.94
81F928	PKDT-70B-¼	Black Spin Cap	1.15	1.10	1.04	.98
81F929	GKDT-60B10¼	Black Spin Cap	1.15	1.10	1.04	.98
81F930	PKDT-70B10¼	Black Spin Cap	1.20	1.15	1.08	1.02
81F931	PKN-60B-⅛	Spin Cap w/Line Ind.	.80	.77	.72	.68
81F932	PKN-90B-¼	Spin Cap w/Line Ind.	.95	.91	.86	.81
81F933	PKR-125B-¼	Hi Torque Knob	1.25	1.20	1.13	1.06
81F934	PKR-175B-¼	Hi Torque Knob	1.35	1.30	1.22	1.15
81F935	PKX-50B-¼	Ribbed Body	.70	.67	.63	.60
81F936	PKX-100B-¼	Ribbed Body	1.35	1.30	1.22	1.15
81F937	PKX-130B-¼	Ribbed Body	1.55	1.49	1.40	1.32
81F938	GNT-100B-¼	Strt. Knurl	1.00	.96	.90	.85
81F939	PNT-130B-¼	Strt. Knurl	1.30	1.25	1.17	1.11
57F2356	PKA-50B-⅛	Ribbed w/Skirt	.60	.58	.54	.51
57F2358	PKA-70B-¼	Ribbed w/Skirt	.90	.86	.81	.77
57F2359	PKA-90B-¼	Ribbed w/Skirt	1.20	1.15	1.08	1.02
57F2373	PKAP-50B-¼	Ribbed w/Pntrs.	.70	.67	.63	.60
57F2360	PKAP-70B-¼	Ribbed w/Pntrs.	.90	.86	.81	.77
57F2334	PK-50B-¼	Strght. w/Skirt	.55	.53	.50	.47
57F2333	PK-50B-⅛	Strght. w/Skirt	.55	.53	.50	.47
57F2335	PK-70B-¼	Strght. w/Skirt	.60	.58	.54	.51
57F2336	PK-90B-14	Strght. w/Skirt	.65	.62	.59	.55
57F2341	PKB-70B-¼	Fluted w/Skirt	.60	.58	.54	.51
57F2342	PKB-90B-¼	Fluted w/Skirt	.85	.82	.77	.72
57F2361	PKP-1948-¼	Bar Pointer	1.20	1.15	1.08	1.02
57F2337	PKD-60B-¼	Alum. Skirt	.70	.67	.63	.60
57F2338	PKD-70B-¼	Alum. Skirt	.75	.72	.68	.64
57F2339	PKD-60D-10¼	0-10 Alum. Dial	.75	.72	.68	.64
57F2340	PKD-70B-10¼	0-10 Alum. Dial	.75	.72	.68	.64
57F2364	PKS-11048-¼	Alum. Skirt	.70	.67	.63	.60
57F2365	PKS-1103B-10¼	0-10 Alum. Dial	.75	.72	.68	.64
57F2366	PKS-1106B-¼	Alum. Skirt	.85	.82	.77	.72
57F2367	PKS-1105B-10¼	0-10 Alum. Dial	.90	.86	.81	.77
57F2362	PKS-90B-¼	Alum. Skirt	.90	.86	.81	.77
57F2363	PKS-90B-10¼	0-10 Alum. Dial	.95	.91	.86	.81
57F2354	PK-1100B-¼	Control Knob	.60	.58	.54	.51
57F2353	PK-1100R-⅛	Control Knob	.65	.62	.59	.55
57F2424	PKF-50B-⅛	Smooth w/Indicator	.70	.67	.63	.60

(*) R = red. B = black. ¼, ⅛ = shaft dia./inches.
(†) Concentric-¼" shaft bottom, ⅛" shaft top.

ANODIZED ALUMINUM KNOBS

61F1176	KN-500A-¼	Straight Knurl	1.20	1.15	1.08	1.02
57F2288	KN-500B-¼	Straight Knurl	1.20	1.15	1.08	1.02
61F1177	KN-500A-⅛	Straight Knurl	1.20	1.15	1.08	1.02
57F2287	KN-500B-⅛	Straight Knurl	1.20	1.15	1.08	1.02
61F1178	KN-700A-¼	Straight Knurl	1.35	1.30	1.22	1.15
57F2289	KN-700B-¼	Straight Knurl	1.35	1.30	1.22	1.15
61F1179	KN-900A-¼	Straight Knurl	1.60	1.54	1.44	1.36
57F2290	KN-900B-¼	Straight Knurl	1.60	1.54	1.44	1.36
61F1180	KN-1250A-¼	Straight Knurl	2.35	2.26	2.12	2.00
57F2292	KN-1250B-¼	Straight Knurl	2.35	2.26	2.12	2.00
57F2410	KN-1251A-¼	less hairline	2.30	2.21	2.07	1.96
57F2411	KN-1251B-¼	less hairline	2.30	2.21	2.07	1.96
57F2295	KN-1751AS-¼	less hairline	4.35	4.18	3.92	3.70
57F2296	KN-1751BS-¼	less hairline	4.35	4.18	3.92	3.70
57F2412	KN-500A-¼	Straight Knurl	1.45	1.39	1.31	1.23
57F2297	KN-500AB-⅛	Straight Knurl	1.45	1.39	1.31	1.23
57F2298	KN-500BA-⅛	Straight Knurl	1.45	1.39	1.31	1.23
61F1182	KN-700AB-¼	Straight Knurl	1.60	1.54	1.44	1.36
57F2413	KN-700BA-¼	Straight Knurl	1.60	1.54	1.44	1.36
61F1183	KN-900AB-¼	Straight Knurl	1.85	1.78	1.67	1.57
57F2300	KN-900BA-¼	Straight Knurl	1.85	1.78	1.67	1.57
57F2301	KN-1250AB-¼	Straight Knurl	2.80	2.69	2.52	2.38
57F2302	KN-1250BA-¼	Straight Knurl	2.80	2.69	2.52	2.38
57F2416	KN-1751ABS-¼	less hairline	4.65	4.46	4.19	3.95
57F2417	KN-1751BAS-¼	less hairline	4.65	4.46	4.19	3.95
57F2418	KN-501BA-¼	w/Arrowhead	1.55	1.49	1.40	1.32
57F2307	KN-501BA-⅛	w/Arrowhead	1.55	1.49	1.40	1.32
57F2309	KN-701BA-¼	w/Arrowhead	1.70	1.63	1.53	1.45
57F2308	KN-701BA-⅛	w/Arrowhead	1.70	1.63	1.53	1.45
57F2313	KPN-500A-¼	w/Pointer	2.60	2.50	2.34	2.21
57F2314	KPN-500B-¼	w/Pointer	2.60	2.50	2.34	2.21
57F2319	KPN-900B-¼	w/Pointer	3.20	3.07	2.88	2.72

ANODIZED ALUMINUM KNOBS (Cont.)

Stock No.	Type* No.	Description	1-24	25-49	50-99	250-499
57F2305	KN-5700A†	Straight Knurl	2.55	2.45	2.30	2.17
57F2306	KN-5700B†	Straight Knurl	2.55	2.45	2.30	2.17
57F2311	KNS-501BA-¼	Skirt w/Arrowhd.	1.65	1.58	1.49	1.40
57F2310	KNS-501BA-⅛	Skirt w/Arrowhd.	1.90	1.82	1.71	1.62
57F2312	KNS-701BA-¼	Skirt w/Arrowhd.	2.10	2.02	1.89	1.79
57F2315	KPN-700A-¼	w/Pointer	2.75	2.64	2.48	2.34
57F2316	KPN-700B-¼	w/Pointer	2.75	2.64	2.48	2.34
57F2317	KPN-700AB-¼	w/Pointer	3.00	2.88	2.70	2.55
57F2318	KPN-700BA-¼	w/Pointer	3.00	2.88	2.70	2.55
57F2320	KPN-900BA-¼	w/Pointer	3.55	3.41	3.20	3.02
57F2322	KB-500A-¼	Contrl. w/Knurl	1.30	1.25	1.17	1.11
57F2419	KB-500B-¼	Contrl. w/Knurl	1.30	1.25	1.17	1.11
57F2321	KB-500A-⅛	Contrl. w/Knurl	1.30	1.25	1.17	1.11
57F2323	KB-500B-⅛	Contrl. w/Knurl	1.30	1.25	1.17	1.11
61F920	KS-500A-¼	w/Skirt	1.65	1.58	1.49	1.40
61F921	KS-500B-¼	w/Skirt	1.65	1.58	1.49	1.40
57F2272	KS-500A-⅛	w/Skirt	1.65	1.58	1.49	1.40
57F2273	KS-500B-⅛	w/Skirt	1.65	1.58	1.49	1.40
61F941	KS-700A-¼	w/Skirt	1.95	1.87	1.76	1.66
61F942	KS-700B-¼	w/Skirt	1.95	1.87	1.76	1.66
57F2406	KS-900A-¼	w/Skirt	2.45	2.35	2.21	2.08
57F2407	KS-900B-¼	w/Skirt	2.45	2.35	2.21	2.08
61F943	KSP-900A-¼	w/Acrylic Skirt	1.95	1.87	1.76	1.66
61F918	K-500B-¼	Industrial Use	1.15	1.10	1.04	.98
57F2265	K-500A-⅛	Industrial Use	1.15	1.10	1.04	.98
57F2266	K-500B-⅛	Industrial Use	1.15	1.10	1.04	.98
61F937	K-700A-¼	Industrial Use	1.30	1.25	1.17	1.11
61F938	K-700B-¼	Industrial Use	1.30	1.25	1.17	1.11
61F939	K-900A-¼	Industrial Use	1.55	1.49	1.40	1.32
57F2267	K-1250A-¼	Industrial Use	2.30	2.21	2.07	1.96
61F1171	KD-500A-¼	Diamond Knurl	1.30	1.25	1.17	1.11
57F2284	KD-500B-¼	Diamond Knurl	1.30	1.25	1.17	1.11
61F1172	KD-500A-⅛	Diamond Knurl	1.30	1.25	1.17	1.11
57F2423	KD-500B-⅛	Diamond Knurl	1.30	1.25	1.17	1.11
61F1173	KD-700A-¼	Diamond Knurl	1.45	1.39	1.31	1.23
57F2285	KD-700B-¼	Diamond Knurl	1.45	1.39	1.31	1.23
61F1174	KD-900A-¼	Diamond Knurl	1.70	1.63	1.53	1.45
57F2422	KD-900B-¼	Diamond Knurl	1.70	1.63	1.53	1.45
61F1175	KD-1250A-¼	Diamond Knurl	2.45	2.35	2.21	2.08
57F2286	KD-1250B-¼	Diamond Knurl	2.45	2.35	2.21	2.08
57F2278	KHF-700A-¼	Hi-Fi Knob	1.25	1.20	1.13	1.06
57F2325	KBS-500A-10¼	w/Dial Face	2.10	2.02	1.89	1.79
57F2326	KBS-500B-10¼	w/Dial Face	2.10	2.02	1.89	1.79
20F947	KLN-500A-¼	Hi-Fi Knob	1.30	1.25	1.17	1.11
20F952	KLN-900B-¼	Hi-Fi Knob	1.60	1.54	1.44	1.36
20F953	KLN-1250A-¼	Hi-Fi Knob	2.35	2.26	2.12	2.00
20F954	KLN-1250B-¼	Hi-Fi Knob	2.35	2.26	2.12	2.00
81F873	KA-500A-⅛	6 Flute	1.20	1.15	1.08	1.02
81F874	KA-500A-¼	6 Flute	1.20	1.15	1.08	1.02
81F875	KA-500B-⅛	6 Flute	1.20	1.15	1.08	1.02
81F876	KA-500B-¼	6 Flute	1.20	1.15	1.08	1.02
81F877	KA-700A-¼	6 Flute	1.35	1.30	1.22	1.15
81F878	KA-700B-¼	6 Flute	1.35	1.30	1.22	1.15
81F879	KA-900A-¼	6 Flute	1.60	1.54	1.44	1.36
81F880	KA-900B-¼	6 Flute	1.60	1.54	1.44	1.36
81F881	KA-1250A-¼	6 Flute	2.35	2.26	2.12	2.00
81F882	KA-1250B-¼	6 Flute	2.35	2.26	2.12	2.00
81F883	KAS-500A⅛	6 Flute w/Skirt	1.55	1.49	1.40	1.32
81F884	KAS-500A¼	6 Flute w/Skirt	1.55	1.49	1.40	1.32
81F885	KAS-500B⅛	6 Flute w/Skirt	1.55	1.49	1.40	1.32
81F886	KAS-500B¼	6 Flute w/Skirt	1.55	1.49	1.40	1.32
81F887	KAS-700A¼	6 Flute w/Skirt	1.80	1.73	1.62	1.53
81F888	KAS-700B¼	6 Flute w/Skirt	1.80	1.73	1.62	1.53
81F889	KAS-900A¼	6 Flute w/Skirt	2.40	2.30	2.16	2.04
81F890	KAS-900B¼	6 Flute w/Skirt	2.40	2.30	2.16	2.04
81F891	KE-500AB⅛	Knurl Grip	1.60	1.54	1.44	1.36
81F892	KE-500AB¼	Knurl Grip	1.60	1.54	1.44	1.36
81F893	KE-700AB¼	Knurl Grip	1.75	1.68	1.58	1.49
81F894	KE-900AB¼	Knurl Grip	2.00	1.92	1.80	1.70
81F895	KE-1250AB¼	Knurl Grip	2.95	2.83	2.66	2.51
81F896	KE-1255AS¼	Knurl Grip	2.95	2.83	2.66	2.51
91F897	KLN-500-S⅛	Straight Knurl	1.30	1.25	1.17	1.11
81F898	KLN-500S¼	Straight Knurl	1.30	1.25	1.17	1.11
81F899	KLN-700S¼	Straight Knurl	1.45	1.39	1.31	1.23
81F900	KLM-900S¼	Straight Knurl	1.60	1.54	1.44	1.36
81F901	KLN-1250S¼	Straight Knurl	2.35	2.26	2.12	2.00
81F902	KLN-1255AS¼	Straight Knurl	4.55	4.37	4.10	3.87
81F903	KLN-1255BS¼	Straight Knurl	4.55	4.37	4.10	3.87
81F904	KLN-1255SS¼	Straight Knurl	4.55	4.37	4.10	3.87
81F905	KN-125-5AS¼	Crank Knob	4.55	4.37	4.10	3.87
81F906	KN-125-5BS¼	Crank Knob	4.55	4.37	4.10	3.87
81F907	KNSL-500A⅛	Skirted w/Indicator	3.25	3.12	2.93	2.76
81F908	KNSL-500B⅛	Skirted w/Indicator	3.25	3.12	2.93	2.76
81F909	KNSL-700A¼	Skirted w/Indicator	3.95	3.79	3.56	3.36
81F910	KNSL-700B¼	Skirted w/Indicator	3.95	3.79	3.56	3.36
81F911	KNSL-900A¼	Skirted w/Indicator	5.05	4.85	4.55	4.29
81F912	KNSL-900B¼	Skirted w/Indicator	5.05	4.85	4.55	4.29
81F913	KNSP-700A¼	Strght. Knrl. w/Skirt	1.75	1.68	1.58	1.49
81F914	KNSP-700B¼	Strght. Knrl. w/Skirt	1.75	1.68	1.58	1.49
81F915	KNSP-900A¼	Strght. Knrl. w/Skirt	2.00	1.92	1.80	1.70
81F916	KNSP-900B¼	Strght. Knrl. w/Skirt	2.00	1.92	1.80	1.70
81F917	KQ-1250A200	Hi Torque w/Stud	4.25	3.83	4.08	3.83
81F918	KQ-1250B200	Hi Torque w/Stud	4.25	3.83	4.08	3.83
81F919	KQ-1500A200	Hi Torque w/Stud	4.25	3.83	4.08	3.83
81F920	KQ-1500B200	Hi Torque w/Stud	4.25	3.83	4.08	3.83
81F921	KQ-1750A200	Hi Torque w/Stud	6.00	5.40	5.76	5.40
81F922	KQ-1750B200	Hi Torque w/Stud	6.00	5.40	5.76	5.40
81F923	KQ-2000A200	Hi Torque w/Stud	7.05	6.35	6.77	6.35
81F924	KQ-2000B200	Hi Torque w/Stud	7.05	6.35	6.77	6.35

(*) A = Aluminum, black indicator. B = Black, white ind. G = Gold, red ind. AB = Nat. body, black top and ind. BA = Black body, nat. top, white ind. (†) Concentric, ¼" shaft bottom, ⅛" top. S = spinner.

DIGITAL INSTRUMENTS

Simpson

MODEL 465-2A AUTORANGING DMM

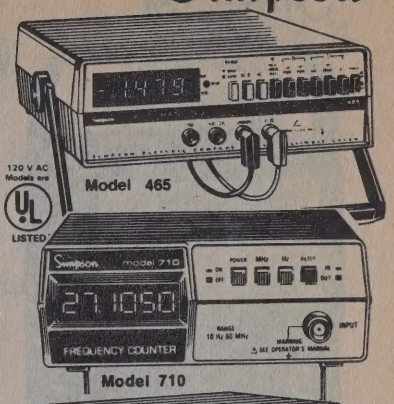
- **3½ digit, 7 seg., 0.43" LED**
- **MOS/LSI integrated circuitry.**
- **Resolves 100μV, 1 ohm, 100nA.**

SPECIFICATIONS. DIGITAL MULTIMETER FOR AC LINE ONLY. CONVERSION RATE: 4 reading per sec. ZERO STABILITY: ±0.02%/°C. POWER REQUIREMENTS: 120VAC operating or battery charging. ±10%, 50-400Hz, 6VA nominal. OPERATING TEMPERATURE: 0°C to 55°C; storage, −40°C to +60°C. DIMENSIONS: 2.7" × 8.4" × 9.0". ACCURACY: AC VOLTAGE. (Average sensing RMS calibrated sine wave: 40Hz to 20KHz; % of reading +2 digits): ±0.5%, .2V, 2V, 20V ranges, to 10KHz, ±1% to 20KHz; on 200V, ±.5% to 1KHz, ±1% to 20KHz; on 600V, ±2%, RESISTANCE. ±4% +2 digits, ±1% on 20MΩ. CURRENT. ±0.25% +1 digit, ±1% on 10A. Wt. 3 lbs.

62F1130 NET 373.00

Model 465-2D. Same as Model 465-2A but for AC line rechargeable battery operation. Battery operation time; 10 hours. Recharge time; 16 hours nominal. Uses 4 Nickel Cad D Size rechargeable batteries. Not Included. Meets UL 1244 and ANSI C39.5. Wt. 3 lbs.

62F1129 NET 418.00



MODEL 710 COMPACT FREQUENCY COUNTER

For CB/communications service, production line testing, frequency monitoring, R&D lab use. Features: Covers 10Hz to 60Hz. 2 ranges -Hz and MHz. 6 digits 0.35" LED readout with overrange indicator. Accurate to ±1 count (±time base accurracy) standard 10ppm time base. Resolves 1Hz. Switchable low-pass filter eliminates input noise. Highly reliable LSI circuitry. Compact 2" × 5.6" × 4.6". Power requirements: 120VAC ± 10%, 50-400Hz, approx. 5VA.

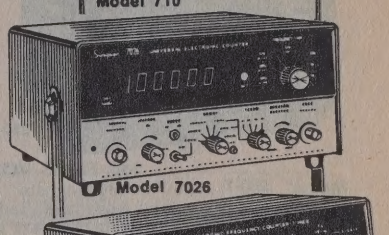
55F4941. Model 710. NET 184.00
55F4942. 00747. Carrying Case. NET 25.85
62F2360. 00238. Gen. Pur. Probe. NET . . . 17.65

MODEL 7026 UNIVERSAL ELECTRONIC COUNTER

- **0.55" Planar Numerical Display**
- **5Hz to 50MHz**
- **Overrange Indication**
- **Overload Protection**

Measures frequencies, periods, ratios of two frequencies, time intervals and events. Standard features include: display storage selection, automatic decimal point location, variable display time, manual reset, gate time indication, high input Z and input overload protection. Can be interfaced with a high frequency prescaler to extend range. Temperature Stability: ±10ppm max. 0 to +45°C. Aging Rate ±5ppm max./yr. Gate Times: 10 μsec, 100 μsec, 1 msec., 10 msec., 100 msec., 1 sec., 10 sec. Accuracy ±1 count, ±time base accuracy. Oper. Temperature: 0°C. to +45°C. With probe, manual.

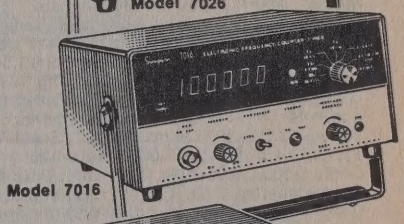
62F1706. NET 463.00
Model 7026B. Has additional BCD Output.
62F1707. NET 518.00
No. 00238. Replacement Probe.
62F2360. NET 17.65



ELECTRONIC FREQUENCY COUNTER–TIMER

Model 7016. Measures frequencies, elapsed time and events and exhibits them on a 0.55" planar numerical display. Frequencies from 5 Hz to 50 MHz, elapsed time from 0.01 sec. to 19999.99 sec. Features display storage selection, automatic decimal point location, variable display time, manual reset, overrange and gate time indications and input overload protection. AC coupled input with 1MΩ impedance shunted by 30 pF. Gate time: 10 msec, 0.1 sec, 1.0 sec, 10 sec. Accuracy ±1 count ±time base accuracy. Oper. Temp. 0 to +45°C. 2.0 MHz Internal time base temp, stable to ±10 ppm from 0 to 45°C; aging rate ±5 ppm/year; ±10% line variation produces deviation of ±1.0 ppm max. Input sensitivity: 50 mV RMS from 5 Hz to 50 MHz (sinewave). Max. input 240V RMS, derated to 50V RMS at 1 MHz and 10V RMS at 50 MHz. Size 4"H x 8.5"W x 8"D. With probe, line cord, manual.

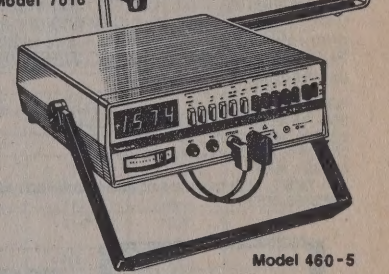
62F1407. NET 447.00
Model 7016B. As above with BCD out.
62F1408. NET 503.00



460-5 PORTABLE DMM

32 ranges, including low-power ohms. Overload protection on all ranges. 0.43" LED readout. Analog meter for nulling, peaking, scanning trends. MOS-LSI IC for reliability, low power drain. High-impact case with adjustable tilt-view handle. Pushbutton selection of range. Over-range indication. Accuracy (% of reading)—DCV: ±(0.1% + 1 digit); ACV: ±(0.5% + 2 digits); DC current: ±(0.25% + 1 digit), except 2000 mA and 10 A ranges ±(1.0% + 1 digit); AC current: ±(0.7% + 2 digits); Resistance: ±(0.25% + 1 digit), except on 2000KΩ and 20MΩ, ±(0.5% + 2 digits). Oper. Temp. 0 to +55°C. Wt.: 3' lbs. With test leads, line cord and operator's manual.

Model 460-A-5. 120/240VAC (50-400Hz) operation.
62F1700. NET 378.00
Model 460-D-5. Ni-cad batt. or 120/240VAC oper. (Less batteries).
62F1701. NET 430.00



AC VOLTS (40Hz-10kHz)

Range*	Maximum Indication	Input Res.
200mV	199.9mV	10M@75pF
2V	1.999V	10M@75pF
20V	19.99V	10M@75pF
200V	1199.9V	10M@75pF
600V	600V	10M@75pF

Overload Prot.: 650V RMS.

DC VOLTS

Range	Maximum Indication	Input Res.
200mV	±199.9mV	10M
2V	±1.999V	10M
20V	±19.99V	10M
200V	±199.9V	10M
1000V	±1000V	10M

Overload Prot.: ±1100V.

RESISTANCE

Range	Maximum Indication	Test Current
#200Ω	199.9Ω	1mA
#2kΩ	1.999kΩ	1mA
20kΩ	19.99kΩ	100μA
200kΩ	199.9kΩ	1μA
2000kΩ	1999kΩ	1μA
20MΩ	19.99MΩ	100nA

Overload Prot.: 250V RMS, except #135V RMS.

AC/DC CURRENT

Range	Maximum Indication	Full Range Volt. Drop
#200μA	199.9μA	200mV
#2mA	1.999mA	200mV
20mA	19.99mA	200mV
200mA	199.9mA	200mV
2000mA	1999mA	200mV
10A	10.00A	100mV

Overload Prot.: 2.5A, except 10A to 10A.

MODEL 464-3 DMM

Similar to Model 460-5 but with fewer ranges and without the analog meter. Conforms to applicable A NSI C39.5 requirements.

Model 464-A-3. 120/240VAC (50-400Hz) operation.
62F400. NET 290.00
Model 464-D-3. 120/240VAC or Nicad Battery operation. Test leads, line cord, manual (less batteries).
62F401. NET 338.00

AC/DC VOLTS (AC 40Hz-20kHz)

Range	Maximum Indication	Input Res.
200mV	± 199.9mV	10M(75pF AC)
2V	± 1.999V	10M(75pF AC)
20V	± 19.99V	10M(75pF AC)
200V	± 199.9V	10M(75pF AC)
1000V	± 1000V* (Max In)	10M(75pF AC)

*600 V Max. AC RMS AC
Overload Prot.: 1100VDC, 350V

RESISTANCE: Low-Power

Range	Maximum Indication	Test Current
200Ω#	199.9Ω	1mA
2kΩ#	1.999kΩ	100μA
20kΩ	19.99Ω	10μA
200kΩ	199.9kΩ	1μ
2000Ω	1999kΩ	100nA

Full Scale Voltage: 200mV
Overload Prot: 250V RMS, except #135 RMS.

AC/DC CURR. (AC 40Hz-20kHz)

Range	Maximum Indication	Overload Prot. to
200μA	199.9μA	2.5 A†
2mA	1.999mA	2.5 A†
20mA	19.99mA	2.5 A†
100mA	199.9mA	2.5 A†
10A	10A (Max In)	10A (50V max)

†Fuse Protected.
Full Range Voltage Drop 200 mV except 10A range, 100 mV.

RESISTANCE: Hi-Power

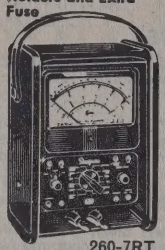
Range	Maximum Indication	Test Current
2kΩ#	1.999kΩ	1mA
20kΩ	19.99kΩ	100μA
200kΩ	199.9kΩ	10μA
2000kΩ	1999Ω	1μA
20MΩ	19.99Ω	100nA

Full Scale Voltage: 2V

19

Simpson Volt-Ohm-Milliammeters

260-7



260-7RT

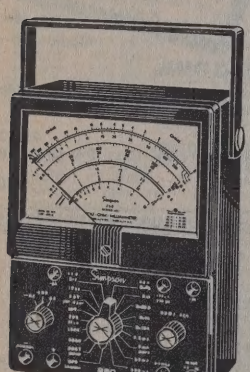
LISTED

- Taut Band Movement
- 27 Ranges
- External Access Battery and Fuse Compartment
- Varistor Protected
- Clip-type Fuse Holders and Extra Fuse

260 SERIES VOM

Model 260-7 Volt-Ohm-Milliammeter. Features a varistor protected rugged taut-band movement. Reverse, recessed, insulated panel connectors with matching test leads. Requires only two batteries: one 9-volt NEDA 1604 and one 1.5-volt "D" cell NEDA 13F. **Batteries supplied.** Polarity reversing switch allows faster, more convenient DC measurement. Full-wave bridge rectifier provides accurate AC voltage measurements. **Specifications**—20,000 ohms/volt DC, 5000 ohms/volt AC, Scale length: 4.2", Dimensions 5¼" x 7" x 3". **Ranges**—DC volts: 0-0.25; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000. AC volts: 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000. DC microamperes: 0-50 (250 mV drop). DC milliamperes: 0-1; 0-10; 0-100; 0-500. DC amperes: 0-10 (250 mV drop). DB scale (1 mW 600 ohm reference): −20 to +10; −8 to +22; −6 to +36; +20 to +50. Resistance: Rx1; Rx100; Rx10K. **With batteries, test leads and manual included.**

62F300. NET 114.00
260-7M As above with mirrored scale.
62F305. NET 119.00
260-7RT. As above with roll-top case.
62F303. NET 129.00
260-7MRT. With mirrored scale and roll-top case.
62F2269. NET 134.00



260-6XL VOM FOR SOLID STATE TESTING

- Four Color, Color-Keyed Scales
- Low Power Ohms Capabilities
- Shock and Drop Resistant Const
- 33 Ranges

All the features of the Model **260-7,** with additional capabilities to make it more useful in servicing solid state systems. Additional voltage and current ranges permit making measurements with higher resolution. Low power resistance measurements protect against damage of solid state components. Panel and case are molded of high impact material to provide more resistance to shock. Large meter face features color-keyed scales in four colors to facilitate rapid reading of measurements. In addition to the ranges available on the **260-7,** the **260-6XL** has the following ranges: DC Volts: 0-25 and 0-100. AC Volts: 0-25 and 0-100. DC milliamperes: 0-5 and 0-50. DC amperes: 0-5 (250 mV drop). dB scale: −1 to +29 and +11 to +41. Resistance ranges are: Standard Power: Rx1 (6 ohm center scale); Rx100 (600 ohm center scale); Rx1K (6000 ohm c.s.) Rx10K (60K ohm c.s.). Low Power: Rx1 (20 ohm c.s.) Rx10 (200 ohm c.s.) Max. open circuit voltage on low-power is 100 mV and max. measuring power is 0.125 mW. **Complete with batteries, test leads and manual.**

62F1786. NET 134.00

OVERLOAD PROTECTED TAUT BAND VOM

Model **260-7P.** Offers the same ranges and specifications as the **260-7** series of VOM with the added feature of electronic circuit protection which senses overload conditions and trips a protective relay. Entire tester is protected, providing an extra measure of protection for experienced personnel exploring unfamiliar equipment. Meter cannot be reset, even momentarily, until the overload has been removed. Particularly useful for labs, schools, shops or wherever mortality rate of VOM's is apt to be high. **Sold complete with batteries, test leads, and manual.**

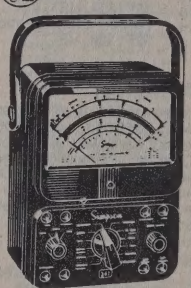
62F1191. NET 162.00
Model 260-7PM. As above with mirrored scale.
62F2242. NET 167.00
Model 260-7PRT. As above with roll-top case.
62F2270. NET 177.00

ACCESSORIES FOR VOM 260-7 SERIES VOM

Model **150-2 Amp-Clamp.** Increases range and versatility of 250, 255, 260, 261 and 270 series VOM's by allowing measurement of AC current (can be used with any VOM having a 2.5 or 3 volt AC scale).

62F2377. NET 48.25
Type 00414. Low-Power Ohms Probe (not for XL).
62F2243. NET 51.25
Type 00118. Grip-Tip Extension Probe.
62F1410. NET 8.50
Type 00812. Ruggedized Case.
62F2244. NET 34.25
Type 00805. Vinyl Ever-Ready Case.
62F302. NET 34.25
Type 01818. Leather Sheath Case.
62F301. NET 28.00
Type 00795. 5 kV DC Probe.
62F2247. NET 13.75
Type 00794. 5 kV AC Probe.
62F2248. NET 13.75

LISTED

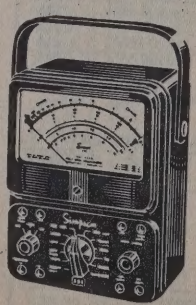


HIGH ACCURACY VOM's 270-5

Designed for VOM applications requiring high accuracy. All the features of the **260-7M,** including external access battery, mirror scale, varistor-protected self-shielding movement, and Adjust-A-Vue handle. Special calibration circuits and components, combined with strict manufacturing controls, produce outstanding accuracy. Use all 260 accessories, including plug-in Add-A-Tester adapters. **Complete with operator's manual, test leads and batteries.**

Model 270-5. ±1.25% DC; ±2% AC; ±1.5% of arc on Rx1, ±1° of arc on RX100 and Rx10K.

62F380. NET 139.00



VOM WITH 50mV DROP

Model 250. Contains all the built-in features of the model **260-7.** Has provision for using the entire line of "Add-A-Tester" adapters, high voltage probes and other accessories used with the **260-7.** Self-shielding, diode-protected, taut-band meter movement. Features 1-ampere, fused input and 50 millivolt drop on DC current ranges . . . specifically for solid state circuits. Ranges—DC Volts: 0-50 and 0-250 mV; 0-2.5; 0-10; 0-50; 0-250; 0-500; and 0-1000 Volts. AC Volts: 0-0.25; 0-1 ; 0-10; 0-50; 0-250; 0-500; and 0-1000. DC μA: 0-50 (both 50 and 250 mV drops). DC milliamperes 0-1; 0-10; 0-100; and 0-500 (50 mV drop). DC amperes: 0-50 (50 mV drop). dB Scales (1 mW 600 ohms): −20 to +10; −8 to +22; +6 to +36; +20 to +50. Resistance: Rx1, 0-2000 ohms (12 ohm center); Rx100, 0-200K ohms (120 ohm center); Rx10K, 0-20 Megohms (120 K ohm center). 2% accuracy.

62F1692. NET 126.00

VOM's and Therm-O-Meter

Simpson

THERM-O-METER

Model 388-3L. Wide range tester measures the temperature of practically anything within a range from —50°C to 1000°F (—40°C to +500°C). Has combination °C and °F scale. Sensing Element. Thermocouple (Iron-Constantin). Size 7 15/16" x 6" x 2 15/16" Weight 4 lbs. Can utilize three probes. Supplied with 1-8 ft. probe and operator's manual.
62F350. NET 184.00

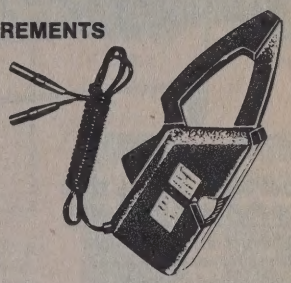
Model 388-3L

TEMPERATURE PROBES AND ACCESSORIES

00190. General Purpose Probe.
62F352. NET 20.00
00187. Surface Temp. Probe (1000°F).
62F351. NET 25.50
05262. Eve-Redy Carrying Case.
62F329. NET 30.50

00790. Surface Temp. Probe.
62F398. NET 21.50
00010. 15 ft. Lead and Thermistor.
62F396. NET 23.75

AMP, CLAMP ADAPTERS FOR AC AMPERE MEASUREMENTS



Model 150-2. Clamp-on AC ammeter adapter for analog VOM's. Plug into 160, 260, 260XL, 261, 270, 250 or 255 VOM. Ranges: 0-5, 10, 25, 50, 100 and 250 AC amperes. Readout is on VOM's 0-2.5 VAC scale. May be used with any VOM having 0-2.5, 0-3 and 0-5 VAC range. When used with 0-3 VAC adapter, the ranges are 0-6, 0-12, 0-30, 0-60, 0-120, and 0-300 AC amperes. When used with a 0-5 VAC adapter, ranges are from 0-10 to 0-500 AC amperes. Rugged construction and easy to use. Accuracy: ±3% of full scale. Complete with Test Lead and operator's manual.
62F2377. NET 48.25
Test Lead. Type 00533.
62F1683. NET 4.75

Model 154-2. For digital VOM's and multimeters. Plugs into 360-2, 460-3 or 464. Readout is on 0.2V, 2V, or 20V AC VOM scale. Ranges: 2A, 20A, or 200A. Complete with test lead and operator's manual.
62F1687. NET 48.25

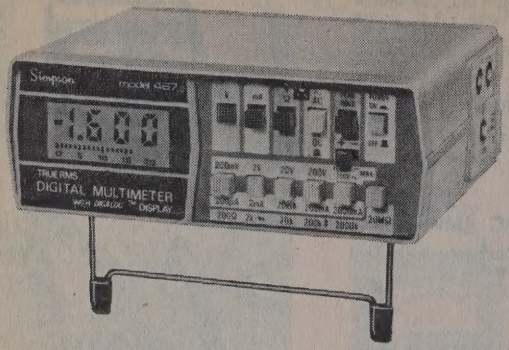
VOM SPECIFICATIONS

ACCURACIES	250 *	255	260-7 260-7RT	260-7M, 260-7MRT	260-7P, 260-7PM,†† 260-7PRT	260-6XL, 260-6XLM†††	260-6XLP 260-6XLPM†††	261-2	270-5
0-50 MV; 0-250 MV; 0-1 to 0-1000 VDC	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±1.5% F.S.*	±1.25% F.S.
0-5000 VDC	—	—	—	—	—	—	—	±2.5% F.S.	—
0-50 μA	±1% F.S.	±1% F.S.	±1.5% F.S.	±1.5% F.S.	±1.5% F.S.	±1.5% F.S.	±1.5% F.S.	±1.0% F.S.	±0.75% F.S.
0-0.5 MA to 0-500 MA	—	—	—	—	—	±2% F.S.	±2% F.S.	—	—
0-1 MA to 0-10 ADC	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	±2% F.S.	—	—	±1.5% F.S.	±1.25% F.S.
RX1 (L.P.); RX10 (L.P.)	—	—	—	—	—	±2.5° of arc	±2.5° of arc	—	—
RX1 Conventional	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.5° of arc	±2.0° of arc	±1.5° of arc
RX100 Conventional	—	—	—	—	—	±2.0° of arc	±2.0° of arc	±1.5° of arc	—
RX1000 Conventional	—	—	—	—	—	±2.0° of arc	±2.0° of arc	—	—
RX10,000 Conventional	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±2.0° of arc	±1.5° of arc	±1.0° of arc
0-2.5 to 0-100 VAC	±3% F.S.	±3% F.S.	±3% F.S.	±3% F.S.	±3% F.S.	—	—	±3% F.S.	±2% F.S.
0-1 to 0-1000 VAC	—	—	—	—	—	±3% F.S.	±3% F.S.	—	—
0-5000 VAC	—	—	—	—	—	—	—	±4% F.S.	—
Movement	Taut Band Self-Shielding Annular								
Amp Clamp Direct Reading	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Movement Protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Resettable Circuit Protection	Not	Not	Not	Not	Yes**	No	Yes**	Not	Not
Mirror Scale	No	No	No	Yes	No	No	No	No	No

*261-2 Accuracy 0-25 to 0-1000 VDC
**Except on 500 VDC; 1000 VDC; and 5 ADC
†Amp fuse limits maximum current
††Has mirror scale

RANGES	250	255	260-7, 260-7M, 260-7RT, 260-7MRT, 260-7P, 260-7PM, 260-7PRT	260-6XL, 260-6XLM, 260-XLP, 260-6XLPM	261-2	270-5
DC Volts	0-0.050; 0-0.250; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000	0-0.050; 0-0.250; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-1000	0-0.250; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000	0-0.250; 0-1; 0-2.5; 0-10; 0-25; 0-100; 0-250; 0-500; 0-1000	0-0.250; 0-2.5; 0-10; 0-50; 0-250; 0-1000; 0-5000	0-0.250; 0-1; 0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000
AC Volts	0-0.25; 0-10; 0-50; 0-250; 0-500; 0-1000	0-2.5; 0-10; 0-50; 0-250; 0-1000	0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000	0-2.5; 0-10; 0-25; 0-100; 0-250; 0-500; 0-1000	0-2.5; 0-10; 0-50; 0-250; 0-1000; 0-5000	0-2.5; 0-10; 0-50; 0-250; 0-500; 0-1000
DC Microamperes	0-50 (Both 50 and 250 MV Drop)		0-50 (250 MV Drop)			
DC Milliamperes	0-1; 0-10; 0-100; 0-500 (50 MV Drop)		0-1; 0-10; 0-100; 0-500	0-0.5; 01-5(250 MV Drop); 0-50 (250 MV Drop); 0-500 (400 MV Drop)	0-1; 0-10; 0-100; 0-500	
DC Amperes	0-10 (50 MV Drop)	None	0-10 (250 MV Drop)	0-5 (250 MV Drop)		0-10
AC Amperes	Up to 250 AC Amps with Optional Amp-Clamp Adapter, Model 150					
dB Scale Ω (1 MW 600Ω)	—20 +10; —8 to +22; +6 to +36; +20 to +50	None	—20 to +10; —8 to +22; +6 to +36; +20 to +50	—20 to +10; —9 to +21; —1 to +29; +11 to 41; +19 to +49	—20 to +10; —8 to +22; +6 to +36; +20 to +50	
Output	None		0.1 mfd capacitor in series with all AC voltage ranges through 250 volts			
Conventional Resistance	RX1 0-2000Ω (12Ω center); R100, 0-200KΩ (120Ω center); RX10K, 0-20 MegΩ (120K center)			RX1, 0-1K (60Ω center); RX100, 0-100K (600Ω center) RX1K, 0-1M(6KΩ center); RX10K, 0-10M (60KΩ center)	RX1; 0-2000Ω (12Ω center) RX100 0-200KΩ (1200Ω center); RX10K, 0-20 MegΩ (1120KΩ center)	
Low-Power Resistance		None	None	RX1 (L.P.) 0-1K (20Ω center; RX10 (L.P.) 0-10K (200Ω center)	None	
Temperature	None	+100°F to +1050°F	None	None	None	

Simpson Digital Instruments



Model 467— 3½ Digit Hand Portable DMM with:

- LCD Digital and Analog Display
- Differential Peak Hold
- 50 μSec. Pulse Detection
- Visual/Audible Indication of Continuity and Logic Level
- True RMS Measurements
- Safety Engineered per UL-1244!

Digalog™ Display—a unique combination of digital and analog LCD display to analyze both steady and pulsating signals, plus differential "+" and "−" peak holding capability, and fast pulse detection and indication.

Model 467 in Blue Case, complete with 9 V battery, test leads with screw-on alligator clips and instruction manual.
81F4922. . . . . 257.00

ACCESSORIES

Temperature Probe
55F4938. . . . . 115.75
RF Probe
62F1704. . . . . 39.75
40 KV High-Voltage Probe
81F4514. . . . . 49.25
Extra Test Leads with screw-on alligator clips
62F3012. . . . . 9.00
Carrying Case
81F4513. . . . . 25.50

MODEL 360-2 PORTABLE DMM

- **3½ Digit, Auto-Polarity**
- **0.43" LED Display**
- **MOS/LSI Circuitry**
- **Analog Meter**
- **29 ranges**
- **AC Line or Battery**
- **Overrange Indication**

Analog output provision permits monitoring input signal with chart recorder. Accuracy (% of reading)—DCV: ±(0.25% +1 digit); ACV: ±(0.5% + 1 digit) 40Hz—1 kHz; ±(1.0% + 1 digit) 1 kHz-10 kHz; ±(2.0% +2 digits) 10 kHz-20 kHz except 200V range: ±(5% +2 digits); DC Current: ±(0.5% +1 digit) except 2A and 10A ranges: ±(1.0% + 1 digit); AC Current: ±(1.0% +1 digit) except 2A and 10A: ±(2.0% +2 digits); Resistance: ±(0.5% +1 digit) except 2M and 20M ranges: ±(1.0% +2 digits). Conversion rate: 3 times per second, nominal. Complete with test leads, line cord and manual (less batteries).
62F259. NET 340.00
No. 00816. Carrying Case.
62F1702. NET 34.90
No. 00432. High-voltage Probe. 40 kV DC.
62F1703. NET 40.40
No. 00433. RF Probe.
62F1704. NET 34.90
Model 154. AC Amp Clamp.
62F1687. NET 42.00

DC VOLTAGE

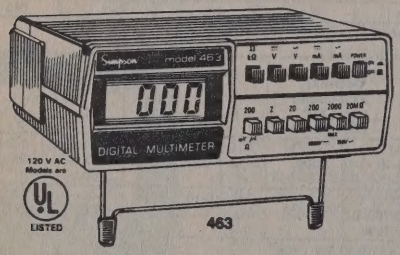
Range	Maximum Indication	Overload Protection
200 mV	119.9 mV	350 V
2 V	1.999 V	350 V
20 V	19.99 V	1100 V
200 V	199.9 V	1100 V
1000 V	1000 V	1100 V

AC VOLTAGE

Range	Maximum Indication	Overload Protection
200 mV	199.9 mV	350V RMS
2 V	1.999 V	350V RMS
20 V	19.99 V	650V RMS
200 V	199.9 V	650V RMS
600 V	600 V	650V RMS

RESISTANCE

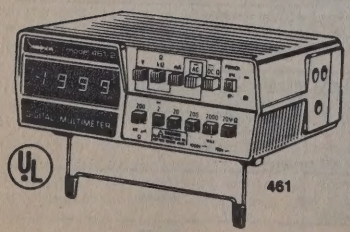
Range	Maximum Indication	Short Circuit Current	Full Scale Voltage	Overload Protection
200 Ω	199.9 Ω	1mA	200mV	150V RMS
2k Ω	1.999k Ω	1mA	2V	150V RMS
20k Ω	19.99k Ω	10μA	200mV	250V RMS
200k Ω	199.9k Ω	10μA	2V	250V RMS
2M Ω	1.999M Ω	1μA	2V	250V RMS
20M Ω	19.99M Ω	100mA	2V	250V RMS



Model 463 LCD Display Digital Multimeter

- **2% DCV Accuracy**
- **RMS Calibrated Sine Wave**
- **Extensive Overload Protection**

Specifications. DC VOLTAGE. RANGE/MAX. INDICATION: 200mV/±199.9mV, 2V/±1.999V, 20V/±19.99V, 200V/±199.9V, 1000V/±1000V. Overload protected to 1100V (DC and peak AC) all ranges. ACCURACY: ±0.2% of reading plus 1 digit (+20°C to +30°C). SENSITIVITY: 100μV on 200mV range. AC VOLTAGE. Range/Max. INDICATION: 200mV/199.9mV, 2V/1.999V, 20V/19.99V, 200V/199.9V, 750V/750V. Overload protected to 1100V (DC and peak AC) all ranges. ACCURACY: (+20°C to +30°C): All ranges, 20 to 40 Hz/±1.5% +3 digits, 40Hz to 400kHz/±0.5% +2 digits (except 750V ±1.5% +3 digits), 400Hz to 1kHz/±0.5% +2 digits (except 200V and 750V ranges), 1kHz to 10kHz/±1.5% +3 digits (except 200 and 750V ranges), 10kHz to 200kHz/±5% +5 digits (except 200 and 750V ranges. RESISTANCE. Overload protected to 250 VRMS, all ranges.
55F4940. Type 463. NET 184.00



MODEL 461 PORTABLE DMM

- **Overload protected LSI circuitry**
- **10MΩ input impedance**
- **Automatic zero and polarity**

Digital Multimeter. RESOLUTION: 100V, 100nA, 1 ohm. DISPLAY: 3½ digits, 7 seg., .3" LED. CONVERSION RATE: 3 reading per sec. NORMAL MODE REJECTION: 40 dB min. at 60 Hz. COMMON MODE: 120 dB at 60 Hz. POWER REQUIREMENTS: Battery Charging. 120 VAC ±10%, 50-400 Hz, 3 VA nominal. OPERATING TEMPERATURE: 0°C to 55°C; storage, −40°C to 60°C. ACCURACY: DC VOLTAGE. ±0.25% + 1 digit. AC VOLTAGE. (avg. sensing RMS sine wave, 50Hz to 5 KHz). ±1% + 2 digits to 1 KHz; ±5% + 2 digits to 5 KHz. RESISTANCE. ±.5% + 1 digit; ±1.5% on 20MΩ. DC CURRENT. ±1% + 1 digit; ±1.5% on 2000mA. AC CURRENT. (50 Hz to 1 KHz) ±1.5% + 5 digits; ±2% on 2000 range. Dimensions: 2" x 5.6" x 4.6". Weight: 1 lb. 8 oz. UL listed.
62F1128 NET **173.00**

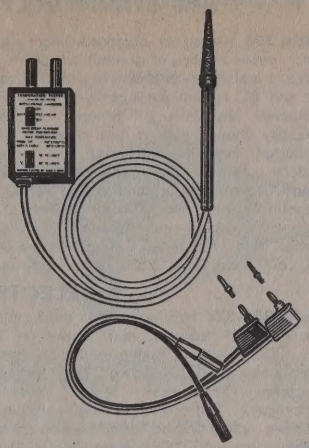
Test Equipment

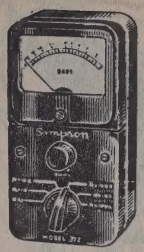
Simpson

UNIVERSAL TEMPERATURE PROBE

- **May be used with meters, recorders, controllers and multimeters.**
- **May be used with low impedance devices (5000Ω min) as well as hi-impedance with no loss in accuracy.**
- **°F or °C switch selectable**

Silicon Sensor. Small mass. Absorbs minimal heat from object it is measuring, ideal for measuring transistors. Interchangeable banana jacks test leads & reverse female connectors, may be used with 460, 464, 461, 260-6 and all competitive Multimeters. Output voltage: 1 mV/DEGREE Max. temp; probe tip −150°C, Body & cable 80°C Rated Circuit to ground voltage: 250V rms Max. Response time: 1.5 seconds to within 2°C of final reading for 50°C step change.
55F4938. Type No. 00758. NET **101.85**





372-2

378

373

230-3

OHMMETER

Model 372-2. Provides wide range of resistance measurements in a small package. Ideal for use in schools, on test benches or at inspection facilities. **Ranges:** 0-500, 0-5000, 0-50,000, 0-500,000 ohms; 0-5, 0-50 megohms. **Center Scales:** 5, 50, 500, 5,000, 50,000, 500,000 ohms.
62F318. NET **77.00**

AC AMMETER

Model 370. Ideal for checking small motors, lineloads, etc., where AC current measurements are required. 60 Hertz. Self-contained current transformer. **Ranges:** 0-1, 0-2.5, 0-5, 0-10, 0-25 amperes. **Accuracy:** ±5% of full scale.
62F319. NET **74.00**

AC MILLIAMMETER

Model 378. Has five separate ranges. Typical applications are transformer vacuum tube tests. Contains current transformer and indicating instrument in one case. **Ranges:** 0-5, 25, 100, 250, 1,000 ma. **Accuracy:** ±5% of full scale.
62F365. NET **74.00**

DC MILLAMMETER

Model 373. General purpose tester. Valuable in a number of applications. Provides DC current transformer and indicator instrument in one case. **Ranges:** 0-1, 5, 10, 25, 50, 100, 250, 1,000 ma. **Accuracy:** ±3% of full scale.
62F323. NET **74.00**

BATTERY TESTER

Model 379. Provides accurate indications of condition of all standard flashlight, hearing aid (mercury cells), radio batteries. Complete with test leads no. 08375 and operator's manual. **Ranges:** 0-1.5, 4.5, 6.0, 7.5, 9.0, 15.0, 22.5, 30.0, 45.0, 67.5, 90.0v.
62F366. NET **74.00**

AC/DC VOM

Model 230-3. Contains sufficient ranges to do a complete servicing job. Designed for telephone, teletype and marine use. Excellent troubleshooter. 1,000 ohms per volt AC-DC. **Ranges:** DC: 10v, 50v, 250v, 1,000v. AC: 10v, 250v, 1,000v. DC: 10 ma, 50ma, 250ma. **Resistance:** 0-1,000Ω, 0-100KΩ.
62F2379. NET **84.00**

DC AMMETER

Model 375. Provides complete range from a fraction of an amp to 25 amps without external shunts. Ideal unit for use with unmetered power supplies. **Ranges:** 0-1, 2.5, 5, 10, 25 amperes. **Accuracy:** 3% of full scale.
62F362. NET **74.00**

362-2

LOW-OHMMETER

Model 362-2. Permits highly accurate readings between 0.1 and 25 ohms. For checking motor armatures, switch and relay contact resistances, shorts between windings and grounds in radio chassis wiring, electrical equipment, etc. **Ranges:** 0-5, 0-25 ohms. **Accuracy:** ±3% of linear arc length.
62F368. NET **77.00**

AC VOLT-AMP-WATTMETER

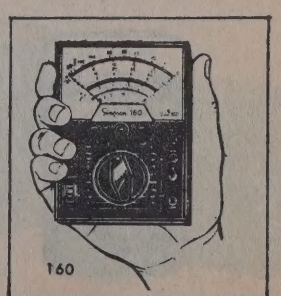
Model 390-2. AC/DC volts, AC amps and AC watts with one meter. Useful for practically any appliance. Complete with test cord assembly no. 08418 and operator's manual. Volts: 0-150, 300. **Amps:** 0-3, 15. **Watts:** 0-300, 600, 1,500, 3,000. **Accuracy:** ±5% of full scale.
62F317. NET **144.00**

379

390

HANDI-VOM

Model 160. Weighs only 12 ounces, yet has ±2% accuracy DC, ±3% AC. Self-shielding taut-band meter movement. **Sensitivity:** 20,000 ohm/volt DC, 5,000 ohm/volt AC. Built-in overload protection. **Scale length:** 3 inches. **Ranges —DC Volts:** 0-0.25, 1.0, 2.5, 10, 50, 250, 500, 1000. **AC Volts:** 0-2.5, 10, 50, 250, 500, 1000. **DC Current:** 0-50ΩA, 1mA, 10mA, 100mA, 250mA, 500mA. **Decibels:** −20 to +10, −8 to +22, +6 to +36, +20 to +50 (0 dB at 1 mW into 600 ohms). **Resistance:** R x 1 (30Ω center scale), R x 10, R x 100, R x 1k, R x 10k. **Dimensions:** 4⅛" x 3⅛" x 1¾". Complete with alligator clip test leads, batteries, and operator's manual. Weight: 12 oz.
62F X1723. NET **98.00**



160

ACCESSORIES

Type 02055. Probe tip leads for Model 160 Handi-VOM.
62F1686. NET **6.75**

Type 02225. Vinyl carrying case for Model 160.
62F1682. NET **21.50**

Type 02929. Vacuum formed carrying case for Model 160.
62F2385. NET **35.25**

Type 08375. Alligator-clip test leads with elbow pin-terminals. For use with 230, 240, 260 (Series 1 and 2 only), 372, 379.
62F1725. NET **6.50**

Type 08376. Alligator-clip test leads with spade lug connectors. For use with models 362-2, 371, 373, 374, 375, 376, 377, 378, 387.
62F343. NET **6.50**

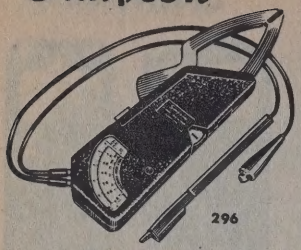
Type 08381. Test leads with elbow pin-terminals and insulated prods. For use with models 23, 240, 260 (series 1 and 2 only), 261, 270.
62F369. NET **7.75**

CALL YOUR NEWARK BRANCH FOR CURRENT PRICES AND DELIVERY.

Simpson

Multimeters, Function Generator

AMP-CLAMP® MULTIMETERS



296

Model 296. A compact, balanced-weight instrument for faster, easier locating of grounds and shorts in motors, relays, transformers and control circuits. Load balance test and AC current measurements are made without equipment shutdown or power line interruption. Specially shaped jaw is just clamped around the conductor. Easy to insert even into crowded wire clusters. Finger operated controls and jaw. Specifications—AC Current: 0-6, 15, 30, 60, 150, 300 Amperes RMS; ±3% of full-scale accuracy at 60Hz sine wave with conductor centered. Less than 1% of full scale change from 15°C to 35°C. AC Voltage: 0-30, 150, 300, 600 Volts RMS; ±3% of full scale accuracy at 60Hz sine wave; 0.5% of full-scale change between 15°C and 35°C. Resistance: 0-500 ohms, 25 ohm center scale; ±3% of arc accuracy; 600V RMS Max. (850V peak) rated circuit-to-ground voltage. Complete with test leads, battery, instructions. 10" long x 2.7" wide x 1.4" high. Weight: 14 oz.

62F403. NET **99.00**

Model 295. AC current and AC voltage only.

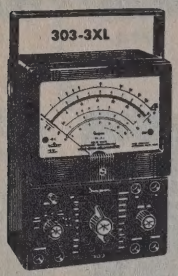
62F404. NET **88.00**

Model 294. AC current only.

62F405. NET **75.00**

02226. Deluxe black vinyl carrying case.

62F207. NET **27.50**



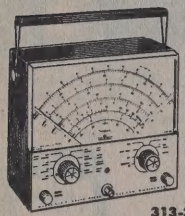
ELECTRONIC SOLID STATE FET

Model 303-3XL. Has high-impact shock resistant case, automatic LED "polarity" and "power on" indication, and 120/220VAC or battery operation. Features both conventional and low-power ohm ranges, switch-selectable zero-center scale, and drift-free performance. Self-contained nickel-cadmium "D" cell provides up to 20 hours of continuous operation. Specifications—AC/DC Voltage: 0-0.03, 0.1, 0.3, 1, 3, 10, 30, 100, and 300 Volts (1000 VAC and 1000 VDC are available through separate jacks). AC/DC Current: 30μA, 1mA, 30mA (1A and 10A ranges are available on separate jacks). Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k and Rx1M (Low-power and standard). Accuracy: ±2% F.S. DC; 3% 50-400Hz, 4% 20-20kHz, 10% 2-100kHz on AC. Input Impedance: 10 megohms AC or DC. Size: 5.5" x 7.2" x 3.3". With probe, leads, battery, charger/adapter, manual.

62F1791. NET **289.00**

00432. High-Voltage Probe, 40kV.

62F1703. NET **49.25**



313-3

ELECTRONIC SOLID STATE FET

Model 313-3. 7" scale. 11 megohm input impedance. Operates 300 hours, or more, on single set of batteries. Integral "battery check" switch. Specifications—DC Volts: 0-0.3, 1.0, 3, 10, 30, 100, 300, 1000. AC Volts: 0-0.3, 1.0, 3, 10, 30, 100, 300, 1000 RMS. Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k, Rx1M. DC current: 0-100μA, 1.0mA, 10mA, 1.0A. Accuracy: ±2% F.S. DC, ±3% F.S. AC. dB: −30, −20, −10, 0, +10, +20, +30. Frequency response: ±0.5dB from 20Hz to 100kHz on 0.3, 1.0, 3.0V ranges; ±0.5dB from 20Hz to 20kHz on 10, 30, 100V ranges. With probe, battery, manual.

62F2273. NET **250.00**

00728. 40kV Probe.

62F1415. NET **40.00**

00193. RF Probe.

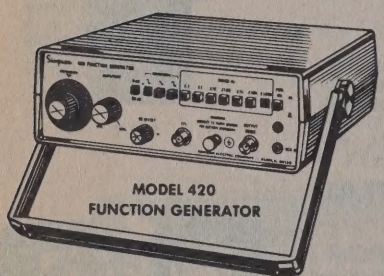
62F1416. NET **23.00**

00577. Vinyl Case.

62F1684. NET **33.00**

01565. Sponge Lined Case.

62F1417. NET **38.00**



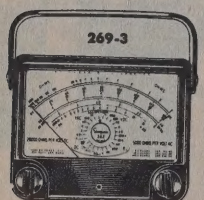
MODEL 420 FUNCTION GENERATOR

- **Provides sine, triangle, square, DC and TTL.**
- **Wide 0.1 Hz to 1 MHz, 7 range coverage.**
- **Continuously variable DC offset with OFF pos.**
- **Portable signal source for bench or field.**
- **Voltage controlled generator for sweep.**
- **Full day battery operation. Overnite recharge.**

Portable generator for audio and communications servicing, laboratory and production use. 20V p-p open circuit (10V into 600 ohms) amplitude. 600 ohms output impedance. 0 to +50 C operating temperature. 2.7 x 8.4 x 9.0". A version, 3 lbs., D version, 4 lbs. with batteries.

Dial Accuracy: ±3% F.S., 1Hz to 100KHz; 5%F.S. overall. **Sine Wave Distortion:** <1% 1Hz to 100KHz; <2% all other. **Triangle Wave Non-Linearity:** 1% 1Hz to 100KHz. **Square Wave Rise/Fall Time:** <100 nsec into 600 ohms/20 pF. **Square Wave Non-Symmetry:** ±1% 1Hz to 100KHz. **VCG Range:** <300:1 with 0 to −5V external signal with 1000:1 capability. **TTL Output:** Fixed TTL output drives to 10 TTL loads. <25 nsec. Rise/Fall time. **Amplitude Flatness:** ±0.1 dB to 20KHz, ±0.3 dB all other. **Temperature Stability:** ±0.1% Hz/C; ±0.05 dB/C. **Line Voltage Stability:** ±0.1% Hz/±10 VAC; ±0.05 dB/±10 VAC. **Power Requirements:** 120/220/240 VAC ±10%, 50/60 Hz, 6 VA. 4 "D" nickel-cadmium batteries for D version.

58F1278 MODEL 420A . . **194.00** **58F1279 MODEL 420D** . . **231.00**



7-INCH SCALE VOM

Model 269, Series 3. Sensitivity-100,000 ohms/volt. Self-shielding taut-band meter movement combined with a mirror scale and knife-edge pointer. Snap-on compartment for fast battery replacement. Specifications—DC Volts: 0-0.8, 1.6, 8, 40, 160, 400, 800, 1600. AC Volts: 0-3, 8, 40, 160, 400, 800. DC current: 0-16μA, 160μA, 1.6mA, 16mA, 160mA, 1.6A, 8A. Resistance: Rx1, Rx10, Rx100, Rx1k, Rx10k, Rx100k. Accuracy: ±1½% DC, ±2½% AC. With 4000VDC probe ext., test leads manual.

62F330. NET **208.00**

ACCESSORIES

00152. High-Frequency Probe for Model 312 VTVM.

62F1694. NET **25.00**

00727. High-Voltage Probe for Model 314 FET VOM.

62F1695. NET **40.00**

INDUSTRIAL VOM

Model 265. Rugged, self-shielded, taut band movement VOM features simultaneous AC voltage and current measurements. Single switch operation. Specifications—DC Volts: 0.3V, 3V, 12V, 60V, 300V, 600V, ±2% of Full Scale accuracy, 20,000 Ω/V. AC Volts: 3V, 12V, 60V, 300V, 600V, ±3% of Full scale accuracy, 5,000 Ω/V, DC Current: 60μA, 1.2 mA, 12 mA, 120 mA, 0.6A, 1.2A, 12A, ±2% full scale accuracy, voltage drop 250 mV max. AC Current: 120 mA, 1.2A, 12A. Resistance: Rx1, Rx100, Rx1K, Rx10K.

62F261. NET **205.00**

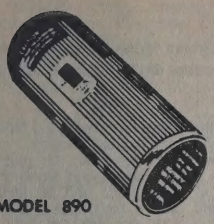
00118. Flexible Probe w/Grip-Tip.

62F1410. NET **8.50**

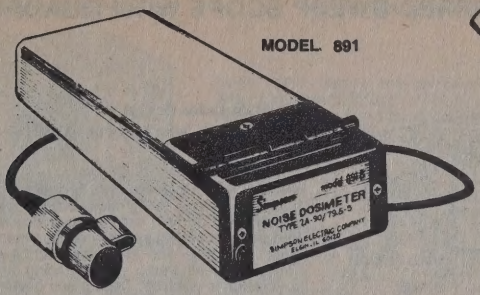
9

Sound Level Meters', & Accessories

Simpson



MODEL 890



MODEL 891

MODEL 886

*National Institute of Occupational Safety and Health
**Mine Safety Health Administration

MODEL 890/887 CALIBRATORS

Model 890 calibrator for sound level meters and Model 887 calibrator for dosimeters are low priced yet highly accurate, portable sound sources for convenient field calibration of Simpson and other sound level meters and dosimeters. Provide a constant, calibrated sound pressure level of 114 dB (0 dB reference is 20 μNewtons/mtr^2.) Simple to operate. A 3-position slide switch selects power Off/On and battery test functions. In battery test function, a red LED lights to indicate adequate battery voltage.

Model 887, 890 SPECIFICATIONS
Acoustical Output: Frequency: 1000 Hz
±1% Sound Pressure Level: 114 dBV
±0.5 dB at reference conditions
Distortion: Less than 1%

Power: One 9V battery, NEDA 1604, 35 hours life approx.

Model 890 Calibrator, N.I.O.S.H. and M.S.H.A. approved when calibrating Simpson Models 884 and 886. Also calibrates similar Sound Meters.
81FX108 MODEL 890, NET 147.00

Model 887 Calibrator, M.S.H.A. approved. For calibrating Simpson Model 891. Personal Dosimeters and similar instruments.
81FX003 MODEL 887, NET 147.00

MODELS 891 OSHA and ISO PERSONAL NOISE DOSIMETERS M.S.H.A.** APPROVED!

Sound Threshold Level (Lt): Model 891, 89.5 dBA ±0.5 dBA
Dynamic Range: Model 891, 90 dBA to 125 dBA per OSHA
Accuracy: meets accuracy requirements of ANSI S1.25-1978

Calibration Readout: 4-digit LED displays "0100" with 114 dB, 1000 Hz acoustic input

Portable, accurate sound measurement instrument designed to allow direct automatic determination of OSHA noise exposure compliance without calculations. This complete dosimeter system consists of a monitor and self-contained readout in a compact instrument that is specifically designed to be worn either in the shirt pocket, or on the belt.

The dosimeter may be used to determine percent noise dosage, elapsed exposure time, and the equivalent continuous noise level over a measurement period. The instrument is battery powered and ruggedly constructed to permit use in virtually any location. The display and control panel is secured under a cover to permit access only to authorized individuals.

81FX002 MODEL 891, NET 633.00

81FX003 MODEL 887 CALIBRATOR, NET 147.00

81F107 Attache carrying case for Model 891-B Dosimeter and Model 887 Calibrator, NET 56.75

81F110 891/887 PACKAGE, NET 774.00

MODEL 886 TYPE 2 GENERAL-PURPOSE SOUND LEVEL METER APPROVED BY N.I.O.S.H.* AND M.S.H.A.**

- Helps you meet OSHA and Walsh-Healy noise control specifications
- Quickly, accurately measures sound levels in factories, offices, stores, theatres, construction sites, studios
- Full coverage 40-140 dB, with special 85-115 db OSHA range, fast or slow response and standard A, B and C weightings selection

For measurement and analysis of sound over a wide range of frequency and power complete with external output plug, 2 batteries and operating instructions.
Microphone: Type Condenser Type L size per ANSI S1 12-1967. Impedance: 350 ohms.
Sound Level Measurement Ranges: 40 dB to 140 dB. Zero (O) dB reference is 0.0002 μbar
Accuracy: Meets ANSI specifications S1.4-1971 for a Type 2 general purpose sound level meter and IEC 123 specifications.
Calibration: Screwdriver adjustable using Model 890 or 896 calibrator.
Power Requirements: Two 9-volt batteries, NEDA 1604, 50 hrs. life approx.

81FX000 MODEL 886 NET 375.00

Attache case with Model 886 and accessories. Includes Model 886, Model 890 calibrator, microphone wind screen, microphone to tripod adapter, 25-ft. extension cable, three 9V batteries, calibration adjusting screwdriver, wrist strap and operator's manuals.

81F109 886/890 PACKAGE, NET 590.00

MODEL 884 TYPE S2A SOUND LEVEL METER APPROVED BY N.I.O.S.H.* AND M.S.H.A.**

A basic instrument for portable sound and noise measurements complete with external output plug, 2 batteries and operators manual.

- Meets OSHA and Walsh-Healy requirements for noise control
- 50 to 130 dB range

Microphone: Omnidirectional, condenser type L size per ANSI S1.12-1967. Impedance: 350 Ω ±20% @ 23°C
Accuracy: Meets ANSI specifications S1.4-1971 (R1976) for Type S2A general-purpose sound level meter
Calibration: Screwdriver adjustable using Model 890 or 896 calibrator
Power: Two 9V NEDA 1604 batteries, 100 hrs. life approx.

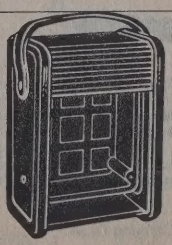
81FX001 MODEL 884 NET 276.00

TEST LEADS

Stk. No.	Type	Description	For Equipment Listed:	Each
62F2834	00115	Combination probe-tip and removable alligator clip.	202, 208, 209, 229-2, 250, 225, 260 (Series 3-6 only)	9.00
62F1410	00118	Retractable grip-tip probe for use with 00115	260XL, 261, 262 (Series 3 only), 263, 265, 267, 268.	8.50
62F370 **62F325**	07500 07538	Alligator-clip leads. Probe-tip leads.	269 (Series 2 & 3 only), 270, 360, 460.	7.00 7.75
62F1725 **62F369**	08375 08381	Alligator-clip leads. Probe-tip leads.	230, 240, 260 (Series 1& 2 only), 372, 379.	6.50 7.75
62F343	08376	Alligator-clip leads.	362, 371, 373, 374, 375, 376, 377, 378, 387.	6.50
62F3012	00043	Screw-Clip leads	260 (Series 7)	9.00
62F202	00791	10-1 probe Low capacity	.....	44.00
62F4078	248	40 kV DC test probe meter.	.....	59.00

CARRYING CASES

No. 00248. Roll top Safety Case for 260-6 Family and 270-4.
62F204. NET 25.75
No. 00805. Ever-Redy Vinyl Case for 250, 260, 260XL, 261, 265, 270, 303.
62F302. NET 34.25
No. 01565. Leather-covered, sponge-lined case for 312, 313, 314.
62F1417. NET 38.00
No. 01617. Carrying Case for Models 460-3, 464.
62F205. NET 40.25
No. 01818. Vinyl case for 250, 260, 260XL, 261, 265, 270.
62F301. NET 28.00
No. 00804. Carrying Case for Model 248.
62F4079. NET 14.00
No. 02163. Protective cover for 260 Family of VOM's. Snaps firmly over the face to protect from dust dirt and accidents. Fits 260's and 270's except 260-6XL.
62F206. NET 30.50
No. 02226. Case for 294, 295, 296.
62F207. NET 27.50
No. 04299. Vinyl Case for Microtesters.
62F326. NET 21.50
No. 05262. Ever-Redy Vinyl Case for 262, 263, 267, 268, 388-3L.
62F329. NET 30.50



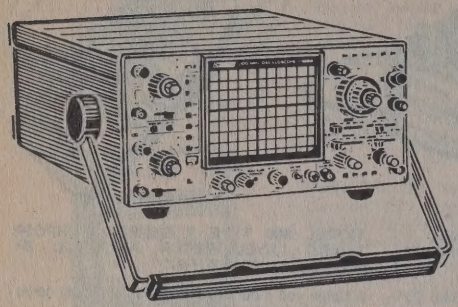
00248.

05262.

B&K PRECISION DYNASCAN CORPORATION

OSCILLOSCOPES FOR INDUSTRY

100MHz TRIGGERED SWEEP SCOPE WITH QUADRUPLE TRACE DISPLAY



- **Dual timebase design**
- **5mV per div. sensitivity at 100 MHz**
- **Lighted touch-sensitive pushbuttons control digital logic switching**

Model 1590P. Observes ringing in digital circuits. Satisfies necessity of being 2-3 times highest frequency of logic being observed. For use in digital design and troubleshooting. 1 mV per div. sensitivity at 30 MHz with 5x magnification. 2nS per div. sweep rate (with 10x magnification). Performs accurate rise-time measurements. Observes propagation delays along digital logic gates. Schottky and low-power circuit development in 30-50 MHz and 80 MHz ranges. Telephone main-frame circuit tracing and development, where high speed D/A and A/D conversion is involved. Tracing and development of D/A and A/D converters in audio products. Able to observe troublesome transient glitches. Observation of rf and i-f frequencies through 100 MHz are possible with this scope. Two 10:1 dir. probes included.

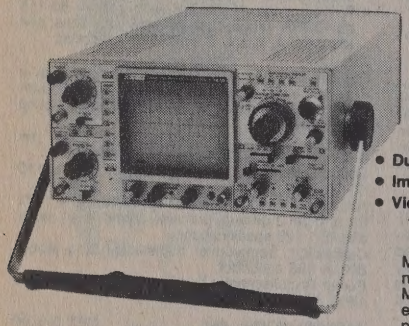
83F603. Net 2575.00

OPTIONAL ACCESSORIES:

LC-100 front panel cover. Snaps on: offers protection for field service or storage.
81F173. NET 26.00

LC-150 vinyl carrying case. For probes and cables.
81F174. NET 32.00

60 MHz QUAD INPUT SCOPE

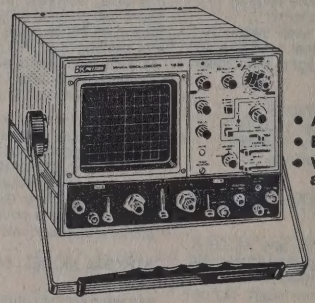


- **Dual Timebase**
- **Imv Input Sensitivity**
- **Video Sync Separator**

Model 1570P. The new B&K-PRECISION Model 1570 is a cost-effective full-feature portable lab scope. Having many of the important features of the 1500, the 1570 is more feature-packed and offers higher performance than most other scopes in its bandwidth class. This 60 MHz scope is useful to even higher frequencies and has a −6dB response at 70 MHz. Its 1 mV/division sensitivity extends to the full 60 MHz bandwidth. For applications involving low-frequency signals, a selectable 20 MHz bandwidth limiter is built in. Other important features include single sweep, dual time base, delayed sweep, full-logic touch-sensitive function switching and a video sync separator. A buffered channel 1 vertical amplifier output is provided to interface with frequency counters, DMMs or other instruments. This output can also be connected to the channel 2 input for a single channel sensitivity of 500 uV to 40 MHz. Two 10:1 direct probes included.

81F9000. NET 1395.00

35MHz 5″ DUAL-TRACE TRIGGERED SWEEP

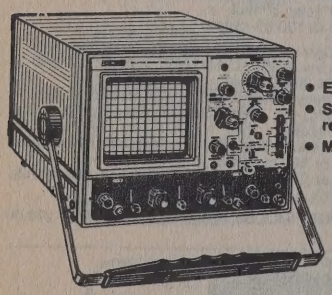


- **Alternate trigger capability**
- **Built-in triggering filters**
- **Variable hold-off for accurate pulse train display**

Model 1535P. Range of useable response is beyond 50 MHz. 2mV/cm vertical sensitivity. Signal delay line for accurate view of high frequency pulse leading edge. Automatic or manual, CHOP and ALTERNATE dual-trace display. UNCAL "reminder" LEDs for sweep rate and input level adjustments. Single sweep feature for photography or observations of non-repetitive waveforms. 10:1/reference/direct probes included. Differential input capability. Algebraic sum and differences of CH A and CH B waveforms. Microprocessor system development is one of its uses. Also work in TV and radio broadcasts, logic and digital design work, measuring phase shifts, setting sync and color burst in TV.

60F2698. Net 1060.00
Model LC133. Protective Carrying Case.
83F601. Net 63.00

30MHz DUAL-TRACE DELAYED SWEEP



- **Expands signals 1000 times**
- **Single-sweep for non-repetitive waveforms**
- **Mesh-type rectangular CRT**

Model 1530P. Variable hold-off for accurate pulse train display, delay sweep operations for sweep expansion up to 1000x, 2 mv/div. sensitivity, operates at 30 MHz responses; useable to 50 MHz, 11.7nS risé time for short duration pulses. For use in microprocessor system development, computer terminals, broadcast applications, logic and digital design work, digital data systems tests, industrial control engineering work, propagation delay measurement, monitoring RF waveforms, phase shift and distortion, checks, video recorder maintenance, CCTV and CATV performance checks, and transducer testing. 10:1/REF/DIR probes included.

83F604. NET 1165.00
Model LC133. Protective Carrying Case.
83F601. NET 63.00

DUAL TRACE 20 MHz DELAYED TRIGGER

- **2mv Vertical Sensitivity**
- **Bright Rectangular PDACRT**
- **Differential Input Capability**

1525P. With 2 mv per division input sensitivity and a conservatively rated 20 MHz bandwidth, the 1525 easily surpasses most industrial needs. The signal expansion capabilities of the delayed trigger feature and the trigger stabilizing variable trigger hold-off feature make the 1520 useable for: Broadcast, CATV, digital and analog design, monitoring RF waveforms, observing 1-f response curves, phase shift and distortion checks. Includes 10:1/REF/DIR probes.

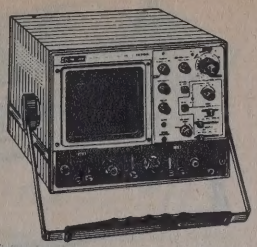
81F9001. NET 750.00

9

B & K 1400 SERIES SCOPES

B&K PRECISION DYNASCAN CORPORATION

5" DUAL-TRACE 30MHz TRIGGERED OSCILLOSCOPE



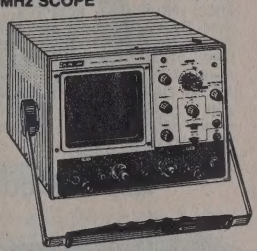
Model 1479BP. Vertical Amplifier—Sensitivity: 5mV/cm. Response: DC, DC-30 MHz (−3 dB); AC, 10 Hz-30MHz (−3 dB). Rise time: 11.7 nS. Input Imped: 1MΩ±2%, 22 pF (±3 pF). Max. Input: 300V DC +AC peak or 600 V p-p. Modes: CH-A, CH-B, Dual, Add. Chop Freq: 200 kHz ±20%. Signal Delay: Fixed-12 nS. Sweep System—Type: Auto & triggered (NORM) Mode (X-Y oper) CH A = Y. CH B + X. Sweep time; 0.2 μS/cm-0.5 S/cm ±3% in 20 calibrated steps (1-2-5 sequence) with vernier plus 5X sweep magnifier. Triggering—Source: INT CH-A, CH-B and EXT; X1 and X10 Slope: + or −, cont. variable level control; pull for AUTO. Coupling: AC, DC, LF reject, HF reject. Horizontal Amp (input thru Ch B vertical Input)—Sensitivity: 5 mV/cm. Response: DC-1 MHz (−3 dB). Calibration; 0.5 V p-p ±1% (square-wave at 1 KHz ±10%). Intensity Modulation: More than +5V (TTL compatible). DC-5 MHz. Power 115/230 VAC, 50/60 Hz, 25 W. Size: (HWD) 18.4 x 25.3 x 36.9 cm. Weight: 8.8 kg. Includes: Two PR-40 probes.

59F900. NET 795.00

Model LC-74. Protective cover.

59F910. NET 34.75

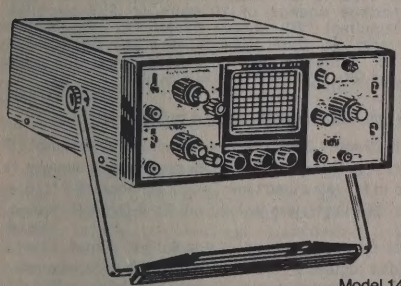
5" DUAL-TRACE 10 MHz SCOPE



Model 1476P. Vertical Amplifier Deflection Factor: 10 mV/Cm to 20V/cm, ±5%, in 11 ranges, each with fine adjustment. Response: DC, DC—10MHz (−3dB) AC, 10Hz—10MHz, Risetime: 35 nSec. Overshoot: 3% or less. Input Imped: 1 MΩ shunted by 27pF (±3 pF). Tilt: <than 5%. Max Input Volt: 300V, DC + AC peak or 600V p-p. Oper Modes: Ch A only; Ch B only; Dual Trace (A and B)—; Chop Frequency: 200 kH approx. Channel Separation: Better than 60dB. SWEEP SYSTEM (Common to Ch A and Ch B) Type: Auto and triggered; Sweep Time: 1μSec/cm to 0.5SEC/cm. HORIZONTAL AMPLIFIER (Input through Channel B vertical input) Deflection Factor: 10mV/cm to 20V/cm, ±5%, in 11 ranges, each with fine adjustment. Response: DC-1. MHz (−3dB). Calibration Voltage: 1kHz square wave, 1V p-p (±5%). Intensity (Z-Axis) Modulation: 5V TTL compatible, 470K nominal input resistance. Probes: Two PR-40 10-1 direct probes included. Power: 117 or 230 VAC, 50/60Hz, 23W; CSA-approved three-wire line cord; 50/60Hz. Size: (HWD) 19 x 25 x 36 cm. Net Weight: 8.8 kg.

62F562. NET 525.00

15MHz DUAL-TRACE AC/DC/BATTERY MINI-SCOPE



- **Conveniently fits into ordinary attache case**
- **18 calibrated sweep positions**
- **TIME/DIV control selects line/frame rate triggering**

Model 1420. Compact and lightweight for troubleshooting digital logic circuits, work on mobile and studio broadcast and recording equipment maintenance. Operates on AC, 10-16 VDC or opt. int. battery pack. Response is at 15 MHz, useable beyond 20 MHz, with 10 mV/div sensitivity. 18 calibrated sweep positions. Rise time: 24nSec. Max. Input: 300 V. Front panel calibration source. Trigger sensitivity: Int: 20 Hz to 15 MHz-1div. deflections. Power requirements: 120 VAC-60 Hz, 240 VAC-50 Hz, 10-16 VDC or internal battery. Power consumption: 16 watts AC). Scope supplied with 120 VAC adapter. Two 10:1/direct probes and ac essory tips provided. Size: 4.5" x 8.5" x 12". Wt. 8 lbs.

83F602. NET 795.00

1420 ACCESSORIES

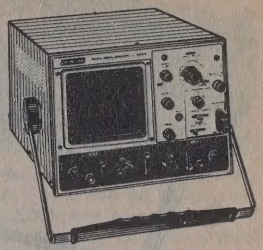
LC-20 Protective Carrying Case

81F175. NET 41.00

LC-21 Probe Pouch

81F176. NET 16.50

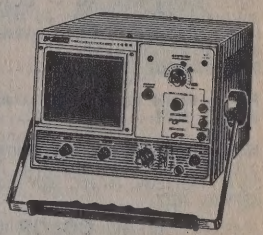
DUAL-TRACE 5" 15MHz TRIGGERED SWEEP SCOPE



Model 1477P. Vertical Amplifier Sensitivity: 10mV/cm to 20V/cm, ±5%, in 11 ranges, each with fine adjustment. Response: DC, DC-15MHz (−3dB); Risetime: 24 nSEC. Input impedance: 1 MΩ shunted by 22pF (±3pF). Max Input Voltage: 300V, DC + AC peak or 600 V p-p. Oper Modes: Ch A only; Ch B only; Dual Trace (A and B)—(single-trace algebraic sum of Ch A and B); A-B (single-trace algebraic difference of Ch A and B). Sweep: Auto and triggered. 0.5 μSEC/cm to 0.5SEC/cm n 19 ranges with Vernier. Magnification: 5x. Triggering—Source: CH A and CH B, 1 Cm Deflection min. EXT, 1V p-p sensitivity. Slope: + and −, continuously variable level control, continuously variable level control. Range: 20Hz-15 MHz guaranteed; 20Hz-27MHz typical, TV sync: Vertical and Horizontal sync separator. Horizontal amplifier (Input through CH B, vertical input)—Sensitivity: 0.01V/cm to 20V/cm, ±5% in 11 ranges. Two PR-40 probes supplied. Size: 18.4 x 25.3 x 36.9 cm (7⅜ x 10⅛ x14¾"). Wt. 8.8 kg. (19.6 lbs.).

59F905. NET 595.00

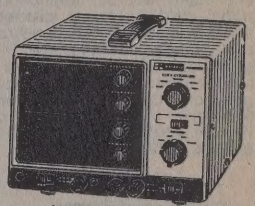
5" 10 MHz, TRIGGERED SWEEP SCOPE



Model 1466P. VERTICAL AMPLIFIER: Sensitivity: 10mV/cm-20 V/cm ±5%, divided into 11 calibrated ranges. Response: DC, DC-10MHz (3dB); AC, 2Hz-10 MHz (−3dB). Risetime: 35nSEC. Input Impedance: 1 megohm shunted by 22pF (±3 pF). Max Input Voltage: 300VDC plus AC peak, or 600V p-p. SWEEP. Automatic and triggered. Sweep Time: 1μSEC/cm-.5 SEC/cm, ±3%, divided into 18 calibrated ranges (1/2/5 step sequence). Magnif: 5X at all speeds; increases max sweep to .2μSEC/cm. HORIZONTAL AMPLIFIER Sensitivity. Response: DC-1MHz (−3dB) Input Imped: 1 Megohm shunted by 22 pf (nominal), Max Input Voltage: 300V (DC + AC Peak) or 600V p-p. Input Resistance 10KΩ (nominal). Power: 117 or 230 VAC, ±10%, 50/60 Hz, 20 watts. Size: (HWD) 19 x 26 x 36 cm (7 x 10.25 x 14.5"). Weight: 8 kg. (17.3 lbs.) Probes one PR-40 included.

59F909. NET 475.00

3" PORTABLE "MINI-SCOPE"



Model 1405. Specifications: Vertical Amplifier: 10 mV/div. or better. Response: DC −5MHz (−3dB). AC 2 Hz—5MHz (−3dB). Overshoot: 5% or less. Max Input: 600 volts, peak-to-peak. Input: 1 megohm, shunted by 35 pF. Attenuator: 1, 1/10, 1/100 multiplier, ±5%. Gain Control Range: Continuously variable range greater than 22 dB. Horizontal Amplifier: Sensitivity: 300 mV/div. or better. Response: DC to 250 kHz. Input Imped: 1 megohm, shunted by 30 pF. Sweep System: Recurrent. Time Base Ranges: 10-100 Hz, 100-1 kHz, 1kHz-10 KHz, 10 kHz-100 kHz; continuously variable between ranges. Sweep Linearity: ±5%. Size: 6x7.5x12" deep. Net wt.: 8½ lbs. Power: 117/234 VAC, 50-60 Hz; 15 watts, 3-wire grounded AC line cord. Leads, spare fuse, instructions.

62F576. NET 315.00

Model LC-14. Case for 1405

62F577. NET 20.50

PROBES

PR-45 Deluxe X10, 150 MHz Probe

81F177. NET 55.00

PR-47 General Purpose X10 100MHz Probe

81F178. NET 30.00

Model PR-37. 10:1 Direct Probe designed for scopes and freq. counters up to 100 MHz. For models 1479AP, 1477P, 1476P, 1466P, 1801, 1820, 1850.

55F4908. PR-37G. Grey 43.00

55F4909. PR-37R. Red 43.00

Model PR-40. As above with 10" detachable gnd. cable and color coding labels.

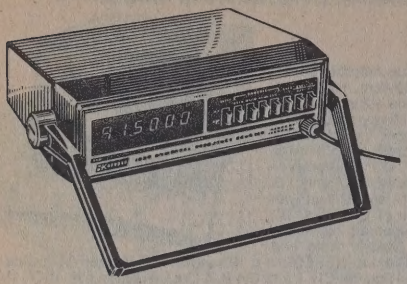
58F4907. NET 38.00

BP-14 (42) Battery Pak (1420)

81F179. NET 58.00

Counters and Power Supplies

80 MHz COUNTER WITH PERIOD MODE



- 5 Hz to 80 MHz reading guaranteed
- Period measurement from 5 Hz to 1 MHz
- Bright .43" high LED readouts
- One PPM resolution
- Period average, auto and manual positions

Model 1820. Freq. Characteristics: Range: Normal 5 Hz to 80 MHz. Prescale: 10 MHz to 520 MHz. Function selects kHz or AUTO display reading. Gate Time Auto: 10 msec (MHz reading) and 100 msec and 1 sec (kHz reading). Gate Time manual: 1 sec (kHz reading, 1 Hz resolution). Resolution: ±0.0001% (i.e., 1 PPM of a 6 digit scale). **Period Char.:** Range: 5 Hz to 1 MHz. Period Average Auto: 1 period average (ms). 10 and 100 period averages (μs.) Period Average Manual: 100 period average (μs reading with 1 ns resolution). **Input Char.:** Imped.: 1 megohm. 25 pF. Sensitivity: 30 mV RMS. 5 Hz to 40 MHz; 50 mV max at 80 MHz. Max Input: 200 V(peak AC + DC) DC at 500 Hz, derate linearly to 30V(peak AC + DC) at 80 MHz. **General:** 105V to 130V and 212 to 258V, 50-60 Hz. Size (HxWxD): 8.1x29x19 cm (3.25x11.6x7.50"). Wt: 2.55 kg. (5 lbs).
55F4905. NET 315.00

PR-25. Probe for digital or analog electronic multimeters.
59F903. NET 27.00

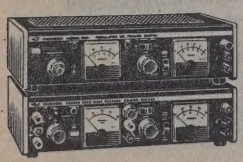
Model 1801. 40 MHz Autoranger Counter. Updates six-digit readout up to five times a second. Temp. Stability better than 0.001%, 50 C. 105-130V, 60 Hz, 25W max. 5.5 lbs.
62F550. NET 200.00

NTSC COLOR BAR GENERATOR

- NTSC color bars with or w/o IWQ signal.
- Crystal controlled rf, i-f, NTS synch.

Model 1250. Intended for broadcast, CATV, industrial television, and video recorder applications. Generates standard NTSC bar with —IWQ in lower quarter. Features 5 step staircase with selectable chroma. Displays raster colors red, blue, green, yellow, cyan, magenta, white and black raster. Can generate 4.5 MHz sound carrier with 1 or 3 KHz modulation usable for studio audio applications. Fixed 1V p-p, variable 0-1V p-p voltage with 75 impedance. Carrier frequencies: Chan. 3, 61.25MHz, Chan. 4, 67.25MHz, Video IF, 45.75MHz, for rf output. Usable with oscilliscope. 18 W power required. 11.5 x 45.7 x 30.5 cm. CSA approved.
83F600. NET 849.00

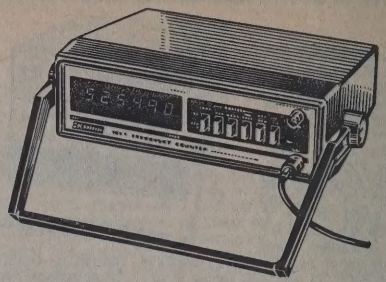
LABORATORY POWER SUPPLIES



Model 1601. Input Voltage: 105-125 VAC, 60 Hz. Output Voltage: 0-50 VDC, continuously variable. Two meter ranges, 0-25 and 0-50 VDC. Output Current: 0-2A in four ranges-0-50mA, 0-0.2A, 0-0.5A, 0-2A. Load Regulation: Minimum: 0.05%; maximum; 0.1%; typical; 0.07%. Line Regulation: 0.02% typical from 105 to 125 VAC with output of 50 VDC and 2A. Ripple: 5mV peak-to-peak. Size (HWD): 3.88x14.13x10". Net weight 11 lbs. complete with leads and instruction manual.
62F111. NET 345.00

Model 1602. Input Voltage: 105-125 VAC, 60 Hz. 400 VDC Supply-Output Voltage: 0-400 VDC, continuously variable. Output Current: 0-200mA. Load Regulation: 0.1%. Line Regulation: 0.1% for 105-125 VAC line. Noise and Ripple: Less than 10mV peak to peak. Protection: 0-200mA adjustable shutdown. BIAS SUPPLY (100 VDC) Output Voltage: 0 to 100 VDC continuously variable, floating. Output Current. 0-2mA Load Regulation: 1%; Line Regulation: 1%; Noise and ripple: Less than 10mV peak-to-peak; Protection; Current limiting resistance. Size (HWD): 3.88"x14.13"x10". Net Wt.: 11 lbs.
59F911. NET 365.00

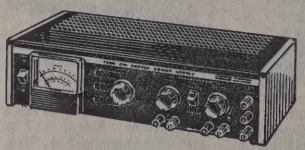
520 MHz FREQUENCY COUNTER



- 5 Hz to 520 MHz reading guaranteed
- Temperature compensated crystal oscillator
- Full period measurement capability
- 50 mV input sensitivity at 520 MHz
- Operates from 115 or 230 VAC, or 12 VDC

Model 1850. Freq. Characteristics: Range: Normal—5 Hz to 60 MHz. Prescale: 10 MHz to 520 MHz; Function switch selects kHz or AUTO display reading. Gate Time Auto: Normal 10 ms., 100 ms. and 1 sec. Prescale: 10 sec. Accuracy: ±0.0001% (i.e., 1 PPM of a 6 digit scale). **Period Char.:** (normal input) Range: 5 Hz to 1 MHz. Period Average Auto: 1 period average (ms), 10 and 100 period average (μs). Period Average Manual: 100 period average (μs reading with 1 ns resolution). **Input Characteristics:** Impedance: Normal—1 Megohm, 26 pF. Prescale: 50 ohms with less than 2V RMS input. **Sensitivity:** Normal: 30 mV. 5 Hz to 40 MHz; 50 mV max. at 60 MHz (5 Hz to 1 MHz in period). Prescale: 50 mV RMS. 10 MHz to 520 MHz with 50 ohms. **Max Input:** Normal: 200V (peak AC + DC) DC to 500 Hz, derating linearly to 30V. (peak AC + DC) at 60 MHz. **General:** Power: 105 to 130 V and 212 to 258 V, 50-60 Hz, 11 to 16 VDC. Automotive battery (accessory power cable provided) Size: 8.1x29x19 cm (3.25x11.6x7.50"). Wt: 2.55 kg (5 lbs.).
55F4906. NET 550.00

MULTIPLE-OUTLET POWER SUPPLY



- Three Separate Power Supplies in One
- Opto-Isolator Tracking of Outputs
- Auto Current Limited Overload Protection

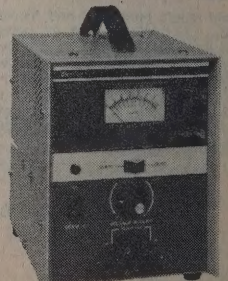
Model 1650. Designed for digital and microprocessor work, solid state engineering, industrial production testing, student labs, service applications, experimenters and hobbyists. Input Voltage: 105-125VAC, 60 Hz. Output Voltage: 5V fixed at 5A; A and B supplies—to 25 VDC at 0.5A. Regulation: load regulation better than 0.1% from no load to full load. Line regulation less than 0.2% for a line voltage change of 20 volts on 25V supplies. Tracking: (0-25V supplies) "B" supply tracks "A" supply at a fixed or selected ratio. All three outputs may be connected in series or parallel for higher current or voltage reqs. Size: 3.9x14.1x10 cm (1.6x5.6x4.0"). Wt.: 22 lbs. CSA listed.
55F4904. NET 375.00

1652/54 LOW VOLTAGE SUPPLIES FOR DIGITAL NEEDS

MODEL 1652. Two 0 to 25 volt, 1.5 amp outputs with automatic tracking of A and B outputs. Load regulation: within ±0.1% or ±20mv whichever is greater, from no load to full rated load Line: Output variation ±0.1 for line voltage variation of ±10%. Ripple: less than 2.5 mV RMS. Diode Protected.
81F202. NET 465.00

MODEL 1654. Vernier controlled variable 2.0 to 6.0 volt output. 10 amp output capability. Load regulation, no load to full load 0.5% measured across output. Line regulation: 0.4%, for line variation of ±10" from 120 VAC.
81F203. NET 395.00

1652

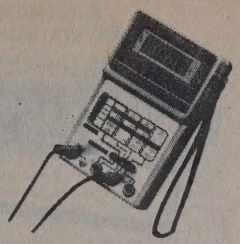


1654

Digital DMMs and Probes

B+K PRECISION DYNASCAN CORPORATION

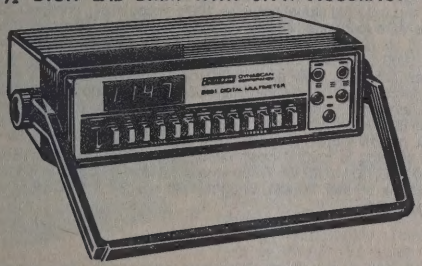
3½ DIGIT LOWCOST DMM



- High Energy Fuse Protection
- Liquid Crystal Display
- DC Accuracy 1% Typical
- Fully Overload Protected
- Auto Zeroing; Auto Polarity

Model 2801 Economical 3½ Digit DMM ideal for field shop and hobby applications. AC-DC Voltage ranges 0-2, 20, 200 and 1000V. Input Impedance 10 MΩ; AC: 200 KΩ on 200V Range. Circuit Protection ±1000 Vdc or dc plus ac all ranges. Resistance Ranges 0-2, 20, 200, 2000KΩ. Circuit Protection: ±140 Vdc plus ac peak, 140 Vac RMs. DC Current 0-2, 20, 200 ma. Power: 9 volt battery. Test leads, carrying case, operation manual and a spare fuse included. **81FX004. NET** **65.00**

3½ DIGIT LAB DMM WITH 0.1% ACCURACY



Model 2831. For all types of lab or bench operation. 0.43" high LED display visible under all lighting conditions. Basic DC accuracy of 0.1% and autozeroing on all ranges. Built-in 10 amp range permits current measurement to 20 amps with 100% overrange. Voltage to 1000 VDC or 750V AC, and up to 40,000V with probe. Seven ohm range for measurment from .01 ohm to 20 megohms. 10 ohm range capable of .01 ohm resolution. Ability to measure switch and point contacts, motor and coil winding, and wire lengths. Circuit resistance measurements without forward biasing semiconductor junctions, independent of range switch. Four range high/low selection allows pn junctions to be forward biased for polarity or condition tests. Protection against application of ±1000V DC, −450 VDC or 300 VAC rms. Diode and high voltage current range protection. Voltage ranges protected to ±1000 VDC or DC+AC peak.

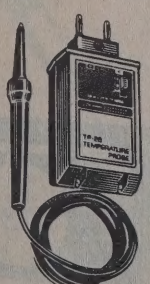
60F2760. NET 255.00

Model 2830. Similar to 2831, but with .5% accuracy.
60F2667. NET 210.00

Model BP-30. Rechargeable battery pack for 8 hrs. continuous use.
62F2668. NET 52.50

Model LC-50. Leatherette carrying case.
62F2669. NET 29.50

SOLID STATE TEMPERATURE PROBE

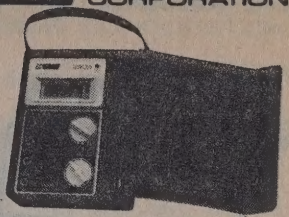


Model TP-28. Locates circuit "hot spots" where components are drawing excessive current. Isolate underwattage components. Monitor temp. for environ. tests. Measure temp. of walls, floors, ceilings before insulating. Drive chart recorder for long-term measurement. Use with any voltmeter—analog or digital. Fahrenheit or Celsius scales. Resolves to .01°. Measures liquid or gas. Low battery indicator. Range: −58° to +302° F, −50° to +150°C. Inexpen. 9V battery lasts 120 hrs. continuous use. Size: 8.75x5x2.8cm. (3½x2x 1⅛"). Cable length 1.2m(4'). Wt.: 2.25 kg. (5 oz.)
62F2670. NET 95.00

THERMOCOUPLE TEMPERATURE PROBE

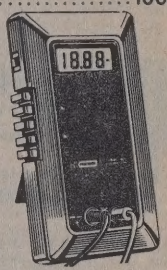
MODEL TP-30. Measure temperature of liquids, solids, gases from −328° to +900° F with almost any digital or analog voltmeter. Farenheit or Celcius switch selectable. Sensor: K type thermocouple. Meter must have minimum 12K ohm input inpedance. Celcius range: −200° to +428°. Resolution: 0.1° with adequate voltmeter range. Sensor is switchable to other standard sensor types. **81F201** NET 95.00

3½ DIGIT 5 FUNCTION DMM



- 200 mV AC/DC voltage ranges
- 10 Amp AC/DC current ranges
- High Energy Fuse Protection
- LCD Readout

Model 2805. AC/DC Voltage 1,000V. Input Impedance 10MΩ (ac and dc). AC and DC Current Ranges: DC: 200μA, 2, 20, 200mA. AC 1000mA, 10A. Resistance Ranges 200 ohms, 2, 20, 200, 2000 k ohms. All ranges protected against direct connection to an AC line. Accuracy. DC Volts ±0.8% of reading ±.2% of full scale ±1 LSD. AC Volts ±1% of reading ±.5% of f.s., ±2LSD. DC Current: ±1.5% of reading, ±1LSD, AC Current ±3% of reading ±2 LSD. Test Leads carrying case, operation manual and spare fuse included. **81FX005. NET** **100.00**



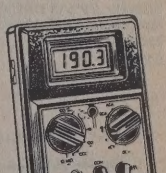
- **3½ digit full-function DMM**
- **Metal oxide varistors and a fuse overload protection.**
- **Computer stabilized readings display.**
- **Hermetically sealed reed relays.**
- **Complies with U.L. 1244 safety standards.**

Model 2845. Designed around 4-bit microcomputer. Input signal converted to scaled DC voltage; and A/D converted and stored in RAM. Microcomputer stores data and selects range to give max. display resolution. Program memory capacity is 1024 x 8 bits of ROM, with 48 x 4 bits of RAM. Program includes autoskip for max. resolution in min. time. **DC Voltage.** Ranges: ±1V, 10V, 100V, 1000V. Input Impedance: 10 MΩ. Circuit Protection: 1000 VDC or DC+AC peak. Overrange (full scale): 100% all ranges, limited ±1000 VDC or DC+AC peak. **AC Voltage.** Ranges, Input Impedance, and Circuit Protection: same as DC. Overrange: 100% all ranges except 1000V, limited 750 RMS. **Resistance.** Ranges: 1KΩ, 10KΩ, 100KΩ, 10MΩ, automatic selection and display. Circuit Protection: +1000V, to −450 VDC or 300 VAC all ranges. Overrange: 100% all ranges. Polarity: Red jack positive all ranges. **Accuracy.** Basic DC: ±0.1%, ±1 LSD all ranges. DC Current: ±0.75, ±1 LSD. AC Current: ±1%, ±3 LSD, 50 Hz to 1 kHz; ±2.5% ±3 LSD to 5 kHz. Resistance: ±0.3%, ±1 LSD, on 1kΩ thru 1000kΩ ranges; ±0.6%, ±1 LSD on 10 MΩ range. Readout 3½-digits, 0.5" LCD; with kΩ, MΩ, polarity and low battery indicators. 0° C to 55 C temp. range. 7 x 3¾ x 1⅞. 1 lb. Requires 9V battery (NEDA 1604 or equiv.).
61FX060. NET 175.00

BE-16. Battery Eliminator. Permits operation from 120VAC.
60F2763. NET 25.00

LC-45. Carrying Case. For field use or storage. Test leads provision.
60F2764. NET 20.50

3½ DIGIT LCD. .1% DC ACCURACY



Model 2815. 0.1% accurate. Accurate in rf fields. Protects to +1000VDC, −450VDC or 350VAC. 3½ digits 0.5" LCD. Temp. range; 0 to 55° C; −40 to 60° C. 2.5 sec. read rate. Incl. 2 test leads, oper. manual, 2 fuses. Low battery indicator. Overrange; 100% to 1999 (1000 VDC or AC peak), or 750 VAC max. Diode and fuse current protection, all ranges. Requires 9 V battery or equivalent. 6.1 x 4.2 x 1.6" (less knob). 1 lb. Battery not included.
61FX061. NET 165.00

BE-15. Battery Eliminator.
60F2761. NET **22.00**

LC-25. Carrying Case.
60F2762. NET **10.50**

ACCESSORIES FOR 2800 2810

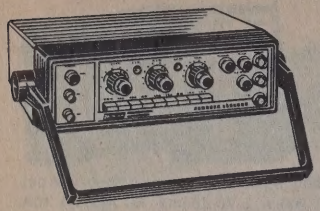
BP-28. Battery Pack. 4 "C" size N. Cads.
59F906. NET **34.00**

BC-28. 115 V. Adapter/Battery charger.
62F549. NET **13.00**

LC-28. Carrying case.
62F548. NET **12.00**

19

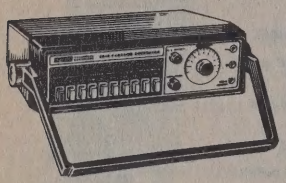
Function Generators



5MHz PULSE GENERATOR

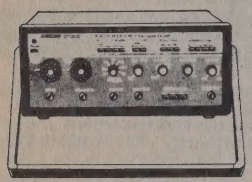
- **5MHz to 1Hz range**
- **CSA listed**
- **600Ω, TTL output**
- **Pulse-burst capability**

Model 3300. Oscilliscope sweep delay; test counter; shift register; IC tester of TTL, MOS, CMOS, HiLIN, HTL, RTL, & ECL. Transient and step response, opto-electronic devices; one pulse circuit activator; digital analyzer. Indep. drive and microprocessor applications. 15nsec rise time, 50Ω high speed output. 105-130VAC, 60Hz 28W. 8.1x29x20cm.
60F2699. NET 375.00



LOW DISTORTION FUNCTION GENERATOR

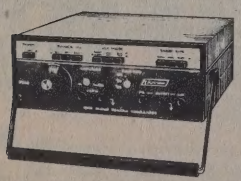
Model 3010. Frequency. Range: 0.1 to 1 MHz in six ranges. (Each range provides >100:1 frequency control, by dial or external. Accuracy: 5% of full scale. Stability: 5% (after 15 minutes.). Functions: Sine, Triangle, Square, TTL Square Wave. Square Wave: Variable amplitude or fixed TTL output. Symmetry: 99% to 100 kHz. Rise/Fall Time: <100 ns at maximum output. TTL square-wave response: <25 ns rise/fall time (0<.4 V: 1>2.4 V). Sine-Wave: Variable amplitude. Distortion: <1% 0.1 Hz to 100 kHz, <0.5% typical. **Output.** Amplitude: 20 V p-p open circuit 10 V p-p into 600 ohms. Control: Continuously variable, max. of ±10 V open circuit or ±5 V into 600 ohms (Max VAC + VDC offset without clipping is ±10 V open circuit, or ±5 V into 600 ohms). General Power: 105-130 VAC, 60 Hz, 8. Size: 8.1 x 29 x 20 cm. (3.2 x 11.3 x 7.8″) Wt: 1.3 kg. (2.9 lbs.).
55F4900. NET 220.00



LAB SWEEP/FUNCTION GENERATOR

- **.001Hz to 5MHz**
- **Log/linear Sweep**
- **Variable Symmetry**
- **Calibrated 10db to 60db attenuation**

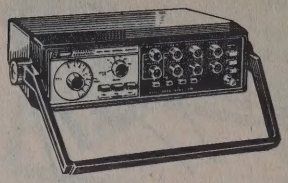
Model 3030. Generates Sine, Square, Triangle sweep ramp, Sweep pulse, TTL Pulse, DC. Modes: Continuous, linear sweep, logarithmic sweep, tone burst, single cycle. Output amplitude 20vp-p into open circuit, 10Vp-p into 50 ohm. 50 ohm input impedance, amplitude stability .25% of setting Frequency Stability .25% of setting. Since wave distortion LO.5% from 1 Hz to 100KHz all harmonics>30db down from 100KHz to 5MHz. Test Analog, digital and audio circuitry.
81F204. NET 645.00



COMPACT SWEEP/ FUNCTION GENERATOR

- **Sine, Square, Triangle Output**
- **2Hz to 200KHz Range**
- **Internal Lin/Log Sweep**

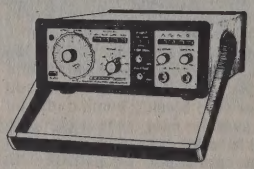
Model 3015. Low cost generator for amplifier and audio frequency response tests, analog and digital signal substitution. Ultra compact it boasts the following specifications: Square wave symmetry >99% to 100KHz, Sine Wave Distortion: <1% 2Hz to 20KHz, Triangle Wave linearity: >99% to 100KHz. Internal Sweep 1000: 1 linear; 10,000:1 Log. Sweep rate: selectable: Slow-25s; Medium 250 ms; Fast 2.5ms. Output 15vp-p open circuit; 7.5vp-p-600 ohms.
81F206. NET 270.00



SWEEP/FUNCTION GENERATOR

- **CSA Listed**
- **±5% Accuracy**
- **.05% Stability**
- **<0.5% Typical Distortion**

Model 3020. Frequency Range: .02 Hz to 2 MHz in 7 ranges. Functions: Sine, Triangle, Square, TTL Square Wave, Pulse, Tone Burst. Square Wave: Variable amplitude and fixed TTL output. Symmetry: 99% to 100 kHz. Rise/Fall Time: <100 ns at max. output. TTL Square Wave Response: <25 ns rise/fall time (logic 0 <0.4; logic 1 >2.4 V.). Sine Wave: Variable amplitude. Amplitude Flatness: Better than ±0.3 dB to 2 MHz at max. output. Triangle Wave: Variable amplitude. Linearity: 99% at 100 kHz. Variable Symmetry: 40:1 range, independent of frequency or output waveform. AM Modulation: 0-1.5 V p-p external signal provides 100% modulation; continuously variable. Capable of suppressed carrier operation. SWEEP: Internal: Linear or log. Rate: 0.5 Hz (2 SEC period) to 50 Hz (20 ms period). Width: Variable from 10:1 to 1000:1. Voltage Output: Proportional to sweep; at rear GCV connector. External Sweep: Rear panel VCO input provided. OUTPUT Amplitude: 20 V p-p open circuit; 10 V p-p into 50Ω. Control: Continuously variable, >20 dB. Fixed attenuation, 0-40 dB in 3 steps. This, together with 30 dB variable, provides 60 dB total attenuation. Impedance: 50Ω ±5%. D.C. Offset: Variable, ±0 max. of ±10 V open circuit or ±5 V into 50Ω. (Max. AC peak + VDC offset without clipping is ±20 V open circuit; ±10 V into Ω). GENERAL Power: 105-130 VAC, 60 Hz, 22 W. Three-wire cord. Size (H x W x D: 8.1 x 29 x 20 cm (3.2 x 11.3 x 5″) incl. handle. Weight: 1.35 kg. (3.1 lbs.) CSA listed.
55F4901. NET 379.00

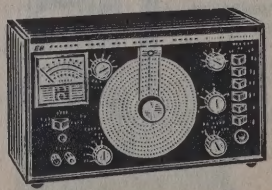


5-MODE FUNCTION GENERATOR

- **.005Hz to 5MHz**
- **High and low Amp Outputs**
- **Variable DC offset**

Model 3025. Since, square, triangle, haversine waveforms, Modes: continuous, logarithmic and linear sweep, tone burst, single cycle. Amplitude and Frequency stability: .25% of setting. Output amplitude 20vp-p into open circuit. 10vp-p into 50 ohms. 50 ohm output impedance. Sine wave distortion <0.5% 1Hz to 100KHz, all harmonics 30db down from 100KHz to 5MHz. Square wave rise/fall time <50ns Square wave symmetry: 99% from 1Hz to 5MHz. Uses: test compression amps, speakers, digital, analog circuitry.
81F205. NET 450.00

MODEL E200D RF GENERATOR



Calibrated meter monitors RF level and % modulation. Wide-range coverage from 100 KHz to 216 MHz in 5 bands. Completely shielded RF output with continuously variable monitored attenuation calibrated to less than 1 microvolt (on fundamentals to 54 MHz). Built-in crystal calibration for assured frequency accuracy. Easy-setting, 2-color 5″ vernier dial with anti-backlash 12:1 gear ratio. Accuracy ±1.5%. Output: 100,000 microvolts maximum. Four outputs: Unmodulated RF; modulated RF (400Hz); externally modulated RF; 400 Hz audio signal. FM and TV channels identified on dial. 3-wire grounded AC line cord. Attenuator system: 6 individually shielded step attenuators with a total capability of −96 dB. Outputs as low as 106 dB below 100,000 microvolts can be obtained with fine output level control and calibrated meter, which provides additional −10 dB to +dB output level indication (0 dB = 100,000 microvolts into 50 ohms). Shipping Weight: 10 lbs.
63F066. NET 389.00

Precision Test Equipment

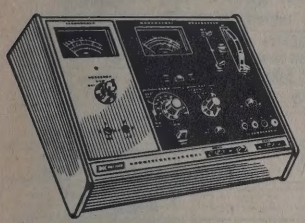
B&K PRECISION DYNASCAN CORPORATION

PORTABLE AUTORANGING DIGITAL CAPACITANCE METER

Model 830. Measure capacitors, all types. Verify tolerances. Measure cable capacitance. Match for critical circuits. Sample for quality assurance. Measure series-parallel networks. Set trimmers to specific capacitance. Checks excessive capacitance. Accuracy exceeds most capacitor tolerances. No range switching. Range hold capability. Zero control for leads. Fuse protected. 10 ranges, full scale 199.9pF to 199.9mF (reads 0.1pF to 0.2F, resolution 0.1pF). .2% ±0.5pF, ±1 digit to 19.99μF, ±1% 1 digit, 20μF to 199.9mF accuracy. Hold accuracy same, except, ±0.1% to 19.99mF, 0.5% over 19.99mF. .04 to 1 sec reading time to .2mF, 6 sec at 200nF. Lead capacitance overcompensation and overrange indicators. 3½ LCD. Temp. range 15 to 35°C. Req. 4 C cells or AC adapter, not incl. 16x11x6 cm. 725 g.

60F2766. NET 229.00

MODEL 530 SEMICONDUCTOR TESTER



Transistor cut-off frequency measurement capability permits high-frequency evaluation of transistors. Audible tone indicates good device—no weak borderline indication. Measures ICES and IDSS Color coded switch indicates base lead to free hands to connect difficult-to-reach in-circuit transistors. Base diagrams not required. Automatic identification of PNP/NPN types and N or P channel FET. Measures transistor beta using two collector current ranges (low power beta 20-600, high-power beta 20-200). FT: three ranges (0-100 MHz, 0-500 MHz, 0-1500 MHz). Collector: 125 mA @ 4% duty cycle. Base: 250 mA @ 4% duty cycle (HI drive); 1 mA @ 4% duty cycle (LOW drive). Test repetition rate: 10 per second. Voltage for leakage test, Variable from 10-100 VDC. Power required, 105-125 VAC, 60 Hz, 10 watts. Size; 7 x 13 x 3½″. Weight, 5 lbs.

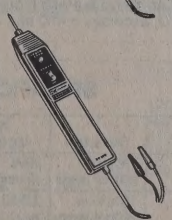
59F915. NET 455.00

50 MHz DIGITAL PROBE

Model DP-51. TTL, DTL, RTL, HTL, CSOM, MOS, HiNil compatible for analysing. Displays pulse presence, DC, logic states to 50MHz. Pulse memory. Pulse mode slows short pulses. detects to 10nsec. 2MΩ input impedance, Protected to ± 50V. 75 cm lead. 16.25×3.12×1.9 cm. 1.25 tip. 98 gram.

55F4903. NET 70.00

DIGITAL PULSER PROBE



Model DP-101. Multi-family. Generates single or 5Hz pulse or train. Senses logic state and changes to compliment. High current drive pulls shorted logic ouputs, high or low. Short duty pulse won't damage circuitry. Tip protected to 35V. Leads to 160VDC and 117VAC. Requires 5 to 15 volts (1 mA @ 5VDC; 20 mA @ 117VAC.)

60F2765. NET 100.00

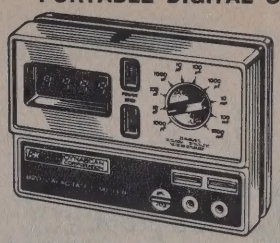
SA-1010 SIGNATURE ANALYZER

- 20MHz Operating Speed
- 10ns Set-up time
- TTL, CMOS, MOS Compatible

Model SA1010. Makes trouble-shooting of advanced digital and microprocessor based circuitry simple. Unstable signature hold, signature hold, a 1MHz clock output and self test allow quick and accurate diagnosis of complex digital faults. The SA1010 uses the standard four digit modified hexidecimal readout and can be used in circuits designed for other signature-analyzers. TTL/CMOS control pod and data probes included.

81F9004. NET 825.00

PORTABLE DIGITAL CAPACITANCE METER



Model 820. CAPACITANCE Range: 10 selectable ranges with full scale value from 999.9 picofarads to 999.9 millifarads (reads from 0.1 pF to 999.9 millifarads). Accuracy: 0.5% of full scale, ±1 digit to 100 μF; 1% of full scale, ±1 digit from 1 millifarad to 1 Farad. Resolution: 0.1 pF. Reading Time: 0.3 SEC up to 1000μF increasing to 35 SEC max. at 1 Farad. Overrange Indicator: (All Ranges) All bottom segments of the digits are "ON" when the capacitor value exceeds the value of the range selected. GENERAL Display: 4 digits LED display. Front Panel Controls: 10-position range switch, zero adjust, ON-OFF switch. Power Source: 4 standard "C" size cells operating from 4-6 volts, nicad, alkaline or zinc carbon, with provision for charger. (Note: batteries and charger are not supplied. Battery Life: 8 hours minimum. Operating Temperature: 0°C to 50°C (32° to 100°F). Dimiension: 16 x 11 x 6 cm (6.4 x 4.4 x 2⅜″). Weight: 675 g. (1.51 lbs.) with batteries. Includes: Manual, spare fuse.

55F4902. NET 185.00

MODEL 520B INDUSTRIAL TRANSISTOR TESTER

Identifies all three transistor leads. Automatic NPN/PNP determination. Positive Si/Ge identification. Tests SCR's FET's, and Darlingtons. Audible "beep" signals a good transistor. LED lamps identify NPN or PNP devices and Ge or Si types. Meter scales; readable from 0.1μA to 5mA for ICE leakage. Applied test currents: Collector: 250 mA at 5% duty cycle. Base: 125 mA at 5% duty cycle. 10 per second test repetition rate. 2.0 V leakage test reverse voltage. Shunt resistance 10 ohms and shunt capacitances up to 15μF. Accessories: Color coded test leads with Mini Lock clips; detailed instruction manual; optional FP-5 Dynaflex three lead, one hand probe for easy in circuit testing available. Power: 105-125 VAC, 50-60 Hz. 8″H x 7″W x 3.5″D. 5 lb.

62F553. NET 239.00

Model 510. Portable Transistor Tester, batteries not incl.

59F901. NET 135.00

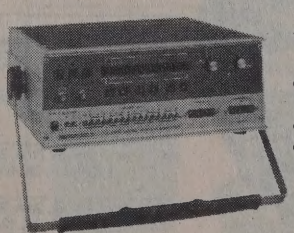
TEST PROBES

Model FP-5. Dyno-Flex 3 Point-Probe

62F567. NET 24.50

Model PR-23. RF Detector/Demodulator Probe. Usable with any electronic voltmeter or oscilloscope models 1403, 1431, 1440, 1460, 1465, 1470 and 1472. Typical freq. res. ±2 db 15kHz to 125 MHz. Within 6dB at 250 MHz.

62F531. NET 23.00



16 CHANNEL LOGIC ANALYZER

- DC to 20 MHz Synchronous Operation
- 1 Hz to 10 MHz Asynchronous
- TTL, MOS or CMOS Compatible

Model LA1020 12 digit LED display of state data in hex, octal, binary, decimal, 16 channel timing diagram can be displayed on most oscilloscope 16 bit x 250-word memory. Clock and event delays programmable from 0-999. Trigger word position 0-249. Test and evaluate: counters, decorders, flip-flops, gates 1/0 devices, verify computer computer programs.

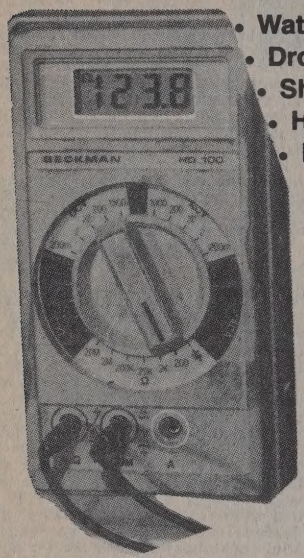
81F9003. NET 2075.00

Model LA1025 Similar to LA1020 but with signature analysis capability. Designate **81F9009** or **81F9007** probes when ordering. (2 probes supplied with each unit) 2475.00

81F9003—16 channel qualifier expander probe available..... 495.00

BECKMAN Digital Multimeters

HD-100 SERIES HARDHAT METERS



- Waterproof
- Drop-proof
- Shockproof
- High Visibility
- Recessed Switch

MODEL HD100 AND HD110

Hardhat series designed for accuracy-precision and reliability under most adverse environments, built for punishment from elements. Completely waterproof, in tough thermoplastic fire-retardant case, locks out dirt, grime and grease. High visibility color of international yellow helps prevent accidental loss. Has recessed rotary switch to prevent damage in transport. The 3½ digit LCD is shock mounted to reduce breakage. All DC voltage ranges are protected for 1500 Vdc or 100 Vrms. Current ranges are protected to 2A/600 V. Resistance ranges to 600 Vdc. 2 Amp/600 V fuse protection in all current ranges. Battery provides up to 2000 hours of continuous operation with blinking decimal warning when battery life is down to 200 hours.

61FX788 HD-100 NET 169.00
61FX019 HD-110 NET 189.00

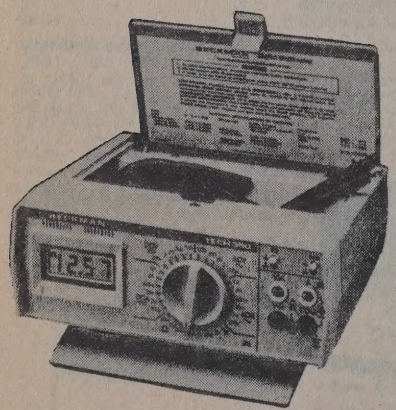
See Following Page For Accessory Listing

SPECIFICATIONS

	Ranges	Resolution	Input Impedence	Overload Protection
DC Voltage	±200mV, 2V, 20V, 200V, 1500V	100µV on 200mV range	22MΩ all ranges	1500 Vdc or peak ac, any range
AC Voltage	200mV, 2V, 20V, 200V, 1000V	100µV on 200mV range	2.2MΩ shunted by < 75pF	1000 Vrms/1500V peak ac or 250Vdc
Resistance	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ	0.1Ω on 200Ω range	.....	600Vdc or rms ac on any range
Diode Test	200µA, 2mA, 20mA 200mA, 2A	1mV	.....	600Vdc or rms ac on any range
DC Current	200µA, 2mA, 20mA, 200mA, 2A	100nA on 200µa range	.....	2 amps/250V (fused)
AC Current	200µA, 2mA, 20mA, 200mA, 2A	100nA on 200µA range	.....	2 amps/250V (fused)

Operating temperature is 0°C to +50°C.

MODELS 350 AND 360 BENCH/PORTABLE MULTIMETERS



Versatile 1/100 Ohm resolution check PC board circuits, locate shorted turns on secondary windings in transformers, measure resistance in wire, etc. Built to withstand voltage transients up to 6 kV for 10 µ seconds. Resistance ranges protected to 440 Vdc/Vrms. Safety test leads ensure maximum protection of shock hazards. 12000 hour continuous battery life. (Complete with 6 "D" size batteries.) Special designed tilt bail provides two viewing angles of high contrast LCD. Convenient storage compartment inside of case for test leads, fuses and accessories.

61FX786 Model 350 NET 229.00

Model 360. Same as above but with 5 calibration adjustments, temp range of −20°C to +1265°C, accuracy ±4°C and ±3% rdg. True RMS (ac + dc).

61FX787 NET 289.00

SPECIFICATIONS

	Ranges	Resolution	Input Impedance	Overload Protection
DC Voltage	±200mV, 2V, 20V, 200V, 1500V	100µV on 200mV range	22MΩ, all ranges	1500 Vdc or peak ac, any range 6kV trans., 10µ sec.
AC Voltage	200mV, 2V, 20V, 200V, 1000V	100µV on 200mV range	2.2MΩ shunted by < 100pF	TECH 350: 1000 Vrms/1500 Vpeak ac or 600Vdc TECH 360: 1000Vrms/1500 V peak ac or ac&dc: 1000V max. ac&dc RMS
DC Current	200µA, 2mA, 20mA, 200mA, 2A, 10A	100nA on 200µA range	.....	A Input: 2 Amps/250V in series w/3A/600V 10A Input: 10 Amps contin. up to 20 Amps for 15 sec. *(unfused)
AC Current	200µA, 2mA, 20mA, 200mA, 2A, 10A	100nA on 200µA range	.....	2A Input: (same as DC current A Input) 10A Input: (same as DC current 10A Input)
Resistance	20Ω, 200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ	0.1Ω on 20Ω range	.....	440 Vdc or rms ac any range
Diode Test	0 to 1V	1mV	.....	440 Vdc or rms

Call your Newark representative for accuracy and other specifications.

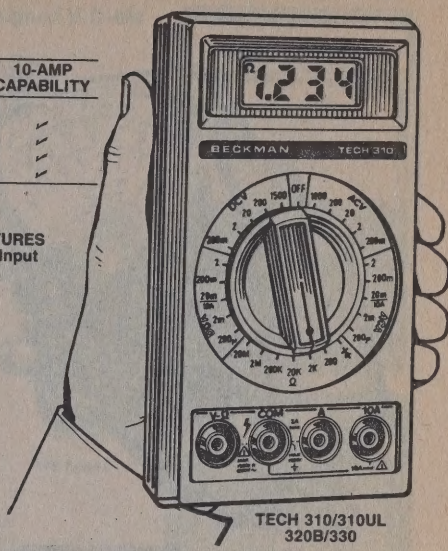
ACCESSORIES

62F2944	HV-211	D.C. Hi-Voltage Probe	NET 40.00	76F1004	DL-243	Deluxe Test Lead Kit	NET 12.00
62F2948	RF-221	RF Probe	NET 35.00	76F1003	TL-245	Spare Test Lead	NET 6.00
62F2945	CT-231	AC Current Clamp ±3%	NET 59.00	76F1002	TP-254	Thermocouple Temp. Probe	NET 49.00
62F2947	CT232	AC Current Clamp ±1%	NET 169.00	76F1001	TP-255	Thermocouple Wire	NET 10.00
81F2391	DC-206	Deluxe In-use Case	NET 35.00				

Digital Multimeters BECKMAN

Choose the Model to Fit Your Needs

	MODEL	BASIC DC ACCURACY	INSTA-OHMS®	10-AMP CAPABILITY
Full Six Function DMM	TECH 300	0.5%		
Added Features DMM	TECH 310	0.25%	✓	✓
UL Listed[UL]	TECH 310UL	0.25%	✓	✓
High Accuracy and Audible Continuity Beeper	TECH 320B	0.1%	✓	✓
High Accuracy and True RMS (AC + DC)	TECH 330	0.1%	✓	✓



TECH 310/310UL
320B/330

SERIES 300: TECH 300; TECH 310; TECH 330

Designed to last during heavy duty use. Will even take a six foot fall and continue to operate. Recessed display and single rotary switch prevents damaging in most situations. Water resistant case guards against water, dirt, and fluids that are detrimental to multimeters. Designed test leads protect the operator from accidental shocks. DC resistances are higher than most digital or analog meters. Voltage ranges are protected against transients up to 6kV. 2 amp current input is protected by an easy to replace fuse. Overall 10A current is protected for at least 30 seconds at up to 20A. All models feature Autodecmal, Autozero, and Autopolarity. Decimal point blinks during the last 200 hours. In-circuit diode/transistor test function allows accurate measurement of forward voltage drops across diode and transistor junctions with 5mA test current. Semiconductors can also be measured while in circuit with as little as 200Ω shunt. In-circuit resistance measurements in low-power ohm allows accurate measurement of resistors but not common diodes and transistors.

GENERAL FEATURES

- 22 Megaohm Input Resistance.
- 1500V Overload & 6kV Transient Protection.
- Safety Designed Leads.
- 2000 Hour Battery Life.

SPECIFICATIONS

DC Voltage

Model	TECH 300 TECH 310	TECH 310UL	TECH 320B TECH 330
Ranges	±200mV,2V,20V,200V,1500V	±200mV,2V,20V,200V,750V	±200mV,2V,20V,200V,1500V
Resolution	100µV on 200mV range		
Accuracy	.05% rdg. ± 1 digit	0.25% rdg. ± 1 digit	0.1% rdg. ± 1 digit
Input Impedance	22MΩ all ranges		
Normal Mode Rejection	>60 dB above 49HZ		
Common Mode Rejection	>140dB up to 1500Vdc	>140 dB up to 750 Vdc	>140 dB up to 1500 Vdc
Response Time	Less than 1 second		
Overvoltage Protection	1500Vdc or peak ac, any range	750Vdc or peak ac, any range	1500Vdc or peak ac, any range

AC Voltage

Model	TECH 300 TECH 310	TECH 310UL	TECH 320B TECH 330
Ranges	200mV,2V,20V,200V,1000V	200mV,2V,20V, 200mV,500V	200mV,2V,20V,200V,1000V
Resolution	100µV on 200mV range		
Accuracy			
45Hz-2kHz	1.5% rdg. ± 4 digits	0.75% rdg. ± 3 digits	0.6% rdg. ± 3 digits	0.6% rdg. ± 4 digits
2kHz-5kHz	2.0% rdg. ± 5 digits	1.5% rdg. ± 5 digits	1% rdg. ± 5 digits	1% rdg. ± 5 digits
5kHz10kHz	3.0% rdg. ± 9 digits	2.5% rdg. ± 9 digits	2.0% rdg. ± 9 digits	1.5% rdg. ± 6 digits
10kHz-20kHz	Not specified	Not specified	Not specified	2% rdg. ± 8 digits
Conversion Type	Average sensing--RMS calibrated sine wave			True RMS (ac + dc)
Input Impedance	2.2MΩ shunted by >75pF			
Response Time	Less than 2 seconds (on TECH 330, above 10% of full scale)			
Overvoltage Protection	1000Vrms/1500V peak or 250Vdc (5 sec. max. above 450Vrms, 200mV range)	500Vrms/750V peak or 250Vdc (5 sec. max. above 225Vrms, 220mV range)	1000Vrms/1500V peak or 250Vdc (5 sec. max. above 450Vrms,200mV range)	
Crest Factor*	Not applicable			1:1 to 5:1

DC Current

Model	TECH 300	TECH 310 TECH 310UL	TECH 320B TECH 330
Ranges	200µA,2mA,20mA,200mA,2A	200µA,2mA,20mA,200mA,2A,10A	
Resolution	100µA on 200µA range		
Accuracy			
200µA to 2A Ranges	1.0% rdg. ± 1 digit	0.75% rdg. ± 1 digit	0.35% rdg. ± 1 digit
10A Range	Not available	1.5% rdg. ± 1 digit	1.0% rdg. ± 1 digit
Response Time	Less than 1 second		
Voltage Burden	200A to 200mA ranges: 250mV maximum at full scale 2A to 10A ranges: 700mV maximum at full scale		
Overcurrent Protection (A input)	2 Amps/600V (Fused)		
Overcurrent Protection (10A input)	Up to 20 Amps for 30 seconds (Unfused)		

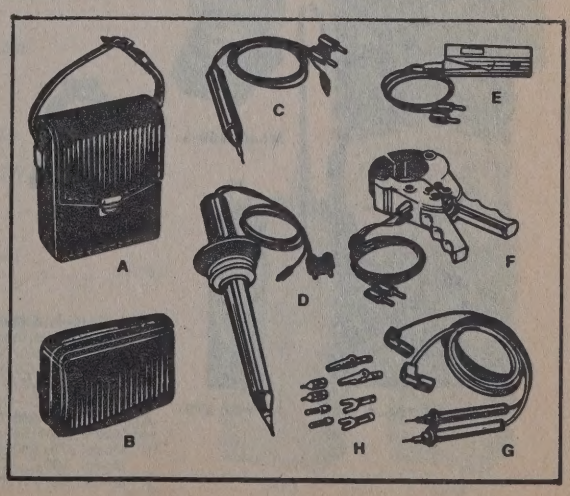
AC Current

Model	TECH 300	TECH 310 TECH 310UL	TECH 320B TECH 330
Ranges	200µA,2mA,20mA, 200mA,2A	200µA,2mA,20mA,200mA,2A,10A	
Resolution	100µA on 200µA range		
Accuracy			
45Hz-2kHz (except 10A)	2.0% rdg. ± 4 digits	1.5% rdg. ± 3 digits	0.9% rdg. ± 3 digits
2kHz-5kHz (except 2A and 10A ranges)		Not specified	1.5% rdg. ± 3 digits
45hZ-400hZ (10A range)	Not available	2.0% rdg. ± 3 digits	1.5% rdg. ± 3 digits
Conversion Type	Average sensing		True RMS (ac + dc)
Response Time	Less than 2 seconds (on TECH 330, above 10% of full scale)		
Voltage Buren	200µA to 200mA ranges: 250mV maximum at full scale. 2A to 10A ranges: 700mV maximum at full scale		
Overcurrent Protection (A input)	2 Amps/600V (Fused)		
Overcurrent Protection (10A Input)	Not available	Up to 20 Amps for 30 seconds (Unfused)	

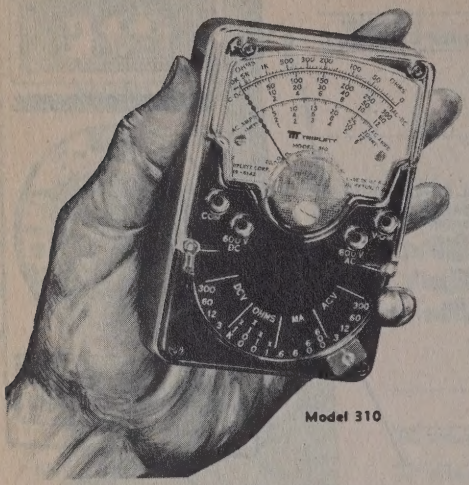
61FX 050 TECH 300. NET 120.00
61FX 051 TECH 310. NET 145.00
61FX 052 TECH 330. NET 219.00
81FX 017 TECH 320B. NET 189.00
81FX 018 TECH 310UL. NET 155.00

ACCESSORIES

A. Deluxe Case. DC-205. Leather grained vinyl case with adj. strap.
62F 2942 NET 24.00
B. VINYL CASE. VC-201. Padded, fabric lined vinyl. Zipper closed. Belt loop.
62F 2943 NET 10.00
C. AC CURRENT CLAMP. CT-232. Extends measureability to 1000A without breaking circuit.
62F 2947 NET 169.00
D. DELUXE TEST LEAD KIT. DL-241. Complete assortment of test lead and screw-in probe tips.
62F 2946 NET 12.00
E. RF PROBE. RF-221. Extends measureability to 200MHz. Overload protected to 130Vrms.
62F 2948 NET 35.00
F. HIGH VOLTAGE PROBE. HV-211. Extends measureability to 50kV for DC.
62F 2944 NET 40.00
G. AC CURRENT CLAMP. CT-231. Extends measureability to 150A from 10A for AC.
62F 2945 NET 59.00
H. TEST LEAD SET. TL-242. Made of fire retardant ABS plastic. Protected from shock.
62F 2949 NET 6.00



TRIPLETT® Hand Size Test Instruments



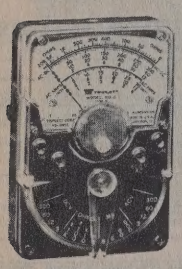
Model 310

MODEL 310 V-O-M TYPE 4

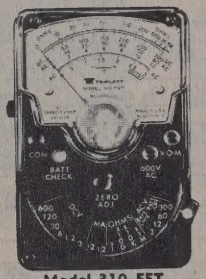
1. Drop-resistant, hand-size V-O-M w/high-impact thermoplastic case.
2. 20,000 Ohms per volt DC and 5,000 Ohms per volt AC; diode overload protection with fused Rx1 Ohms range.
3. Single range switch; direct reading AC Amp range to facilitate clamp-on AC Ammeter usage.

RANGES

DC Volts: 0-3-12-60-300-600 (20,000 Ohms per Volt).
AC Volts: 0-3-12-60-300-600 (5,000 Ohms per Volt).
Ohms: 0-20k-200k-2MΩ-20MΩ (200 Ohm center scale on low range).
DC Microamperes: 0-600 at 250 mV.
DC Milliamperes: 0-6-60-600 at 250 mV.
Accuracy: ±3% DC; ±4% AC; (full scale).
Scale Length: 2⅛".
Meter: Self-shielded; diode overload protected; spring backed jewels.
Case: Molded, black, high impact thermoplastic with slide latch cover for access to batteries and fuse. 2¾"w. x 1 5/16"d. x 4¼"h.
Batteries: NEDA 15V 220 (1), 1½V 910F (1): Complete with 42" leads, alligator clips, batteries and instruction manual. Shpg. wt. 2 lbs.
62FX230 ..... 70.00



Model 310-C



Model 310-FET

MODEL 310-T V-O-M

Model 310-T—Similar to Model 310 with −50° F to +150° F and +50° to +300° F temperature ranges and curve matched thermistor temperature probe.
62FX293 ..... 107.00

MODEL 310-C V-O-M TYPE 5

1. Hand-size V-O-M w/diode overload-protected suspension movement.
2. 20,000 Ohms per volt DC and 15,000 Ohms per volt AC.
3. Single, enclosed range switch minimizes error; DC polarity-reversing switch.

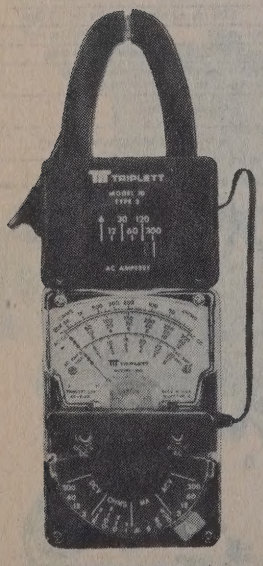
Model 310-C. Similar to Model 310 with diode overload-protected suspension movement, 15,000 ohms per volt AC, enclosed range switch and DC polarity-reversing switch. Maximum AC/DC voltage range 600 volts.
62FX292 ..... 95.00

MODEL 310-FET TYPE 2

1. Hand-size FET V-O-M with 10 megohm DC input resistance and diode overload-protected suspension movement.
2. Low voltage range of 300 mV DC; X1 megohm range.
3. Single range switch; DC polarity-reversing switch.

RANGES

DC Volts: 0-0.3-1.2-6-30-120-600. Input resistance 10 megohms.
AC Volts: 0-3-12-60-300-600 (5,000 Ohms per Volt).
Ohms: 0-5k-500k-50MΩ-5,000MΩ (50 Ohm center scale on low range).
DC Milliamperes: 0-0.12-1.2 at 300 mV.
Accuracy: ±3% DC; ±4% AC; (full scale). Scale Length: 2⅛".
Meter: Self-shielded diode overload protected suspension movement; DC polarity-reversing switch.
Case: Molded, black, 2¾"w x 1 5/16"d x 4¼"h.
Batteries: NEDA 7V, 1501M, (1), 1½V 910A (1). Complete with 42" leads, alligator clips, batteries and instruction manual. Shpg. wt. 2 lbs. Battery life 150 hours.
62FX250 ..... 127.00

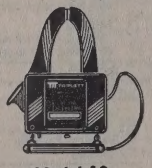


Model 100-T

Model 369

Model 369-S

Model 379



Model 10

Model 101

ACCESSORIES FOR 310's

Model 10 Clamp-on AC Ammeter—For 310, 310-T and 310-F. Ranges, 0-6-12-30-60-120-300. **62F235** 34.70
Model 10-C Clamp-on AC Ammeter—For 310-C. Ranges, 0-6-12-30-60-120-300. **62F251** 34.70
Model 101 Line Separator—Divides two conductor cords direct or increases Model 10 sensitivity 10x and 20x. **62F238** 13.70
Model 311 Lead—42" long lead to separate Model 10 from 310 unit for easy reading in awkward spots. **62F045** 6.80
Model 369 Carrying Case—For Model 310's. **62F231** 8.50
Model 369-S Carrying Case—For Model 310's; front opens permitting use of tester in case. **62F046** 19.90
Model 379 Carrying Case—Form Model 310 and Model 10 in combination, plus Model 101 and leads. **62F239** 16.20
Model 79-153 Needle Tip Replacement Lead—For Model 310 series. **62F246** 6.80
Model 79-296 Blunt Tip Replacement Lead—For Model 310 series. **62F1316** 10.70
Model 79-386 Thermistor Temperature Probe—For Model 310T. **62F2650** 25.10

HAND-SIZE V-O-M CLAMP-ON AMMETERS

1. Complete maintenance kit with V-O-M and clamp-on AC ammeter.
2. Diode overload-protected; 20,000 Ohms per volt on DC.
3. AC clamp-on will read up to 300 Amps AC.

Model 100—Complete set includes Model 310, Model 10, Model 101, No. 311 lead and Model 379 case. Shpg. Wt. 7 lbs. **62F249** 138.00
Model 100-C—Complete set includes Model 310-C, Model 10-C, Model 101, No. 311 lead and Model 379 case. Shpg. Wt. 7 lbs. **62F252** 166.00
Model 100-FET—Complete set includes Model 310-FET, Model 10, Model 101, No. 311 lead and Model 379 case. Shpg. Wt. 7 lbs. **62F1315** 198.00
Model 100-T—Complete set includes Model 310-T, Model 10, Model 101, No. 311 lead, temperature probe and Model 379 case. Shpg. Wt. 7 lbs. **62F2649** 178.00

Test Instruments

TRIPLETT®

X'TRA rugged, Overload protected, Safety designed V-O-Ms

MODEL 60 V-O-M TYPE 2

1. X'TRA Rugged—Will withstand an accidental drop up to a five foot height.
2. Overload Protected—All ranges protected by diode and unusual three fuse arrangement, including ⅛ amp, 1 amp and 2 amp/1000V fuses.
3. Safety Designed For You—Designed to most rigid safety standards; completely insulated unit including newly designed safety leads.

RANGES

DC Volts: 0-0.3-1-3-10-30-100-300-1000 (Approx. 20,000 Ohms per Volt).
AC Volts: 0-3-10-30-100-300-1000 (Approx. 5,000 Ohms per Volt).
Ohms: 0-1k-10k-100k-1MΩ-10MΩ (12 Ohms center scale on low range).
DC Microamperes: 0-100 at approx. 320mV.
DC Milliammeters: 0-10-100-1000 at approx. 320mV.
Decibels: −20 to +52.
Accuracy: ±2% DC; ±3% AC; (full scale).
Batteries: NEDA 9V 1604 (1), 1½V 13F(1).
Complete with 48" safety test leads, insulated alligator clips, batteries, spare ⅛A and 1A fuses and instruction manual. Shpg. Wt. 4 lbs.
62F170 Model 60 ..... 140.00

LEADS AND ACCESSORIES

79-374: Model 60 Series, Model 630/630-A type 4, safety test lead set 48". **62F2328** 7.40

79-261: Model 601 and 603 ground lead, black, 48". **62F253** 5.00

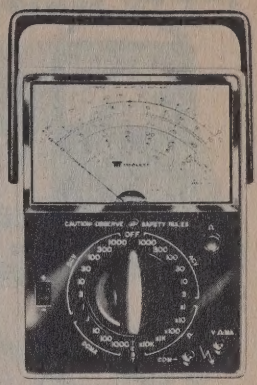
79-363: Model 603 red lead including probe, 48". **62F2329** 27.40

79-127: Model 630 Series (except type 4), 615 and 666-R test lead set, 48". **62F245** 6.80

79-417 Model 60 Series, Model 630/630-A type 4, lead for attaching Model 10/10-C Clamp-on Ammeter to V-O-M. **62F2332** 6.80

No. 611 Leads: Model 630 Series (except type 4), lead for attaching Model 10/10-C Clamp-on Ammeter to V-O-M. **62F236** 6.80

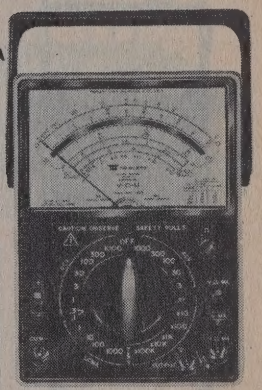
79-433 High Voltage Probe—6kVDC. **62F2651** 19.90
79-432 High Voltage Probe—6kVAC. **62F2652** 19.90



Model 60

Model 60 Type 2 Approved by MESA Approval 2G-2880

Model 60-K: Includes complete Model 60, Model 10, Model 101, Model 10 attachment lead and Model 639- A leather case. **62FX042.** 228.00
Model 60-A: Similar to Model 60 with mirror scale and ±1½% DC Accuracy. **62FX043** 151.00



Model 60-NA

MODEL 60-NA V-O-M TYPE 2

1. X'TRA Rugged—50 ranges with mirror scale and ±1½% DC accuracy—will withstand an accidental drop up to a five foot height.
2. Overload Protected.
3. Safety Designed For You.

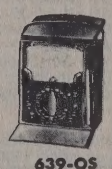
RANGES

DC Volts: 0-0.3-1-3-30-100-300-1000 (10,000 Ohms/Volt).
0-0. 15-0.5-1.5-5-15-50-150-500 (20,000 Ohms/Volt).
AC Volts: 0-3-30-100-300-1000 (5,000 Ohms/Volt).
0-1.5-15-50-150-500 (10,000 Ohms/Volt).
Ohms: 0-1k-10k-100k-1MΩ-10MΩ-100MΩ (6 Ohms center).
DC Microamperes: 0-50-100-500.
DC Milliamperes: 0-1-5-10-50-100-500-1000.
Decibels: −26 to +52.
Output Volts (AC):
0-3-30-100-300 (5,000 Ohms/Volt).
0-1.5-15-50-150 (10,000 Ohms/Volt).
Accuracy: ±1½% DC; ±3% AC; (full scale).
Frequency Compensated.
Batteries: NEDA 30V 210 (1), 1½V 13F (1).
Complete with 48" safety test leads, screw-on insulated alligator clips, batteries, spare ⅛A and 1A fuses and instruction manual. Shpg. Wt. 4 lbs.
62FX044—Model 60-NA 191.00

QUALITY LEATHER CASE

639-A

Model 639-A: For Model 60, 600, 630 Series, Flaps open to permit use of tester in case. Space for tester leads, Model 10 and Model 101. **62F041** 23.38

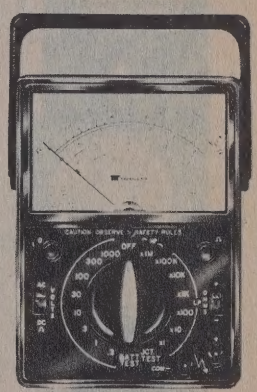


639-OS

Model 639-OS: For Model 600, 630 Series. Flaps open to permit use of tester in case. Space for tester, leads, Model 10 and Model 101. **62F2333** 29.30

639

Model 639: For 630 Series only. Top opens with space for leads. **62F213** 25.40



Model 64

MODEL 64 VOLT-OHMMETER

1. X'TRA Rugged/Overload Protected (all ranges)/Safety Designed solid state Volt-Ohmmeter.
2. Low-Power Ohms—LPΩ™—6 ranges with 90mV power source for in-circuit measurements plus junction test circuit.
3. Exclusive Triplett Micro Power—TMP™—permits continuous operation with carbon battery life in excess of a year.

RANGES

DC Volts: 0-0.3-1-3-10-30-100-300-1000. Input res. 11.12 MΩ.
AC Volts: 0-0.3-1-3-10-30-100-300-1000. Input imp. 10 MΩ. Frequency range 20Hz to 20kHz, except 300 and 1000V.
Ohms-Low Power: 0-1k-10k-100K 1MΩ-10MΩ-100MΩ. (Max. voltage 90mV, max. power 0.08mW, 10 Ohm center scale).
Ohms-Conventional: 1000MΩ. (Max. voltage 0.9V, max. power 0.08μW, 10M ohm center scale.)
Junction Test: checks diodes and transistor junctions (silicon-germanium-open or shorted); forward and reverse conduction. (Max. V. 0.9V, max. power 0.8mW.)
Decibels: −40dB to +62dB.
Accuracy: ±3% F.S., all ranges.
Batteries: NEDA 9V 1604 (2), 1½V 13F (1).
Complete with 48" safety test leads, insulated alligator clips, batteries, spare 1A fuse and instruction manual. Shpg. Wt. 4 lbs.
62FX294 Model 64 ..... 202.00

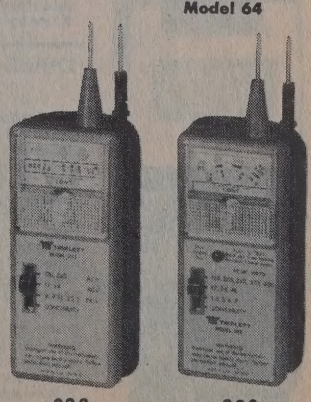
ELECTRICAL TESTERS

MODEL 202

AC volts: 12, 24, 120, 240.
DC volts: 1.5, 6, 9, 12, 22.5.
Ohms: 0-150,000.
Weight: 5 oz.
Battery: NEDA 1½V 15AA (2).
81F737 Model 202 ..... 19.50

MODEL 203

AC volts: 1.5-500.
DC volts: 1.5-500.
Ohms: 1-100,000.
Weight: 5 oz.
Battery: NEDA 1½V 15AA (2).
81F736 Model 203 ..... 24.50



202 203

ACCESSORIES

Model 10-2959: Padded vinyl case with shoulder strap. **81F738** 2.74

Model 79488: Replacement test lead with probe. **81F739** 1.85

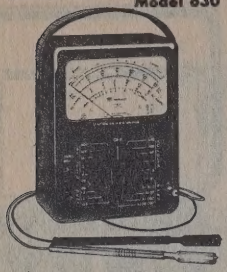
Model 79487: 3 ft. test lead for bench test set-ups. Pushes on either test probe, include 2 removable insulated alligator clips. **81F740** 2.75

Model 2567: Replacement probe. tip. **81F741** 0.18

19

TRIPLETT® Test Instruments

Model 630



MODEL 630/MODEL 630-A V-O-M TYPE 4

1. **OVERLOAD PROTECTED** — Protected by diode and two fuse arrangement, include 1 amp and 2 amp/600 V fuses.
2. **SAFETY DESIGN FOR YOU** — Completely insulated unit using newly designed safety leads.
3. Single range switch minimizes error; 5 ohmmeter ranges with 4.4 ohms center scale.

RANGES

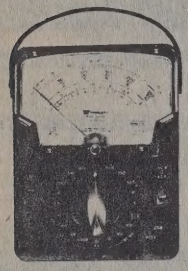
DC Volts: 0-0.3-3-12-60-300-600 (20,000 Ohms per Volt).
AC Volts: 0-3-12-60-300-600 (5,000 Ohms per Volt).
Ohms: 0-1k-10k-100k-1MV-100MV (4.4 Ohm center scale on low range).
DC Microamperes: 0-60 at 300mV.
DC Milliamperes: 0-1.2-12-120 at 250mV.
Decibels: –20 to +57.
Accuracy: ±2% DC; ±3% AC; (full scale).
Batteries: NEDA 30V 210 (1), 1½V 13F (1).
Complete with 48″ leads, alligator clips, batteries and instruction manual. Shpg. Wt. 5 lbs.
52F212 ..... 118.00

Model 630-A: Similar to Model 630 with mirror scale and ±1½% DC accuracy. **62F211** 128.00

ACCESSORIES

79-374: Replacement safety test lead set, 48″, Model 630/630-A type 4. **62F2328** 7.40
79-433: High Voltage Probe — 6kVDC, Model 630/630-A type 4. **62F2651** 19.90
79-432: High Voltage Probe — 6kVAC, Model 630/630-A type 4. **62F2652** 19.90

Model 630-PL



MODEL 630-PL/MODEL 630-PLK V-O-M SERIES

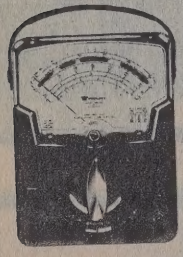
1. 28-range V-O-M with single range switch minimizes error; multi-fuse protection for entire unit.
2. 5″ suspension meter with diode overload protection.
3. 4 ohmmeter ranges with 4.4 Ohms center scale.

RANGES

DC Volts: 0-2.5-10-50-250-1,000 (20,000 Ohms per Volt); 0-0.25 at 100 MA.
AC Volts: 0-3-10-50-250-1,000 (5,000 Ohms per Volt).
Ohms: 0-1k-10k-1mV-100MV (4.4 Ohm center scale on low range).
DC Microamperes: 0-100 at 250mV.
DC Milliamperes: 0-10-100-1,000 at 250mV.
DC Amperes: 0-10 at 250mV.
Decibels: –20 + 49.
Output Volts (AC): 0-3-10-50-250 (5,000 Ohms per Volt).
Accuracy: ±2% DC; ±3% AC; (full scale).
Batteries: NEDA 30V 210 (1), 1½V 13F (1).
Complete with 48″ leads, screw on insulated alligator clips, batteries and instruction manual. Shpg. Wt. 5 lbs.
Model 630-PL. 62F241 ..... 126.00

Model 630-APL: Similar to Model 630-PL with mirror scale and ±1½% accuracy. **62F242** 139.00
Model 630-PLK: Similar to 630-PL with solid-tate switching circuit overload protection for burnout protection of entire tester. **62F1775** 184.00
Model 630-APLK: Similar to Model 630-PLK with mirror scale and ±1½% DC accuracy. **62F1777** 201.00

Model 630-NA



MODEL 630-NA/MODEL 630-NS V-O-M SERIES

1. 58-range V-O-M with single range switch and DC polarity-reversing switch.
2. Accuracy 1½% DC and 3% AC; mirrored scale.
3. Diode overload-protected suspension movement; temperature compensation.

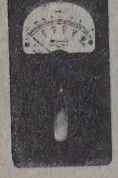
RANGES

DC Volts: 0-0.6-3-12-60-300-1,200 (10,000 Ohms per Volt). 0-0.3-1.5-6-30-150-600 (20,000 Ohms per Volt). 0-0.120 at 60 microamperes. 0-0.240 at 120 microamperes.
AC Volts: 0-3-12-60-300-1,200 (5,000 Ohms per Volt). 0-1.5-6-30-150-600 (10,000 Ohms per Volt). Frequency range 35Hz to 20kHz.
Ohms: 0-1k-10k-100K-1MV (4.4 Ohm center scale on low range).
DC Microamperes: 0-60-600 at 120mV; 0-120 at 240mV.
DC Milliamperes: 0-6-60-600 at 120mV; 0-1.2-12-120-1,200 at 240mV.
DC Amperes: 0-6 at 120mV; 0-2 at 240mV.
Decibels: –26 +51.
Output Volts (AC): 0-3-12-60-300 scale (5,000 Ohms per Volt). 0-1.5-6-30-150 (1,000 Ohms per Volt).
Batteries: NEDA 30V 210 (1), 1½V 13F (1).
Complete with 48″ leads, screw on insulated alligator clips, batteries and instruction manual. Shpg. Wt. 5 lbs.

Model 630-NA, 62F228 ..... 173.00

Model 630-NS: Similar to Model 630-NA 200,000 Ohms per Volt DC and 20,000 Ohms per Volt AC. Maximum AC/DC-voltage range, 1200 Volts. **62F168** 208.00

Model 666-R



MODEL 666-R V-O-M TYPE 1

1. Rugged 14-range V-O-M; single range switch minimizes error.
2. 3 ohmmeter ranges reading to 3 megohms.
3. AC and DC voltage ranges from 10 to 1000 volts.

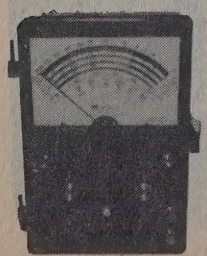
RANGES

DC Volts: 0-10-50-250-1,000 (1,000 Ohms per Volt).
AC Volts: 0-10-50-250-1,000 (1,000 Ohms per Volt).
Ohms: 0-3k-300k-3MV (20 Ohm center scale on low range).
DC Milliamperes: 0-10-100 at 250mV.
DC Amperes: 0-1 at 250mV.
Accuracy: ±3% DC; ±4% AC; (full scale).
Scale Length: 3″
Meter: Rugged spring-backed instrument jewels.
Case: Molded, black, 3 1/16″w × 2 9/16″d × 5 7/8″h.
Batteries: NEDA 1½V 15A (2), 1½V 14F (1). Complete with 48″ leads, screw on insulated alligator clips, batteries and instruction manual. Shpg. Wt. 3 lbs.
Model 666-R. 62F209 ..... 89.00

Model 666-R ACCESSORIES

Model 669: Quality leather case, top opens with space for tester and leads. **62F210** 16.70
Model 669-OS: Quality leather case, flaps open to permit use of tester in case: **62F2647** 18.30
79-127; Replacement test leads, 48″. **62F245** 6.80

Model 4



THREE-IN-ONE TELEPHONE TESTER
MODEL 3 LOOP TESTER

TYPE Model 3 Loop Tester. Three-in-one telephone tester, this multi-function unit is specifically designed for the individual who needs to check telephone company or privately installed cable for transmission quality or alarm circuit work. The **voltohmmeter** includes two AC and DC voltage ranges, plus three ohm ranges. The multi-tone **generator** has a 10 frequency tone output at the output jack. The tone level is adjustable from –40dBm to +3dBm and is self-compensating so that negligible error results when used on either 600 or 900 ohm lines. This unit will measure either its tone output or line input. **Standard transmission test set** provides a line measurement capability designed to measure line parameters such as circuit loss, circuit noise, power influence and line current. The input and output circuits are self compensating. Combining the functions of the tone generator and the transmission test set, you can send a tone and receive and measure a tone simultaneously. This enables the user to measure the receive and send losses of a line under test. Complete with black thermoplastic case and cover, shoulder strap, test leads.
62F2671. Net 450.00

MODEL 4 LOOP TESTER

Combines more than four functions in one tester

The Model 4 Loop Tester was designed to allow the user to perform the majority of transmission quality tests on telephone lines in a loop-around style. The tests are performed in a similar style to the way the same tests are performed from central offices of telephone companies. The user will *not* be dependent on the telephone company or a central office to perform transmission tests. This tester can be used effectively by telephone companies, interconnect companies, computer companies, telegraph companies, and anyone transmitting information over telephone wires.

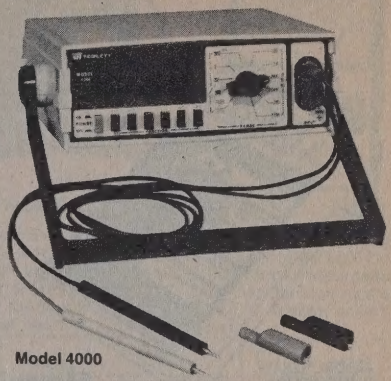
The Model 4 Loop Tester has:
1. A 17 tone oscillator with 15 fixed tones and 2 optional tones.
2. A transmission test set with total loop-around capability.
3. A volt-ohmmeter with *five* ohm ranges reading to 100 million ohms, *three* DC ranges, and two AC ranges.
4. All the features of a telephone wire insulation resistance measurement tester with a polarity reversing switch.

81F4614 ..... 495.00

Digital Test Instruments

TRIPLETT®

MODEL 4000 MULTIMETER



Model 4000

1. **OVERLOAD PROTECTION**—Protected up to 1000V on all ranges with safety designed test leads, RF shielded, auto zero, auto polarity.
2. **SIX FUNCTIONS**—.2% accuracy, 31 ranges with selectable Hi and Lo power ohms, 3½ digit. 0.43″ LED's.
3. **EASY OPERATION**—Single range selection with two recessed input jacks and pushbutton selection.

DC VOLTS: 0-0.2-2-20-200. ±.2% Rdg. +1 Digit. 0-1000, ±0.5% Rdg. +1 Digit. Input impedance all ranges: 10 Meg. Full Scale step response: 1 sec. maximum.
AC VOLTS: 0-0.2-2-20-200, ±0.5% Rdg. +2 Digits. 0-1000, ±1.0% Rdg. +2 Digits. Frequency response at specified accuracy 40Hz to 1000Hz all ranges. Input impedance all ranges: 10 Meg. Full scale step response: 5 sec. maximum.
LOW POWER OHMS: 0-200-2k-20k-200k-2M, ±0.5% Rdg. +1 Digit. 0-20M, ±1.0% Rdg. +1 Digit. Maximum open circuit voltage, 200mV. Full scale step response: 3 sec. maximum.
HI POWER OHMS: 0-200-2k-20k-200k-2M, ±0.5% Rdg. +1 Digit. Maximum open circuit voltage, 5V. Full-scale step response: 3 sec. maximum except 20M range which is 7 sec. maximum.

DC MILLIAMMETERS: 0-0.2-2-20-200, ± 0.5% Rdg. +1 Digit. 0-2000, ±1% Rd. +1 Digit. Voltage drop across input, 200mV. Full Scale step response: 1 sec. maximum.
AC MILLIAMMETERS: 0-2000, ±2.0% Rdg. +2 Digits. Voltage drop across input. 200mV RMS. Full scale step response: 5 sec. maximum.

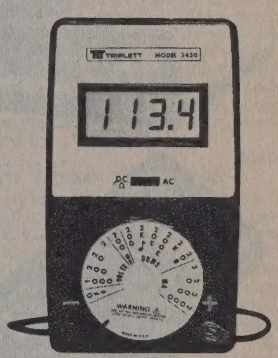
CONSTRUCTION
.43″ LED's with polarity indication. Overrange Indications: 1 or –1 displayed, three least significant digits blanked. CMRR: 90dB minimum at 60Hz. NMRR: 55dB minimum at 60Hz. Power Requirements: 120 VAC ±10% 50/60Hz. 240 VAC 50/60Hz. with internal change. Case: Molded tan high impact thermoplastic with black carrying handle that serves as a tilt stand. Case is RF shielded 10″W×3½″H×9¼″D. Weight 3 lbs., 4 oz. Complete with one year warranty, 48″ safety test leads with screw on alligator clips and instruction manual.
62F3013 Model 4000 ..... 247.00

MODEL 7000 DIGITAL COUNTER/TIMER

Model 7000

High resolution, µP controlled reciprocal counting design provides both input signal frequency and period measurements. 80MHz frequency measurement plus event counting to 1 billion. Elapsed time measurement from 100 µS to 100 hours. Single knob for six functions. **INPUT:** Impedance, 1MΩ shunted by 20 pF; AC Coupling; Sinewave sensitivity 30mV rms (5Hz to 40MHz), 50mV max, at 80MHz; Maximum Input, 200V (peak AC+DC) DC to 500Hz, derate linearily to 100V at 1kHz. 100V (peak AC+DC) 1kHz to 5MHz, derate linearily to 30V (peak AC+DC) at 80MHz. **FREQUENCY:** Range, 5Hz to 80MHz; Accuracy, ±time base accuracy ±count ±trigger error. **TOTALIZE (EVENTS):** Range, 5Hz to 80MHz repetition rate; Capacity, 0 to 999.999 Mega events (999,999,999 events). **TIMER:** Range, 100µS to 100 hr. (99:59:59), Accuracy, ±time base accuracy ±trigger error ±1 count. **VISUAL DISPLAY:** Six digits .43″ high with decimal points and colons. **POWER:** 105V to 130V or 210V to 260V (with internal transformer jumpers) 50/60Hz Molded tan high impact case, 10″ wide (over handle)×3¾″high×9¼″ deep. Weight, 4½ lbs.
62F875 Model 7000 ..... 330.00

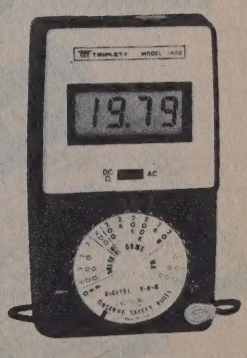
MODEL 3450 HAND–SIZE DIGITAL MULITMETER



Model 3450

True hand size 24 range battery operated Digital Multimeter measures AC and DC Voltage and current and Lo and Hi power resistance. 500 hour battery life typical with 9V battery.
DC VOLTS: 0-0.2 ±0.15% Rdg. ±1 digit. 0-2-20-200, ±0.2% Rdg. ±1 digit. 0-1000, ±0.5% Rdg. ±1 digit. Input impedance all ranges: 10 meg. **AC VOLTS:** 0-0.2-2-20-200, ±0.6% Rdg. ±2 digits. 0-1000, ± Rdg. ±2 digits. Frequency response 50Hz to 400Hz all ranges. Input impedance all ranges: 10 Meg. **LOW POWER OHMS (green scale):** 0-200-20K-2M, ±0.3% Rdg. ±1 digit. Maximum open circuit voltage, 3V. **HI POWER OHMS (black scale):** 0-2K-200K, ±0.3% Rdg. ±1 digit. 0-20M, ±1.0% Rdg. ±1 digit. 0-2000, ±1.0% Rdg. ±1 digit. Maximum open circuit voltage, 3V. **DC MILLIAMPERS:** 0-2-20-200, ±1.0% Rdg. ±1 digit. 0-2000, ±1.5% Rdg. ±1 digit. Maximum open circuit voltage, 3V. **AC MILLIAMPERES:** 0-2-20-200, ±1.5% Rdg. ±2 digits. 0-2000, ±2.0% Rdg. ±2 digits. Voltage drop across input, 200mV RMS. **DISPLAY:** 0.5″. 3½″ digit LCD. With 36″ black and red test leads, 9V battery, extra 2 Amp. fuse, wire tilt stand and instruction manual. Tan high impact case, 3″W×5⅜″L×1½″D. Weight, 10 oz.
62FX1750 Model 3450 Digital Multimeter 150.00

MODEL 3400 DIGITAL V-O-M TYPE 2



Model 3400

SPECIFICATIONS
Accuracies are ±(% of reading + No. of digits)
18°C to 28°C

RANGES: DC Volts: 0-0.2, ±0.15% Rdg. ±1 digit. 0-2-20-200, ±0.2% Rdg. ±1 digit. 0-1000, ±0.5% Rdg. ±1 digit. Input impedance all ranges: 10 Meg. Full scale step response: 1 sec maximum. **AC Volts:** 0-0.2-2-20-200, ±0.6% Rdg. ±2 digits. 0-1000, ±1.0% Rdg. ±2 digits. Frequency response at specified accuracy. 50Hz to 400Hz all ranges. Input impedance all ranges: 10 Meg. Full scale step response: 5 sec. maximum. **Low Power Ohms (green scale):** 0-200-20K-2M, ±0.3% Rdg. ±1 digit. Maximum open circuit voltage, 3V. Full scale step response: 2 sec. maximum. **Hi Power Ohms (black scale):** 0-2K-200K, ±0.3% Rdg. ±1 digit. 0-20M, ±1.0% Rdg. ±1 digit. Maximum open circuit voltage, 3V. Full scale step response: 2 sec. maximum except 20M range, 8 sec. maximum. **DC Milliamperes:** 0-2-20-200, ±1.0% Rdg. ±1 digit. 0-2000, ±1.5% Rdg. ±1 digit. Voltage drop across input, 200mV. Full scale step response: 1 sec. maximum. **AC Milliamperes:** 0-2-20-200, ±1.5% Rdg. ±2 digits. 0-2000, ±2.0% Rdg. ±2 digits. Voltage drop across input, 200 mV RMS. Frequency response at specified accuracy: 50Hz to 400Hz all ranges. Full scale step response: 5 sec. maximum.

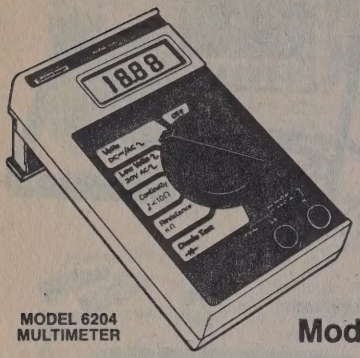
CONSTRUCTION: Display: 0.5″, 3½ digit LCD (Liquid Crystal Display) with polarity indication. **Overrange Indication:** display blanks least significant digits with polarity indication. **Overload Protection:** up to 1000 volts on ohms and volts without fuse blow: up to 600 volts on current ranges. **Auto Polarity:** positive implied, negative indicated. **CMRR:** 90 dB minimum at 60 Hz. **NMRR:** 55 dB minimum at 60 Hz. **AC Frequency response:** 50 Hz to 400 Hz, all ranges. **Operating Temperature:** +18°C to +28°C (OC to + 50C with reduced accuracy). **Storage Temperature:** –40C to +60C. **Battery:** NEDA 9V 1604A (1) 500 hours typical life. **Low Battery Indication:** shows on display when approximately 8 hours of life remain. **Fuse: 2 Amp**/600 Volt. **Test Leads:** standard black and red, 36″ long with screw on type alligator clips. **Case:** Molded, fiesta tan high impact thermoplastic with non-slip "finger tread" surface finish. **Dimensions:** Approx. 3″W×5⅜″L×1½″D (77.8 mm W×135.3 mm L×48.1 mm D). **Weight:** Approx. 10 oz. (0.28 kg) with battery. Complete with one year warranty, 36″ test leads, screw-on insulated alligator clips, extra 2 Amp fuse and retaining screw, wire tilt stand, 9V battery and instruction manual.

62FX296 Model 3400 ..... 125.00

WESTON Digital Multimeters

Introducing the first fully automatic

AUTOFUNCTION, AUTORANGING handheld DMM



MODEL 6204
MULTIMETER

- Sealed, Water Resistant Case
- Rugged, Drop-Proof Design
- High 0.1% DCV Accuracy
- Audible Continuity Test
- Extensive Overload Protection
- 1KHz AC Frequency Response
- Large, High Contrast Display
- Full Accessory Line

The Model 6204 is designed for the rigorous demands of the skilled DMM user. It combines outstanding measurement performance within a highly versatile package that enables the multimeter to perform in the most demanding work environments. In addition, autofunction, autoranging operation eliminates the need to select AC, DC, or the proper range—the 6204 does all this automatically—freeing the user to concentrate on his measurement task.

SPECIFICATIONS

Resolution on all ranges and functions: 3½ digits (2000 counts). **DC Voltage:** 0-200V, ±0.1% + ld. **AC Voltage:** 0-600V, ± 1% + 5d from 45 Hz to 1KHz. **Continuity:** Audible tone <10Ω. **Resistance:** 0-2MΩ, ± 0.5% + ld. **Diode Test:** Audible tone plus display of forward voltage drop AC/DC Voltage Functions protected to 1000 VDC or 750 VAC continuous. Continuity, Resistance, and Diode Test Functions protected to 300 Volts AC or DC continuous. Operating temp. 0-50° C. Size 5½" × 3 ¼" × 1⅜". Includes vinyl carrying case.

81FX020 Model 6204 Type 0285000 .... 159.00

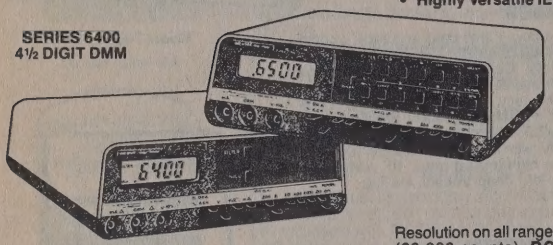
Model 6500 and 6400 "Educated" DMMs

SERIES 6500
COMPUTING DMM

- **6 convenient Arithmetic functions-FILTER, NULL, SCALE/OFFSET %DEVIATION, HI/LO LIMITS, MAX/MIN**
- **4½ Digit (20,000 count) Resolution**
- **Self-Prompting, Self-Diagnostics**
- **High Contrast LCD Display**
- **True RMS or AC Average Sensing**
- **20 KHz Frequency Response**
- **Highly Versatile IEEE-488 Interface Optional**

The μP-based Series 6400/6500 provide a new dimension in operator convenience combined with unparalleled measurement precision in a moderately-priced bench multimeter. The single keystroke arithmetic keyboard enables the Series 6500 to replace elaborate, expensive instrumentation systems in many sophisticated application tasks. Full function versatility is further enhanced by availability of BCD output, and IEEE-488 Interface options.

SERIES 6400
4½ DIGIT DMM

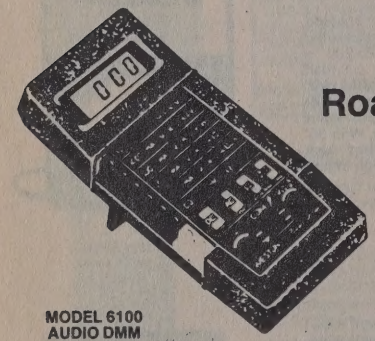


Stock No.	Type	Features	Net
81FX021	6402-0282928	AC Avg. Sensing	$ 385.00
81FX022	6404-0282935	with IEEE-488	728.00
81FX023	6502-0282936	AC Avg. with Keyboard	758.00
81FX024	6502-0282939	with IEEE-488	1,076.00
81FX025	6504-0282942	with BCD	942.00
81FX026	6504-0282943	with IEEE-488	1,101.00
81F2405	9428-2876901	Carrying Pack	50.00

SPECIFICATIONS

Resolution on all ranges and functions: 4½ digits (20,000 counts). **DC Voltage:** 0-1000V, ± 0.03% + 2d, 10μV resolution. **DC Current:** 0-2A, ± 0.1% + 2d, 10nA resolution. **Resistance:** 0-20MΩ, ± 0.05% + 2d, 0.01Ω resolution. **AC Voltage (True RMS):** 20mV-750V, ± 0.7% + 20d., 45Hz-20KHz. **AC Current (True RMS):** 20μA-2A, ± 0.7% +15d, 50Hz – 10KHz. **AC Voltage (Avg):** 2mV-750V, ± 0.5% +15d, 30Hz-20KHz. **AC Current (Avg.):** 2μA-2A, ± 0.7% + 15D, 50Hz-10KHz. Operating temp. 0-50° C. Size: 8.7" x 3.2" x 10.2". Weight-4 lbs.

Roadrunner Model 6100 Audio DMM



MODEL 6100
AUDIO DMM

In addition to precision measurement of DC and AC voltage, current, and resistance, the Audio Response function enables the operator to rapidly perform many common troubleshooting measurements without having to refer to the visual display. Common applications include instant checking of continuity, fuses, diodes, capacitors, transistors, LEDs, resistors, and logic pulses. Operating temp 0-50°C. Size 7.5" x 3.4" x 1.9". Weight 1 lb.

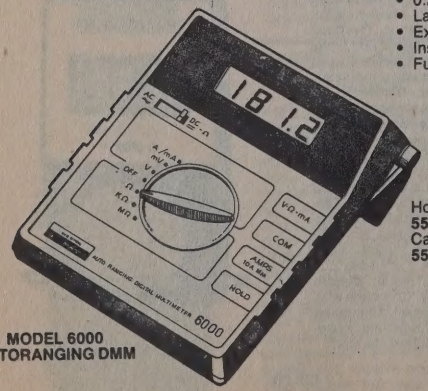
61FX070 Type 6100-0282409 ..... 155.00

- 5 Range Audio Response
- 6 Measurement Fucntions
- 29 Ranges
- 0.25% DCV Accuracy
- Large LCD Display
- Extensive RFI Shielding
- Instant Continuity Check
- Full Accessory Line

ACCESSORIES

Carrying Case (Deluxe)
67F863 Type 9428-2363901 ..... 18.00
Carrying Case (Standard)
81F2404 Type 9428-2690901 ..... 5.00
Battery Eliminator
67F865 Type 9428-2389901 ..... 18.00

Model 6000 Autoranging Portable



MODEL 6000
AUTORANGING DMM

A rugged, drop proof, autoranging 3½ digit DMM with a basic 0.35% DCV accuracy. Full 10 amp AC/DC measurement capability is standard. Manual range hold, display backlighting, and display hold are available options.

54F906 Model 6000-0277899 ..... 260.00
Super 6000 (manual range hold, backlighting)
55F5182 Model 6000-0279800 ..... 315.00

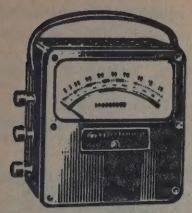
ACCESSORIES

Hold Probe
55F5183 Type 9740-0279407 ..... 42.25
Carrying Case
55F5185 Type 9740-0277854 ..... 18.50

Specs.	VDC	VAC	D.C. Amps	A.C. Amps	Resistance
Accuracy	.35%	.5%	.75%	1.5%	.5%
In. Imp.	10 Meg	9M/39pF	10 ohms	10 ohms	. . . . .
Sensitiv.	100 μV	100 μV	1 A	1 A	.1 ohms
Max. Read.	1000 V	1000 V	10 A	10 A	20 Meg
Overload	1.5KV peak	1.5KV peak	¼ A fuse	¼ A fuse	350 V peak

19

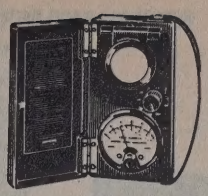
WESTON



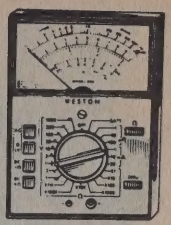
433 931

749

633



615



666

MODEL 931 DC INSTRUMENT

Compact, light weight and accurate within ½ of 1%. Hand calibrated mirror scales and knife-edge pointers eliminate parallax errors. Scale length 4.04". Self shielded perm. magnet moving coil. Size, 5¼" x 5" x 3¼". Approx. Wgt. 2 lbs.

DC VOLTMETERS 1000 OHMS/VOLT

Stock No.	Type 931-	Range	Scale Division	NET
55F4935	1915006	750/300/150	150	406.75

DC MILLIAMMETERS

62F435	4914002	1500/150/15	150	339.00

DC AMMETERS (SELF-CONTAINED TO 50 AMPS)

55F4936 62F1133	2912008 2912009	5/2.5/0.5 10/5/1	100 100	423.75

MODEL 433 AC VOLTMETERS

Movable iron type, horizontal operation, shielded from external magnetic fields. Power consumption: 150V range at 115V, 60 Hz, 2.5 watts, 2.5 VA. Rated Accuracy: .75%. Frequency coverage: AC from 25 to 1000 Hz available. Self contained ranges: single, double, and triple up to 750 volts. Range extension: with multipliers or Model 311 Potential transformer in con. with 150V range. Size: 3¼" x 5" x 5¼". Wgt. 2½ lbs.

Stock No.	Type 433-	Range	Approx. Res. Ohms	Scale Div.	NET
62F442	1916002	600/300/150	44K/22K/11K	150	505.50

MODEL 749 AC POCKET SIZE CLAMP VOLT-AMMETER

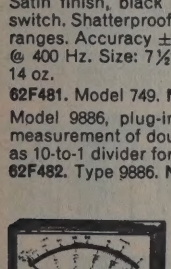
Light weight, compact, hand-fitting design. Precision ground faces provide positive jaw contact. Accommodates conductors up to 1" Round or 1¼" x ⅜" rectangular. Large, smooth action trigger. Satin finish, black bakelite case. Positive action range selector switch. Shatterproof wrap-around plastic window. One scale for all ranges. Accuracy ±3% of full scale @ 50-60 Hz, ±5% of full scale @ 400 Hz. Size: 7½" x 3" x 1¼". Scale length 2.36". Approx. wgt. 14 oz.

62F481. Model 749. **NET** 133.50

Model 9886, plug-in adaptor for Model 749. Facilitates current measurement of double conductor feeds. Use on direct reading or as 10-to-1 divider for low cur. measurement.

62F482. Type 9886. **NET** 16.75

SERIES 660 "DROP-PROOFED" VOMs



Major design advancement. Warranted in writing to work even after five accidental drops. Rugged self-shielded taut-band mechanism. Diode protected movement. Temperature compensation. Pluggable circuit boards for easy repair. Scales calibrated for dB measurements. Recalibration without disassembling. External fuse replacement. Controls flush with end of case. Single range switch. Self storing handle. Input terminals spaced for use with double banana jacks. All models supplied with leads and batteries.

MODEL 660 VOM

Precision instrument built for service in most demanding field environments. Completely "drop-proofed." Rugged self-shielded taut-band mechanism. Temperature compensated. Diode protected meter movement. Polarity reversal switch for AC voltages. Critical circuits employ 1% precision resistors. Specially calibrated scales for dB measurements. Externally replaceable fuse and single range switch. Full range coverage provided.

SPECIFICATIONS

Accuracy: 2% DC (1.5% on 50 A range); 3% AC.
Sensitivity: 20,000 per Volt DC. 5,000 per Volt AC.

RANGES	
DC Millivolts	0-250
DC Volts AC Volts	0-2.5-10-50-250-500-1000-5000 0-2.5-10-50-250-500-1000-5000
VAC Output DC Microamps DC Milliamps DC Amps	0-2.5-10-50-250 0-50 0-1-10-100-500 0-10
OHMS	RX1, 0-2K, 20Ω center; RX10, 0-20K, 200Ω center; RX100, 0-200K, 2,000Ω Center; RX1K, 0-2 megs, 20KΩ center: RX10K, 0-20 megs, 200 KΩ center.
dB Scales*	−10 to +10; +2 to +22; +16 to +36; +30 to +50; +36 to +56.

(*) 1 mW, 600 ohm line.

Size: 5"w x 2¼"d x 7"h. **Weight:** 2 lbs. (batteries incl.).

62F1420. Model 660. NET 149.00

MODEL 661 HIGH ACCURACY VOM

Same as Model 660 with the addition of a mirror scale and improved basic accuracy to 1% DC and 2% AC. ½% precision resistors. Ranges the same as 660.

62F1421. Model 661. NET 164.00

MODEL 662 OVERLOAD-PROTECTED VOM

Same as Model 660 but with built-in overload protection up to 220 V. AC/DC (exc. 10 A DC range). or to 1000 V on higher ranges. Ranges the same as 660.

62F1422. Model 662. NET 219.00

MODEL 633 AC CLAMP AMMETER AND VOLT-AMMETER

Measures AC voltage and current without breaking the circuit. **TYPE VA-1** has three voltage ranges (700/350/175 volts full scale) and five AC current ranges (1000/250/100/25/10 amps full scale). Completely covers voltages and currents most frequently encountered in industrial and utility service. Safety trigger designed for glove or bare hand. Insulated for 750V. Size: 13⅝" x 4⅜" x 2½". Wgt. 3¾ lbs.

62F1111. Type A-1. Range 10-500 Amps. **NET** 419.50
62F1112. Type A-2, Range 10-1000 Amps. **NET** 419.50
62F1118. Type VA-1. **NET** 446.00

MODEL 615 BROAD RANGE LIGHT METER

General purpose standard for business, industry, and government agencies where monitoring over wide ranges of illumination is necessary. The Phototronic cell is corrected by visual and cosine filters, and the built-in battery operated amplifier allows seven ranges of light measurement. The Phototronic cell is hermetically sealed for long life and is hinged for convenience in making directional measurements. The selector switch has a provision for battery test and an interlock to insure the switch is off when the case is closed. Ranges: 0-1.2, 3, 12, 30, 120, 1200 foot candles. Viscor and cosine correction supplied. More than one year of operation from one 9 volt battery. Size: 7" x 3½" x 2½". Weight: 2 lbs.

57F2759. Model 615. **NET** 964.25

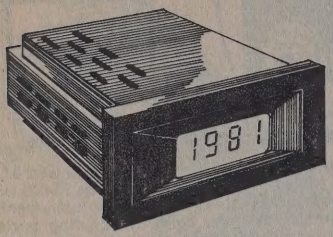
MODEL 666 SOLID STATE CIRCUIT TESTOR VOM

For semi circuit troubleshooting. 10 meg input imp. Features differential pair FET input to high gain IC op amp. Fully freq. compensated. Input rev. switch. Accur. 2% VDC; 3% VAC; 3% DC cur; 4% AC cur. Sensitivity: 10 meg DC; 10% meg, 100 pF, AC. **Ranges: DC mV**, 0-100-300; **DC-V**, 0-1-3-10-30-100-300-1000; **AC mV**, 0-100-300; **AC V**, 0-1-3-10-30-100-300-1000; **DC μA**, 0-1-10-100; **DC mA**, 0-1-10-30; **AC μA**, 0-1-10-100; **AC mA**, 0-1-10-30; **Ohms**, RX1, RX10, RX100, RX1K, RX10K, RX100K, RX1 Meg; **dB Scales**, −40 to −18, −30 to −8, −20 to +2, −10 to +12, 0 to +22, +10 to +32, +20 to +42, +30 to +52, +40 to +62. Size: 5"w x 2¼"d x 7"h. Wgt. 2 lbs. (bat. incl.).

62F1424. Model 666. **NET** 298.00

WESTON Digital Panel Meters

WESTON 2490 SERIES 3½ DIGIT LCD DIGITAL PANEL METER



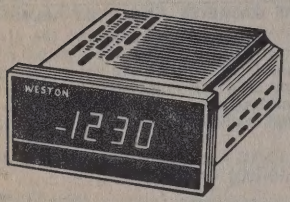
FEATURES
- AC or DC Powered.
- 0.5% Accuracy—on all ranges.
- Multi-Function.
- Four Basic DCV Ranges—200mV-200VDC.
- 0—60° C operation
- Single-ended or differential operation.
- True Ratiometric Operation.
- Autozero-automatic zero and polarity eliminate zero calibration adjustment and allow direct readings of + and − input signals.
- "True Bipolar" Integration—eliminates dead zone around zero, no skewing.
- Liquid Crystal Display—half-inch, high-contrast display minimizes power consumption.
- Universally Powered—115/230VAC ±15% with 1500Vrms isolation.
- Full Compliance with IEC 348 and ANSI C39.5.
- BCD Output—tri-state buffered μC-compatible with 200 Vrms isolation between signal and BCD grounds.
- Hundreds of standard configurations.

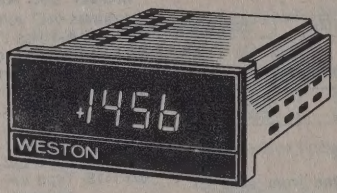
Model 2498 Without BCD

Stock No.	Range	115 VAC	Each
81F2400	200 mVDC	283426	110.00
81F2401	2 VDC	283430	110.00

Model 2499 with BCD

Stock No.	Range	115 VAC	Each
81F2402	200 mVDC	283461	175.00
81F2403	2 VDC	283465	175.00





2430 SERIES 3½-DIGIT MULTIOPTION/FUNCTION PANEL METERS

SERIES 2460 DC VOLTMETERS

3½ digit LED AC line powered digital panel meters. **Features:** Dual Slope integration A/D conversion. .6" high brightness LED display, Isolated input sections, Immunity to common mode and ground loop effects, External sync input terminals for synchronous A/D conversions up to 25 per second Resolution of .05%. Accuracy of .05%. Rdg. ±1 count. Series Mode Rej.: 30 dB min. Common Mode Rej. 80 dB min. Measurement rate: Internal-2/Sec., External-25/Sec. Power Required: $^{117}/_{234}$ or $^{220}/_{240}$VAC, 50-400 Hz. 3.5 W. Operating ambient 0-50° C. **TYPE 2462:** Input config.: Floating single-ended. Input bias current: 3 nA max. BCD fanout: 2TTL unit loads. **TYPE 2464:** Input config.: Floating balanced differential. Input bias current: 3 nA max. Input bias current: 1 nA max. Input offset current. BCD fanout: 2 TTL unit loads. Common mode voltage: 1.5 V max. **TYPES: 2462, 2464** Require: $^{117}/_{234}$VAC, 50-400 Hz., 3.5 W. Panel Cutout: 4" D x 3.924" W x 1.682" H. Wt. 13 oz. approx. *UL recognized.

Stk. No.	Type	Range	Input Imp.	Each
62F485	2462-0278387	100mV	100 meg	185.00
62F486	2462-0278388	1 V	100 meg	185.00
62F491	246 -0278379	100mV	15 meg	185.00
62F492	2464-0278380	1 V	150 meg	185.00

9790-0267253. PC Board Connector
62F274. NET 6.00

FEATURES
- Gas-Discharge Display, 0.55" high, planar—easiest to read of all types available!
- 0.05% Accuracy—on all ranges.
- Four Basic DCV Ranges—200mV-200VDC.
- Autozero—automatic zero and polarity eliminate zero calibration adjustment and allow direct readings of + and − input signals.
- "True Bipolar" Integration—eliminates dead zone around zero, no skewing.
- Ratiometric Option, at a reference voltage of 1.00 volt ±20%
- BCD Option, 8421 parallel latched (Model 2432).
- Universally Powered—115/230VAC ±15% with 1500 Vrms isolation.
- 3 Output Voltages to Power Auxiliary Circuits—+5 volts @ 25mA; +5 volts @ 60mA
- 3 Different Reading Rate Capabilities—3 rdg/sec (standard): 7.5 rdg/sec (option): 15 rdg/sec (option)

Model 2431 without BCD

Stock No.	Range	115 VAC	Each
81F2396	200 mV	0281148	145.00
81F2397	2 V	0281149	145.00

Model 2432 with BCD

Stock No.	Range	115 VAC	Each
81F2398	200 mV	0281164	170.00
81F2399	2 V	0281165	170.00

ALL DIGITAL VOLTMETERS HAVE 100% OVER/RANGE

SERIES 2470 DC VOLTMETERS

Line powered Digital panel meters Bi-polar integration eliminates dead band around zero. Automatic zero calibration. Temp. controlled voltage reference. Unit within spec 10 min after turn-on. High brightness 0.6" LED display. 3.5 W power consumption. Cool running operation. DualSlope Integration rejects noise. Universally accepted and patented. Weston Dual Slope Integration. (U.S. Patent 3,051,939). Size: 3.875"w x 1.75"h x 4.56"d. Panel cut-out dim. 3.924" x 1.682". Depth behind panel: 4". Wgt. 12.7 oz. (360 grams).

Model 2471 without BCD

Stk. No.	Type 2471-	Range	Input Imp.	Each
55F4917	0280561	100 mV	1000 MΩ	279.00
55F4918	0280562	1 V	1000MΩ	249.00
55F4919	0280563	10 V	1 MΩ	259.00

Model 2472 with BCD

Stk. No.	Type 2472-	Range	Input Imp.	Each
55F4921	0280581	100 mV	1000 MΩ	329.00
55F4922	0280582	1 V	1000 MΩ	299.00
55F4923	0280583	10 V	1 MΩ	309.00

9760-0277371. PC Board Connector for BCD output.
55F4925. NET 6.00

MAKE NEWARK ELECTRONICS YOUR ONE STOP SOURCE FOR INDUSTRIAL ELECTRONICS EQUIPMENT

8500 Series Panel Meters

WESTON

Specification: 8500 Series

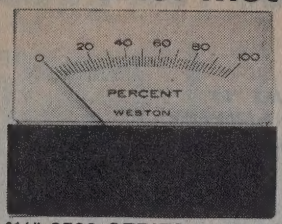
Accuracy: All DC Meters ± 2%
All AC Meters ± 2%

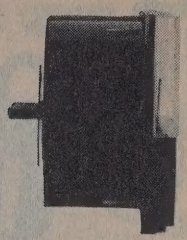
Pointer: Knifeedge, plastic, black case high-impact styrene/94V-0 cover NAS polystyrene/94 H-B

Mechanism: Self-shielding Cormag® taut band. Except all AC. Iron vane are pivot & jewel type

Meets ANSI C 39.1 and C 39.5 specifications

All AC Meters ± 2%
Except AC Rectifier ± 3%





SIZES 2½", 3½", 4½" 8500 SERIES ANALOG PANEL METER

TAUT BAND SUSPENSION

	MODEL 8521		2½" METERS			MODEL 8531		3½" METERS			MODEL 8541		4½" METERS		
DC MICROAMMETERS—RECTIFIER TYPE															
Range	Ohms	Weston P/N	Stk. No.	1-9	10-49	50-99	Weston P/N	Stk. No.	1-9	10-49	50-99	Weston P/N	Stk. No.	1-9	10-49	50-99
25-0-25	1200Ω	5322725	81F3344	33.00	29.70	23.10	5322725	81F3350	34.00	30.60	23.80	5323725	81F3377	35.50	31.95	24.85
0-50	1200Ω	5322050	81F3346	30.00	27.00	21.00	5322050	81F3373	31.00	28.00	21.50	5323050	81F3274	32.25	29.00	22.50
50-0-50	650Ω	5322750	81F3345	33.00	29.70	23.10	5322750	81F3372	34.00	30.60	23.80	5323750	81F3378	35.50	31.95	24.85
0-100	650Ω	5322100	81F3347	30.00	27.00	21.00	5322100	81F3374	31.00	28.00	21.50	5323100	81F3275	32.25	29.00	22.50
0-200	208Ω	5322200	81F3348	30.00	27.00	21.00	5322200	81F3375	31.00	28.00	21.50	5323200	81F3276	32.25	29.00	22.50
0-500	45Ω	5322500	81F3349	30.00	27.00	21.00	5322500	81F3376	31.00	28.00	21.50	5323500	81F3277	32.25	29.00	22.50
DC VOLTMETERS—RECTIFIER TYPE																
0-IV	1000Ω/v	1322001	81F3329	31.00	28.00	21.50	1322001	81F3336	32.00	29.00	22.00	1323001	81F3364	33.25	30.00	23.00
0-2	1000Ω/v	1322002	81F3337	31.00	28.00	21.50	1322002	81F3351	32.00	29.00	22.00	1323002	81F3365	33.25	30.00	23.00
0-5	1000Ω/v	1322005	81F3338	31.00	28.00	21.50	1322005	81F3352	32.00	29.00	22.00	1323005	81F3366	33.25	30.00	23.00
0-10	1000Ω/v	1322010	81F3339	31.00	28.00	21.50	1322010	81F3353	32.00	29.00	22.00	1323010	81F3367	33.25	30.00	23.00
0-15	1000Ω/v	1322015	81F3340	31.00	28.00	21.50	1322015	81F3354	32.00	29.00	22.00	1323015	81F3368	33.25	30.00	23.00
0-25	1000Ω/v	1322025	81F3341	31.00	28.00	21.50	1322025	81F3355	32.00	29.00	22.00	1323025	81F3369	33.25	30.00	23.00
0-30	1000Ω/v	1322030	81F3342	31.00	28.00	21.50	1322030	81F3356	32.00	29.00	22.00	1323030	81F3370	33.25	30.00	23.00
0-50	1000Ω/v	1322050	81F3343	31.00	28.00	21.50	1322050	81F3357	32.00	29.00	22.00	1323050	81F3371	33.25	30.00	23.00
0-100	1000Ω/v	1322100	81F3330	31.00	28.00	21.50	1322100	81F3358	32.00	29.00	22.00	1323100	81F3379	33.25	30.00	23.00
0-150	1000Ω/v	1322150	81F3331	31.00	28.00	21.50	1322150	81F3359	32.00	29.00	22.00	1323150	81F3380	33.25	30.00	23.00
0-200	1000Ω/v	1322200	81F3332	31.00	28.00	21.50	1322200	81F3360	32.00	29.00	22.00	1323200	81F3381	33.25	30.00	23.00
0-300	1000Ω/v	1322300	81F3333	31.00	28.00	21.50	1322300	81F3361	32.00	29.00	22.00	1323300	81F3382	33.25	30.00	23.00
0-500	1000Ω/v	1322500	81F3334	31.00	28.00	21.50	1322500	81F3362	32.00	29.00	22.00	1323500	81F3383	33.25	30.00	23.00
0-50MV	50Ω	7322050	81F3335	31.00	28.00	21.50	7322050	81F3363	32.00	29.00	22.00	7323050	81F3384	33.25	30.00	23.00
DC MILLIAMMETERS—RECTIFIER TYPE																
0-1	15Ω	4322001	81F3278	30.00	27.00	21.00	4322001	81F3239	31.00	27.90	21.70	4323001	81F3289	32.25	29.03	22.58
0-2	10Ω	4322002	81F3279	30.00	27.00	21.00	4322002	81F3247	31.00	27.90	21.70	4323002	81F3290	32.25	29.03	22.58
0-5	10Ω	4322005	81F3280	30.00	27.00	21.00	4322005	81F3248	31.00	27.90	21.70	4323005	81F3291	32.25	29.03	22.58
0-10	5Ω	4322010	81F3233	30.00	27.00	21.00	4322010	81F3249	31.00	27.90	21.70	4323010	81F3292	32.25	29.03	22.58
0-20	2.5Ω	4322020	81F3234	30.00	27.00	21.00	4322020	81F3250	31.00	27.90	21.70	4323020	81F3293	32.25	29.03	22.58
0-50	1Ω	4322050	81F3235	30.00	27.00	21.00	4322050	81F3251	31.00	27.90	21.70	4323050	81F3294	32.25	29.03	22.58
0-100	0.5Ω	4322100	81F3236	30.00	27.00	21.00	4322100	81F3252	31.00	27.90	21.70	4323100	81F3295	32.25	29.03	22.58
0-200	0.25Ω	4322200	81F3237	30.00	27.00	21.00	4322200	81F3253	31.00	27.90	21.70	4323200	81F3296	32.25	29.03	22.58
0-500	0.1Ω	4322500	81F3238	30.00	27.00	21.00	4322500	81F3288	31.00	27.90	21.70	4323500	81F3297	32.25	29.03	22.58
DC AMMETERS—RECTIFIER TYPE																
0-1	50MV/Drop	2322001	81F3298	32.50	29.50	22.50	2322001	81F3306	33.50	30.15	23.45	2323001	81F3298	34.75	31.28	24.33
0-2	50MV/Drop	2322002	81F3299	32.50	29.50	22.50	2322002	81F3307	33.50	30.15	23.45	2323002	81F3299	34.75	31.28	24.33
0-5	50MV/Drop	2322005	81F3300	32.50	29.50	22.50	2322005	81F3308	33.50	30.15	23.45	2323005	81F3323	34.75	31.28	23.33
0-10	50MV/Drop	2322010	81F3301	32.50	29.50	22.50	2322010	81F3316	33.50	30.15	23.45	2323010	81F3324	34.75	31.28	24.33
0-15	50MV/Drop	2322015	81F3302	32.50	29.50	22.50	2322015	81F3317	33.50	30.15	23.45	2323015	81F3325	34.75	31.28	24.33
0-20	50MV/Drop	2322020	81F3303	32.50	29.50	22.50	2322020	81F3318	33.50	30.15	23.45	2323020	81F3326	34.75	31.28	24.33
0-25	50MV/Drop	2322025	81F3304	32.50	29.50	22.50	2322025	81F3319	33.50	30.15	23.45	2323025	81F3327	34.75	31.28	24.33
0-30	50MV/Drop	2322030	81F3305	32.50	29.50	22.50	2322030	81F3320	33.50	30.15	23.45	2323030	81F3328	34.75	31.28	24.33
VU AUDIO) "B" SCALE—RECTIFIER TYPE																
Range	Resis.	Weston P/N	Stk. No.	1-9	10-49	50-99	Weston P/N	Stk. No.	1-9	10-49	50-99	Weston P/N	Stk. No.	1-9	10-49	50-99
0-200VA	208Ω	3322200	81F4902	36.75	33.00	25.50	3322200	81F3243	38.25	34.50	26.50	3323200	81F3245	40.00	36.00	27.75
0-1MA	15Ω	3322001	81F3242	36.75	33.00	25.50	3322001	81F3244	38.25	34.50	26.50	3323001	81F3246	40.00	36.00	27.75
1.73VAC*	3900Ω	3322600	81F3257	40.00	36.00	28.00	3322600	81F3295	42.00	37.00	29.40		.....			
AC VOLTMETERS—RECTIFIER TYPE																
		MODEL 8522					MODEL 8532					MODEL 8542				
0-150	870Ω/v	1322150	81F3231	32.00	28.80	22.40	1322150	81F3254	33.50	30.15	23.45	1323150	81F3255	34.75	31.28	24.33
0-300	870Ω/v	1322300	81F3232	32.00	28.80	22.40	1322300	81F4899	33.50	30.15	23.45	1323300	81F3256	34.75	31.28	24.33
AC VOLTMETER (IRON VANE)—PIVOT & JEWEL TYPE																
FREQ 25-125Hz		MODEL 8524					MODEL 8534					MODEL 8544				
0-50V	680Ω	1322050	81F3260	40.00	37.00	31.00	1322050	81F3264	41.00	38.00	32.00	1323050	81F3227	42.00	39.00	33.00
0-150V	6.2KΩ	1322150	81F3261	40.00	37.00	31.00	1322150	81F3265	41.00	38.00	32.00	1323150	81F3228	42.00	39.00	33.00
0-300V	22.KΩ	1322300	81F3262	40.00	37.00	31.00	1322300	81F3266	41.00	38.00	32.00	1323300	81F3229	42.00	39.00	33.00
0-500V	39.KΩ	1322500	81F3263	40.00	37.00	31.00	1322500	81F3226	41.00	38.00	32.00	1323500	81F3230	42.00	39.00	33.00
AC AMMETER (IRON VANE)—PIVOT & JEWEL TYPE																
FREQ 25-500Hz		MODEL 8524					MODEL 8534					MODEL 8544				
0-5A	0.015Ω	2322005	81F3222	40.00	37.00	31.00	2322005	81F3267	41.00	38.00	32.00	2323005	81F3314	42.00	39.00	33.00
Range	SCALE	FOR USES WITH EXTERNAL TRANSFORMER MODELS 605 & 607														
0-5A	0-100	2322100	81F3223	40.00	37.00	31.00	2322100	81F3268	41.00	38.00	32.00	2323100	81F3315	42.00	39.00	33.00
0-5A	0-150	2322150	81F3224	40.00	37.00	31.00	2322150	81F3269	41.00	38.00	32.00	2323150	81F3281	42.00	39.00	33.00
0-5A	0-200	2322200	81F3225	40.00	37.00	31.00	2322200	81F3270	41.00	38.00	32.00	2323200	81F3282	42.00	39.00	33.00
0-5A	0-400	2322400	81F3309	40.00	37.00	31.00	2322400	81F3271	41.00	38.00	32.00	2323400	81F3283	42.00	39.00	33.00
0-5A	0-500	2322500	81F3310	40.00	37.00	31.00	2322500	81F3272	41.00	38.00	32.00	2323500	81F3284	42.00	39.00	33.00
0-5A	0-800	2322800	81F3311	40.00	37.00	31.00	2322800	81F3273	41.00	38.00	32.00	2323800	81F3285	42.00	39.00	33.00
0-5A	0-1000	2322109	81F3312	40.00	37.00	31.00	2322109	81F3240	41.00	38.00	32.00	2323109	81F3286	42.00	39.00	33.00
0-5A	0-1500	2322159	81F3313	40.00	37.00	31.00	2322159	81F3241	41.00	38.00	32.00	2323159	81F3287	42.00	39.00	33.00

• Mounting holes on 4" centers

Amprobe Test Equipment

VOLT/AMP OHMMETER

Y25

RS-3

ROTARY-SCALE "RS" CLAMP-ON VOLT-AMMETER

Trigger operated, clamp-on transformer jaws permit current readings without interrupting electrical service. Rotary scale reduces reading errors as only selected range is visible in window. Pointer-lock permits measurements in hard-to-reach and darkened areas. Accuracy: ±3% F.S. based on sinusoidal waveform. RS-1000S/1007S have built in manually set, surge indicating capability for measuring starting current surges and voltage increases lasting one-sixth second. With VL-11R leads and "G" case. (*) With Extendo lead pack and "A" case.

Stk. No.	Type	AC Volts	AC Amps	NET
62F659	RS-1	0-150/600	0-6/15/40/100	68.50
62F952	RS-1B	0-150/600	0-6/15/40/100	77.85
62F706	RS-2	0-150/300	0-6/15/40/100	68.50
62F658	RS-3	0-150/300/600	0-6/15/40/100/300	85.85
62F707	RS-300	0-150/300/600	0-6/15/40/100/300	81.85
62F708	RS-1000	0-150/300/600	0-15/40/100/300/1000	114.85
62F709	RS-1007	0-150/300/750	0-15/40/100/300/1000	114.85
62F741	RS-1A*	0-150/600	0-6/15/40/100	76.50
62F953	RS-1BA*	0-150/600	0-6/15/40/100	85.85
62F942	RS-2A*	0-150/300	0-6/15/40/100	76.50
62F943	RS-3A*	0-150/300/600	0-6/15/40/100/300	93.85
62F944	RS-300A*	0-150/300/600	0-6/15/40/100/300	89.85
62F964	RS-1000S	0-150/300/600	0-15/40/100/300/1000	118.85
62F965	RS-1007S	0-150/300/750	0-15/40/100/300/1000	118.85

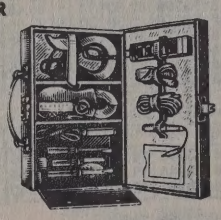
AMPROBE JUNIOR

Only voltage testers in their price range that also measure amperage. Current measurements are made by merely snapping the trigger operated jaws around a single conductor (insulated or non-insulated). They are precision instruments that measure accurately on a calibrated scale ±3% full scale based on sinusoidal waveform (not just an indication). Junior models are the lightest and smallest clamp-on instruments available. Price includes VL-55R test leads.

Stk. No.	Type	Range	NET
62F963	Y25	0-25 Amps AC 0-125/250V AC	36.85
62F967	Y550	0-50 Amps AC 0-150/600V AC	36.85
62F968	Y500	0-100 Amps AC 0-150/600V AC	36.85
62F949	YT1025	0-10/25 Amps AC 0-150/300V AC	43.85

TM-63
A Case

TEST MASTER KITS



TM-43A
U Case

Include **RS-3** clamp-on Volt-amp-ohmmeter except Model TM-60 contains only accessories. (See tab listing for type of accessories included). RS-3 Volt-amp-ohmmeter VLK-311R Extendo Lead Pack, **A45-L** Energizer, **A50-1** Deca-Tran, **PSA-1** Phase Sequence Adaptor.

Stock No.	Type	Contain	NET
62F985	TM-63	RS-3, VLK-311R, A45-L, A Case	109.85
62F983	TM-43A	RS-3, VLK-311R, A50-I, A45-L, U Case	209.85

JUNIOR TEST MASTER KITS

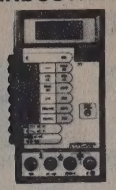
Kit consists of a Model K case that contains one of the YO Amprobe Juniors, an Amprobe A-45L Energizer, battery attachment and All-Weather test leads VL-55R. Ohmmeter range is 25 Ω midscale.

Stk. No.	Type	Ammeter Range	2 Voltage Range	NET
62F966	TM-YO 525	0-25	0-150/600	
62F958	TM-YO 500	0-100	0-150/600	62.85

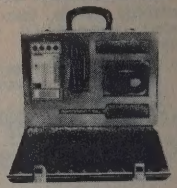
VC Case

VT Tester

AM-4, TAM-4 INDUSTRIAL DIGITAL MULTIMETER



AM-4



TAM-4

Industrial Digital Multimeter 27 basic ranges, accuracy, 8 to 1.5% of reading ± 1 LSD. Sensitive 0-20 UA/20 OHM range. Diode test range, reverse polarity indication, low battery indicator.
Voltage Ranges: 0 to 1.999/19.99/199.9/1000 VAC. 0 to 1.999/19.99/199.9/1000/1500 DC. Resistance Ranges: 0 to 1.999/19.99/199.9/1999KΩ. Current Ranges: 0-19.99/199 uA AC/DC. 0-1.999/19.99/199.9 MA AC/DC 0-10 AMPS AC/DC. Millivolt Ranges: 0-199.9 MU AC/DC.
81FX007 AM4, net 13585
81FX2375 MM44, (case), net 24.85

TAM4 - Kit includes clamp on current transducer to 300 amps/high voltage probe/leakage detector in mm45 deluxe case.
81FX008 NET 269.85

ACD-1 DIGITAL CLAMP-ON VOLT/AMP/OHMMETER

- **Replaceable probe tips.**
- **Withstands momentary overloads up to 50%. Fused ohmmeter.**
- **One hand operation.**
- **"Continuous" or "Peak" readings.**

ACD-2

ACD-1

Measures from 0.1 amp, 0.1 volt, or 0.1 ohm up to 999 amp, volt, or ohm. DC voltage measured by multiplying factor. AC amp and AC accuracy ±2% ±1, based on 25-400 Hz. sinsoidal wave, ohm ±2% ±1. Non-flickering 7/16" high LED. 3000 volts AC case voltage breakdown test. +32°F to 120°F and 95% RH operating temperature and humidity. Jaws accept 2" diameter conductors. Features auto-ranging, Over-range and low battery indications, all weather test leads, one alligator clip adapter, fused ohmmeter test lead, and carrying case. Requires 9V alkaline battery or equivalent, (not included).

62F134 NET 164.85

Model ACD-2 same as ACD-1 but narrow jaws rated at 300A.
62F959 NET 169.85

Model TACD-1. ACD-1 and A-47L Energizer in deluxe case.
62F950 NET 209.85

Model TACD-2. Test master kit consisting of ACD-2, A-47L Energizer and Deluxe Carrying Case.
21F1029 NET 199.85

ACCESSORIES

A47L ENERGIZER
62F977. NET 13.95
OHB BATTERY ATTACH.
62F946. NET 6.75

VLK411R EXT. LEAD PACK
62F988. NET 7.85
VL11R TEST LEADS RS MODELS
62F945. NET 5.25

VOLTPROBE VOLTAGE TESTERS

Pocket-size voltage tester. Frequency range, 25 to 800 cycles. Features removable probe tips, extending coil cord for checks between points up to 50 in. apart, continuous int. contact and spring-loading on captive probe, test button for distinguishing true ground indications from indications due to distributed capacitance or high leakage. Type VC carrying case extra.

Ranges

Stk. No.	Type	Volts, AC	Volts, DC	Each
32F986	VT-100	115/220/277/440/550	115/220/400/600/750	14.50
62F1805	VT-124	24/48/115/220/277/440/550	115/220/400/600/750	22.50
62F974	VC	Carrying Case		5.25

19

Amprobe Testers and Recorders

AMPROBE® MEGOHMMETERS

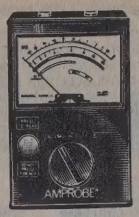
AMB-1. Measures high resistance of conductor and motor insulation and checks low resistance of motor windings and relay coils. Model AMB-1 has a 0-100 megohm range (2.54 midscale), megohm test voltage 500 VDC, a 0-100 ohm range, (4 midscale), a 0-600 V test band and a "Battery OK" test band. Power supplied by 8 "AA" batteries, not included. Supplied with carrying case, test leads, adaptor clips, and manual.

Model AMC-2. Features a 0-100 megohm range (1MΩ midscale), megohm test voltage 500 VDC, 0-200 ohm range (10Ω midscale), guard terminal to eliminate surface leakage current influences, spring-loaded terminal connections and constant voltage generator with an operating crank. Supplied with operations manual, three-piece test lead set (2 clip type, 1 probe type) and two-part carrying case.

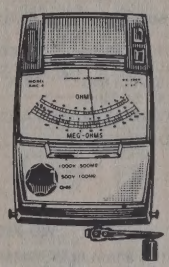
Model AMC-3. Hand-cranked megohmmeter with same features as AMC-2. Test voltage is 1000 VDC. Ranges: 0-500 megohms (5 megohms midscale) and 0-200 ohms (10 ohms midscale).

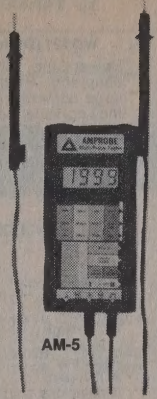
Model AMC-4. Hand-cranked megohmmeter with a 0-100 megohm range (3MΩ midscale), megohm test voltage 500 VDC, a 0-500 megohm range (6MΩ midscale), megohm test voltage 1000 VDC, and a 0-200 ohm range. Combines same features as AMC-2 and AMC-3 in one unit

AMB-1



AMC





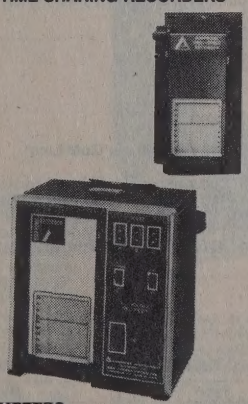
AM-5

Stk. No.	Model	Ranges	Test Voltage	Accuracy	Each
62F133	AMB-1	0-100 MΩ (2.5MΩ midscale) 0-100 ohms (4Ω midscale)	500VDC 6VDC	±5% from .1 to 10MΩ ±10% at all other points	189.85
62F2659	AMC-2	0-100 MΩ (1MΩ midscale) 0-200 ohms (10Ω midscale)	500VDC 6VDC	±5% from .1 to 50MΩ ±10% at all other points ±10%	289.85
62F2660	AMC-3	0-500 MΩ (5MΩ midscale) 0-200 ohms (10Ω midscale)	1000VDC 6VDC	±5% from .5 to 200MΩ ±10% at all other points ±10%	365.85
62F2661	AMC-4	0-100 MΩ (3MΩ midscale) 0-500 MΩ (6MΩ midscale) 0-200 ohms (10Ω midscale)	500VDC 1000VDC 6VDC	±5% from .1 to 50MΩ ±10% at all other points ±5% from .5 to 100MΩ ±10% at all other points ±10%	479.85

STRIP CHART RECORDERS AND TIME SHARING RECORDERS

Compact, rugged recorders that satisfy requirements for OEM applications, service and maintenance work, process control and recording experimental data. AC or DC current, AC or DC voltage, or any variable that can be converted to an electrical signal. Power requirements: 115VAC, 60 cycles, 2.5 watts. Accuracy: AC amps and volts ±3%FS; AC expanded scale volts ±1.25% FS; Temperature ±3°F on +20°F to +100°F; ±4°F on −50°F to +20°F; ±5°F on +50°F to 250°F. Chart Speed is 12"/hr. Supplied with 1 roll each of the necessary strip charts. Other chart speeds available on special order. Weight 20 oz.
§With A-70FL Transducer
*With 3 Transducers

*All "T" versions have take-up reel



AC VOLTMETERS

Stk. No.	Type	Range	Net
62F979	LAV3X	95-130/190-260/380-520 V., AC	188.85
81F9224	LAV3XT	w/Take-up Reel	263.85

AC AMMETERS

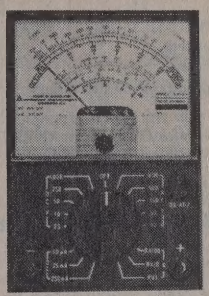
Stk. No.	Type	Range	Net
62F678	LAA81§	0-10/50/250/500 AMPS AC	178.85
81F9225	LAA81T		253.85

AM-5 DROPPROOF DIGITAL MULTITESTER

Replaces Large Bulky Vom's with pocket size dmm perfect for testing motors, & control systems. 2 hand operation, auto zeroing, can withstand 5' drop on hard surface, Reversed Polarity Indication, low battery indicator, 15 industrial ranges.
Voltage Ranges: 0-199.9/1000 V AC/DC. Millivolts: 0-1999 MV AC/DC. Current Ranges: 0-199.9/1999 uA, 0-19.99 MA AC/DC. Resistance Ranges: 0-199.9/1999 0-19.99KΩ. ½" LCD-Imput Impedance 1 MEGO KM. Size 3 1/16w x 6 3/16h x 1½"d. Weight 6½ ozs. Battery 9v alkaline not included. Carrying case model "A".

Stk. No.	Type	Net
81FX006	AM-5	112.85

AM-2A MULTITESTER



5 AC Voltage Ranges
5 DC Voltage Ranges
Meter Movement
Overload Protective Circuitry
95, 950, 9500 Ohms Midscale

Used for troubleshooting controls and related circuitry found on equipment beyond the checking of current, voltage and continuity. Test leads remain flexible to −10°F. Features 3 ohmmeter ranges, 5 AC voltage ranges, 5 DC voltage ranges, 3 DC current ranges, 1 capacitance range and 1 inductance range. Voltage ranges: AC 0-10/50/250/500/1000 (10,000 ohms/volt); DC 0-10/25/50/250/1000 (20,000 ohms/volt). Inductance 0-5,000H; capacitance 250pF-0.02uF. Size: 3½"W×5"H×1 13/16"D. Wt. 13 oz.
62F132. NET 29.50
Type MM. Carrying use for AM2DP or AM-2.
62F961. NET 6.75

AM2DP-Drop proof version of above multitester withstands 5' drop on hard surface.
81FX009 net..... 44.85

AC VOLTAMMETERS

Stk. No.	Type	Range	Net
62F980	LAVA83§	Volts: 95-130; 190-260; 380-520 AC Amps: 0-10/50/20/500 AC	270.85
62F2455	LAVA87§	Volts: 0-150/300/600 AC Amps: 0-10/50/250/500 AC	250.85
81F9226	LAVA83T		345.85
81F9227	LAVA87T		325.85

TIME SHARING RECORDERS

Stk. No.	Type	Range	Net
62F125	LAA3*	Monitors 3 AC Currents 0-15/60/150/300 Amps AC	374.85
62F126	LAV21	Measures AC Voltage and Current 0-150/300/600 VAC, 0-15/60/150/300 Amps AC	339.85
81F9228	LAA3T-12		449.85
81F9229	LAV21T-12		414.85

STRIP CHARTS FOR RECORDERS

Perforated and printed 2 colors. Individually boxed 30' rolls.

Stk. No.	Type	Description	Net
62F128	300SVA	Use with LAA3, LAV21	3.50
62F689	850A	Use with LAA81, LAVA83, 87	3.25
62F690	835X3A	Use with LAV3X, LAVA83	3.25
62F962	3118	Use with LT8200R (−3.5° to +[118°F]	3.50

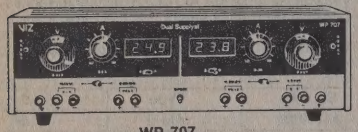
*Panel Mount Recorders available. Please contact your nearest Newark location.

19

Test Equipment

DC Power Supplysts

WP-705, WP-706

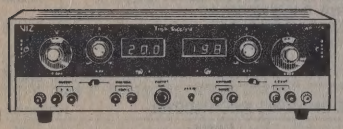


WP-707

- **Adjustable current limiting.**
- **Dual concentric controls.**
- **Simultaneous voltage and current monitoring.**

DC power supplies (WP-707 is a dual supply). Designed to give laboratory type performance. Each supply has adjustable current limiting and dual concentric controls for setting output voltage. Both voltage and current can be monitored simultaneously on the two digital panel meters provided on the WP-705 and WP-706. On the WP-707 dual supplyst the two digital panel meters can be switched to moniter voltage and/or current of either output, also the two outputs can be externally connected in series to give 0-50V at up to 2A. Specs: Output voltage: 0-25VDC (0-50V, WP-705), 5 switched ranges, continuously variable between ranges; fully regulated. Output current: 0-2 Amps (0-4A, WP-706) over entire voltage range; full load. Load regulation: 0.075% max. (0.1%, WP-706) over full operating range. Line regulation: 0.05% max. at full output voltage and current from 105V AC to 130V AC. Riple: 5mV peak to peak, max. Overshoot: none. Output impedance: 1 Ohm DC to 10Khz. Load protection: Current foldback and auto-shutdown. DC voltmeter input: 99.9V DC full scale, 0.1V resolution. Input impedance: 5 Megohms. Panel meters: 3 digit .43" LED, resolution 0.1V and 0.01A, accuracy 1% ±1 digit. Size (HWD): 4" x 15" x 9½" (10 x 38 x 24 cm).

55F4983. Type WP-705. **Net** 315.95
55F4984. Type WP-706. **Net** 329.95
55F4985. Type WP-707. **Net** 409.95



WP-708 DC POWER SUPPLYST

Triple DC power supply designed to give laboratory type performance. Ideal for circuit breadboarding, production testing, service, repair and educational applications. Output voltage: 0-20VDC in four switched ranges, continuously variable, fully regulated. Output current: 0-2 Amps over entire range, full load. Load regulation: 0.075% Max. Line regulation: 0.05% max. Ripple: 5mV peak to peak. Size (HWD): 4" x 15" x 9.5".
55F4986. Type WP-708. **Net** 479.95

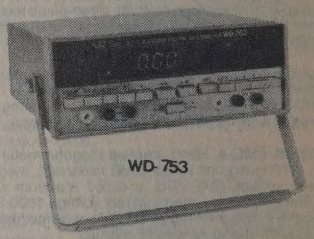
WD121 (Digital) POWER LINE MONITORS

Power-Line Monitors—warn of "brown-out" condition. High accuracy, easy-to-read scale, large numerals and pointer. True rms reading—moving-vane meter gives accurate rms readings, even on distored sine waves. Fast meter action—reveals "bounces" and fluctuations in line voltage. Can be installed between AC line and unit to be monitored. High accuracy, easy-to-read. 8 inch LED display-fused.

	Thru Line	Aux. Input (as digital voltmeter)
Frequency Range	50-60 ZHz	50-60 Hz
AC Voltage Range	100-150V line	0-500V
Accuracy	Line ±1%	Ext ±2%
AC Current	8 Amps Max	N/A
Dimensions	4 x 5 x 3 inch	
Weight	1½ lbs. (670 gms.)	

81F1347 Type WD-121 **Net** 219.95

WD121

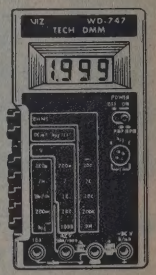


WD-753

WD-753

It does the job of two autoranging DMMs but costs about 30% LESS. Talk about convenience. You can measure or monitor voltage, current or resistance from two points in a circuit. Extra bright digital LED display. Accurate to 0.1% DCV, ±1 digit. Auto-zero, auto-polarity, autoranging. Just push panel buttons to preprogram the instrument to perform the function you want. Measure any value from 1 millivolt to 1000V DC (750V AC). Measure audio frequencies to 20kHz (up to 10V). From 1 microamp to 2A DC or AC. High or low power ohms from 1 ohm to 20 MΩ. You'll soon find it to be the most used instrument you own!

81F1345. Type WD-753. **Net** 384.95

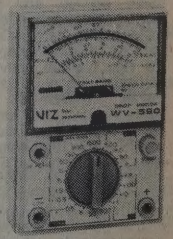


WD-747

WD-747 TECH DMM

LCD readable over wide range of ambient lighting levels. Push button function and range switches are located on one side permitting "one hand" operation, 4 color coded front panel assures positive function/range identification. 10A DC range for testing relays, solenoids and many logic circuits. Measures AC/DC volts, DC current and resistance and tests PNP/NPN transistors. A 4 pin production type socket located on front panel for fast measuring of transistor hFE. Measurement circuits are electronically and fuse protected against accidental overload. Display: 3½ FET LCD, auto-zero, auto polarity, overload indicator. Temp: operating, 0 to 40° C; storage, –20 to 50° C. Humidity: 80 RH. Power: 9V "transistor" battery. Battery Life: 200 hr. cont. use. Size: 6⅝ x 3½ x 1¼. Wt: ¾ lb.

55F5355. Type WD-747. NET 95.95



WV-590

WV-590 Drop-Proof VOM (Super Gold Line)

Drop, shock, vibration, mag. field, dust proof. Rugged constr.: taut band meter, hi-impact case and window, shock-mtd. electronics. Fuse protected electronics, varister protected meter. Sw. contacts gold plated. Meas. ckts. use 1% precision res. 20KΩ/Vdc, 5 functions, 20 ranges. Gold colored case, 3-color coded meter scale and matching range plate. Size 5¼" x 3⅝" x 2".

81F1345 Type WV-590 **Net** 169.95

OTHER VIZ EQUIPMENT AVAILABLE

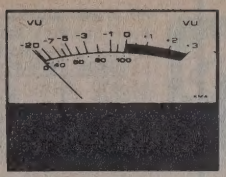
Stk. No.	Type	Description	
62F1656	WA-5048/44D	Square wave generator	149.95
62F1657	WV-120B	AC Power line monitor	45.25
62F1667	WV-510A	Master voltohmyst	229.95
62F1675	WV-516B	2kΩ/V VOM	19.95
62F1676	WV-5178	20kΩ/V VOM	37.00
62F1677	WV-518B	30kΩ/V VOM	49.00
62F1678	WV-519C	50kΩ/V fused VOM	69.00
86F651	WV-526B	300A AC clamp on	89.00
62F1666	WP-26A	400VA Isotap	85.00
62F150	WP-27A	25-150VAC Adj. Isotap	89.95
55F4981	WV-547B	Tech VOM	35.50

Panel Meters

MODUTEC

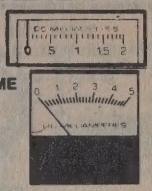
MOVING MAGNET PANEL METERS

Moving magnet panel meters combine good accuracy and dependability with fine appearance. Styles shown feature easily backlit translucent dials, high torque, low friction movements with zero adjust. ±5% full scale accuracy. Dual moving magnets mounted diametrically minimize effects from exterior magnetic fields. Large coil provides for increased sensitivity and excellent ballistics. Integral coil and pivot support for precision alignment and simplicity of construction. Extensive and precise tooling of all parts to achieve precision assembly. Fully adjustable jewel screw to minimize pivot friction error.



3MAS

MSQ



ME

OMS

AC and DC VOLTMETERS

Range	Resistance Ohms±20%	OMS SERIES 1.5" Square Stk. No.	Type	Each	MSQ SERIES 2.5" Square Stk. No.	Type	Each	ME SERIES ¾" x 1⅞" Stk. No.	Type	Each	3MAS SERIES 2⅞" x 3¾" Stk. No.	Each
0-15 VDC	200Ω/V	**62F3546**	1062	8.90	**54F1013**	2062	11.00	**54F1010**	6062	8.90	**54F1018**	3562	11.80
0-50 VDC	200 Ω/V	**62F3547**	1066	8.90	**54F1015**	2065	10.75	**54F1011**	6065	8.40	**54F1019**	3565	11.80
					54F1017	2070	10.75	.....	....	....	.....	....	.....
					54F1006	2092	11.25	**54F1004**	6092	9.15	**54F1008**	3592	12.05
					54F1007	2093	11.25	**54F1005**	6093	9.15	**54F1009**	3593	12.05

DC AMMETERS, MILLIAMMETERS

0-1 A	.04	**62F3543**	1031	8.90	**54F1022**	2031	10.50	.....	....	....	.....	....	.....
0-2 A	.02	.....	....	....	**54F1023**	2032	10.50	.....	....	....	.....	....	.....
0-5 A	.002	**62F3544**	1034	8.90	**54F1024**	2034	10.50	**54F1020**	6034	8.90	**54F1027**	3534	11.55
0-10 A	.002	.....	....	....	**54F1025**	2035	9.95	.....	....	....	.....	....	.....
0-25 A	.002	**62F3545**	1038	8.10	.....	....	.....	**54F1021**	6038	8.10	**54F1028**	3538	10.75
0-30 A	.002	.....	....	....	**54F1026**	2039	9.95	.....	....	....	.....	....	.....
0-1 mA	2300.00	**62F3541**	1011	8.90	**54F1032**	2011	10.75	**54F1029**	6011	9.95	**54F1035**	3511	11.55
0-5 mA	500.00	**62F3542**	1014	8.65	**54F1033**	2014	10.50	.....	....	....	.....	....	.....
0-500 mA	.12	.....	....	....	**54F1034**	2022	10.20	.....	....	....	.....	....	.....

ILLUMINATION KIT

Model KM6-25P. For MS/MSQ Type meters only. Consists of two 6V lamps and two holders, with spacers and instructions. For 6V or 12V use, parallel or series hookup.
54F1036. NET 6.35

rustrak

Chart Recorder

EVENT RECORDER

Model 288:

- **Small size**
- **DC single channel recorder**
- **Inkless dry writing on rectilinear chart paper**

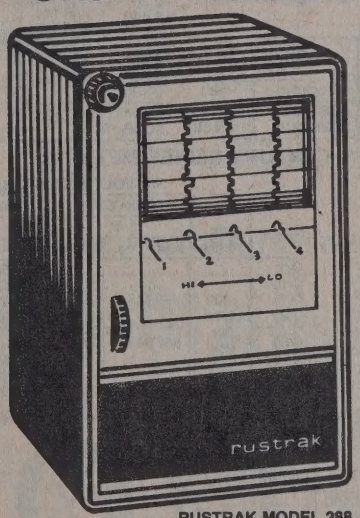
Model 292:

- **Small size**
- **4 or 8 channel on-off recording in a package only 3⅝" wide**
- **UL listed**
- **Inkless dry writing on rectilinear chart paper**

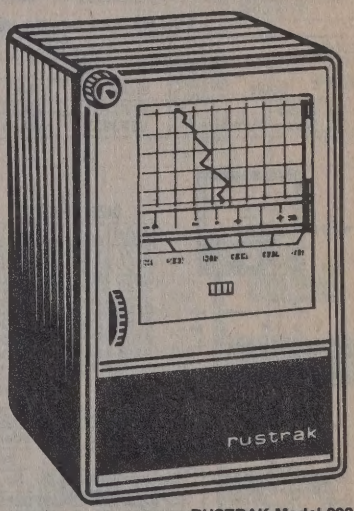
DC SINGLE CHANNEL RECORDER

Model 288. Measures and records electrical signals without amplification. Writes on pressure sensitive rectilinear chart paper by making a series of dots which form a continuous line representing the function being monitored. Inkless, dry writing offers wide range of sensitivities, writing speeds and chart speeds. Incorporates both chart tear-off and chart reroll. Chart can be reviewed and rerolled while recorder is operating. Sliding access window permits operator to make notations on chart. Die-cast aluminim case is finished in epoxy suede-like charcoal grey. Thumbwheel on front panel facilitates precise setting of timing lines or chart paper and permits quick discharge of recorded data when using tear-off operation. Usable chart width: 2⅝". Accuracy: ±2% of full scale. Response time: less than 1.0 sec. Dimensions: 5⅝"H, 3⅝"W, 4⅛"D. Wt.: 3½ lbs. approx. Range: 0-1 mA.

62F2193. NET 205.00
As above except Range: 0-10 mV.
62F2195. NET 236.00



RUSTRAK MODEL 288



RUSTRAK Model 292:

MULTI-CHANNEL EVENT RECORDER

Model 292, four or eight channel event recorders provide a permanent record of four or eight individual channels of ON-OFF data. Actuator specifications (select when ordering):6VDC-300mA; 12VDC-150mA; 24VDC-70mA; 48VDC-35mA AC-6, 12, 24, 48, 115, 240; Response time: 10 ms (up to 20 Hz ON-OFF signal). Record pattern: continuous rectangular. Standard Motor: 2RPM, 115VAC, 60 Hz. Standard gear train #12.
62F2181 Model 292-4 (4 channel). Net 277.02
62F2182 Model 292-8 (8 channel). Net 384.18

CHART SPEED DATA

2 RPM MOTOR	Gear Train No.	#¼	#½	#1	#2	#3	#6	#10	#12	#15	#30	#60
	Chart Speed (In/Hr)	¼	½	1	2	3	6	10	12	15	30	60
	A or B (Sec)	720	360	180	90	60	30	18	15	12	6	3

CHART PAPER (63 Foot Roll)

Stk. No.	Type	Description	NET
62F1262	WA	50 Divisions	5.20
62F1263	WB	75 Divisions	
62F1244	WD	20 Div. (Dual Channel)	

Stk. No.	Type	Description	NET
62F1329	LE	4-Channel Event	5.20
62F2186	WH	40 Divisions	
62F2188	WK	60 Divisions	

Simpson

Panel Meters

WIDE-VUE PANEL METERS

AC VOLTMETERS from Vane Type Movement

Range	Approx. Impedance (ohms) @ 60 Hz	Model 1257 Stock No.	Model 1257 Net	Model 1357 Stock No.	Model 1357 Net	Model 1359 Stock No.	Model 1359 Net
0-10	133	55F1534	36.15	.....	.....	.....	.....
0-50	3,333	.....	.....	55F2527	37.95	55F2534	42.15
0-150	25,000	55F1535	37.95	55F1585	40.35	55F1635	43.20
0-300	50,000	55F1536	37.95	55F1586	40.35	55F1636	43.20
0-500	83,333	.....	.....	55F2530	51.15	55F2537	54.45

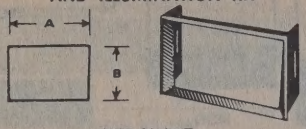
AC AMMETERS Iron Vane Type Movement

0-1	.213	.....	.....	55F1537	36.15	55F1587	38.25
0-2	.065	.....	.....	55F2589	36.15	55F2596	38.25
0-3	.028	.....	.....	55F2590	36.15	55F2597	38.25
0-5	.008	55F2582	34.50	55F1538	36.15	55F1588	38.25
0-10	.004	55F2583	34.50	55F1539	36.15	55F1589	38.25
0-15	.0025	55F2584	34.50	55F1540	36.15	55F1590	38.25
0-25	.002	55F2585	35.55	55F1541	37.65	55F1591	39.90
0-50	.001	55F2586	35.55	55F1542	37.65	55F1592	39.90
0-75	.0002	.....	.....	55F1008	40.35	.....	.....
0-100	.008	.....	.....	55F2591	36.15	55F2598	38.25
0-200	.008	.....	.....	.....	.....	55F2600	38.25
0-300	.008	.....	.....	55F2594	36.15	.....	.....

AC MILLIAMMETERS Iron Vane Type Movement

0-50	80	.....	.....	55F2539	36.15	.....	.....
0-100	17.2	.....	.....	55F2540	36.15	.....	.....
0-250	3.15	.....	.....	55F2541	36.15	.....	.....
0-500	.9	55F2538	34.50	.....	.....	.....	.....

WIDE VUE MOUNTING BEZEL AND ILLUMINATION KIT



SIZE CHART

Part No.	A	B
1253	3.390	2.078
1123	4.812	2.750

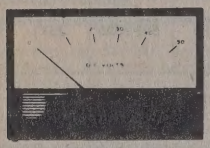
Type 01253—use with **Models 1327, 1337, 1347, 1357.**

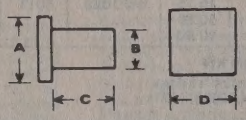
Type 01123—use with **Models 1329, 1339, 1349, 1359, 1379.**

Type 01165. Illumination kit for abv.

Prices

Stk. No.	Type	Net
55F4353	01253	5.25
55F4354	01123	5.25
62F1446	01165	5.10





PRICE CHART

Model	A	B	C	D
523	2.67	2.16	1.31	3.95
524	2.90	2.16	1.31	4.50

2% FS accuracy. Black phenolic with glass windows. Hardware.
523: scale length 79mm.
524: scale length 89mm.

DESIGNER SERIES PANEL METERS

DC VOLTMETERS Self-Shielding

Range	Approx. Resistance (ohms)	Model 523 3½" Stock No.	Model 523 3½" NET	Model 524 4½" Stock No.	Model 524 4½" NET
0-5	1000 ohms per volt	62F3315	41.10	.....	.....
0-10		.....	.....	62F3320	44.70
0-15		55F735	41.10	.....	.....
0-30		55F736	41.10	.....	.....
0-150		62F3318	41.10	.....	.....

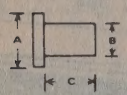
DC MICROAMMETERS Self-Shielding

0-25	2100	55F717	60.15	.....	.....
0-50	1800	55F718	48.75	55F724	52.35
0-100	1800	55F719	44.70	55F725	49.65
50-0-50	1800	55F721	44.70	55F727	49.95
100-0-100	1100	55F722	41.55	.....	.....

VU METERS Self-Shielding

Scale	Model 543 3½" Stock No.	Model 543 3½" Net	Model 544 4½" Stock No.	Model 544 4½" Net
"A" Scale	55F748	63.45	55F764	69.45
"A" Scale, Illuminated	62F3337	69.90	62F3338	75.30

CENTURY SERIES METERS



SIZE CHART

Model	A	B	C
2121	1½"	1.51	2.04
2122	2½"	2.16	2.04
2123	3½"	2.69	2.04
2124	4½"	2.69	2.04
2152	2½"	2.16	2.04
2153	3½"	2.69	2.04
2154	4½"	2.69	2.04

DC VOLTMETERS—Self-Shielding Meter Movement

Range	Res. ohms	Model 2121 1½" Stock No.	Model 2121 1½" Net	Model 2122 2½" Stock No.	Model 2122 2½" Net	Model 2123 3½" Stock No.	Model 2123 3½" Net	Model 2124 4½" Stock No.	Model 2124 4½" Net
0-5	1000 ohms per volt	.....	.....	55F5357	39.90	.....	.....		
0-10		.....	.....	55F5358	39.90	.....	.....		
0-15		55F5412	37.35	55F5359	39.90	55F5368	41.10	55F5377	44.70
0-25		.....	.....	55F5360	39.90	.....	.....	.....	.....
0-30		55F5413	37.35	.....	.....	55F5370	41.10	.....	.....
0-50		.....	.....	55F5362	39.90	55F5371	41.10	.....	.....
0-100		.....	.....	55F5363	39.90	.....	.....	.....	.....
0-150		.....	.....	55F5364	39.90	55F5373	41.10	.....	.....
0-300		.....	.....	.....	.....	.....	.....	.....	.....

DC AMMETERS

Range	Ohms	Model 2122 2½" Stk. No.	Model 2122 2½" Net	Model 2123 3½" Stk. No.	Model 2123 3½" Net	Model 2124 4½" Stk. No.	Model 2124 4½" Net
0-3	.0166	55F5252	38.10	55F5259	39.90	.....	.....
0-5	.010	55F5253	38.10	55F5260	39.90	.....	.....
0-10	.005	55F5254	38.10	.....	.....	.....	.....
0-15	.0033	55F5255	38.10	.....	.....	.....	.....
0-25	.0020	55F5256	38.10	55F5263	39.90	.....	.....
0-50	.001	55F5257	38.10	.....	.....	52F5272	43.20
0-100	10.0	.....	.....	55F5265	39.90	52F5273	43.20
DC MICROAMMETERS							
0-50	1800(5500†)	55F5300	47.85	.....	.....	55F5322	52.35
0-100	1800	55F5301	43.20	55F5311	44.70	55F5324	49.65
0-200	1100	.....	.....	55F5313	41.10	55F5326	44.70
25-0-25	1800(5500†)	.....	.....	55F5315	49.20	55F5328	52.65

(†) Resistance of Model 2121

DC MILLIAMMETERS

Range	Res. ohms	Model 2122 2½" Stock No.	Model 2122 2½" NET	Model 2123 3½" Stock No.	Model 2123 3½" NET
0-3	2.0	.....	.....	55F5341	38.40
0-5	2.0(20†)	.....	.....	55F5342	38.40
0-25	4.0(6.0†)	.....	.....	55F5344	39.90
0-100	1.0(1.5†)	55F5337	38.10	.....	.....
0-500	.20(.30†)	.....	.....	55F5349	39.90

AC VOLTMETERS

Range	Approx. Imp. (ohms) @ 60 Hz.	Model 2153—3½" Stock No.	Model 2153—3½" NET	Model 2154—4½" Stock No.	Model 2154—4½" NET
0-150	25,000	55F5387	40.35	55F5392	43.20
0-250	41,166	55F5388	40.35	.....	.....
0-300	50,000	55F5389	40.35	.....	.....

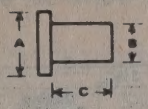
AC AMMETERS

Range	Imp. Ohms @ 60 Hz	Model 2152 2½" Stock No.	Model 2152 2½" NET	Model 2153 3½" Stock No.	Model 2153 3½" NET	Model 2154 4½" Stock No.	Model 2154 4½" NET
0-5	.008	55F5275	34.50	55F5284	36.15	55F5291	38.25
0-10	.004	55F5276	34.50	55F5285	36.15	55F5292	38.25
0-15	.0025	55F5277	34.50	55F5286	36.15	.....	.....
0-25	.002	55F5278	35.55	55F5287	37.65	.....	.....
0-50	.001	55F5280	35.55	55F5280	37.65	55F5295	39.90

Round and Rectangular Panel Meters

Simpson

SIZE CHART			
Model	A	B	C
25, 55	3.50″	2.75″	1.31″
27, 47, 57	3.12″	2.75″	1.36″
29, 59	4.20″	2.75″	1.00″
77	3.12″	2.75″	2.11″
79	4.20″	2.75″	1.68″
142	3.94″	3.25″	1.00″



All DC meters have the Simpson self shielded movement and are self contained for ranges up to and including 50 amperes. Higher range DC ammeters (50MV) listed are calibrated for 5 ft. leads and require external shunts. Accuracy ±2% of full scale.

Model 27

Model 25

Model 29

AC VOLTMETER Iron Vane Type Movement

Range	Approx. Imp. Ohms 60 Hz	3½″ Case Model 55	3½″ Case Model 57	3½″ Case Each	4½″ Case Model 59	4½″ Case Each
0-10	133	55F1067	.....	37.95	.....	.....
0-50	33,333	55F1069	.....	37.95	.....	.....
0-150	25,000	55F1071	55F115	40.35	55F181	44.10
0-250	41,166	.....	55F273	40.35	62F3296	44.10
0-300	50,000	55F1072	62F3291	40.35	55F191	43.20
0-500†	83,333	.....	.....	.....	55F192	54.45
0-1000†	166,666	.....	55F275	59.25	.....	60.90

(†) External multipliers model 183 furnished with meter.

Range	Res. ohms	3½″ Case Model 25	3½″ Case Model 27	3½″ Case Each	4½″ Case Model 29	4½″ Case Each
0-5	1000 ohms per volts	.....	55F039	41.10	.....	.....
0-15		.....	.....		55F251	44.70
0-25		.....	55F038		.....	.....
0-30		55F1112	.....	41.10	55F145	40.05
0-50		55F1015	55F043		55F183	
0-100		62F3253	.....		55F252	
0-150		.....	55F045		55F170	
0-250		55F1018	.....	41.10	.....	.....
0-300		.....	.....		55F184	44.70
0-3000†	2000 ohm/vt.	.....	.....	.....	55F255	59.70
.....		.....	.....	.....	.....	.....

(†) External multipliers model 183 furnished with meter.

DC MICROAMMETERS Self-Shielding Meter Movement

Range	Res. ohms	3½″ Case Model 25	3½″ Case Each	4½″ Case Model 29	4½″ Case Each
0-50	1800	55F1031	48.75	.....	.....
0-50	1800	.....	48.75	55F176	52.35
0-100	1800	.....	44.70	55F177	49.65

AC AMMETERS Iron Vane Type Meter Movement

Range	Res. ohms	3½″ Case Model 25	3½″ Case Model 27	3½″ Case Each	4½″ Case Model 29	4½″ Case Each
0-3	.028	.....	.....	.....	55F194	38.25
0-5	.008	55F1088	.....	36.15	55F195	38.25
0-10	.004	55F1089	55F134	36.15	55F196	38.25
0-15	.0025	55F1119	55F156	36.15	55F282	38.25
0-25	.002	55F1090	55F135	37.65	55F197	39.90
0-50	.001	55F1091	55F136	37.65	55F219	39.90
0-100**	.008	55F1121	.....	36.15	55F284	38.25

(**) Require external transformer.

DC AMMETERS Self-Shielding Meter Movement

Range	Res. ohms	3½″ Case Model 25	3½″ Case Model 27	3½″ Case Each	4½″ Case Model 29	4½″ Case Each
0-2	.025	.....	.....	39.90	55F259	43.20
0-3	.0166	55F1057	.....		55F260	
0-5	.010	.....	.....		55F210	
0-10	.005	.....	55F064	39.90	55F211	43.20
0-25	.0020	55F1060	.....		55F261	
0-30	.0017	.....	55F4828		.....	
0-50	.001	.....	.....	39.90	55F212	43.20
0-200*	10.0	62F3268	.....		.....	
0-300*	10.0	.....	.....		62F3279	
0-500*	10.0	.....	.....		62F3280	
50-0-50	.0017	55F1062	.....	41.85	.....	.....

(*) Require external shunt.

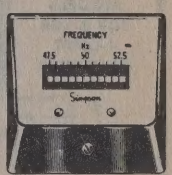
WATTMETERS Dynamometer Type Single Phase Accuracy ±2%

Range	Maximum Volts	Maximum Amps	Model 79 Stock No.	Model 79 Each
0-75	150	1.0	55F232	97.80
0-150	150	2.0	55F233	
0-300	150	4.0	55F234	
0-750	150	10.0	55F235	103.95
0-1500	300	10.0	55F236	
0-3000	300	20.0	55F1140	

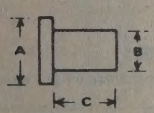
FREQUENCY METERS — RESONANT TYPE

Stock No.	Hz Rating	Case Mod.	Case Size	Case Style	No. Reed	Hz Between Reeds	Type No.	Each
57F2463	55-60-65	2163	3½″	Century	11	1	03496	86.70
55F5180	47.5-50-52.5	2163	3½″	Century	11	.5	03490	86.70
55F5181	57.5-60-62.5	2163	3½″	Century	11	.5	03491	80.25

Frequency: 50, 60, or 400 Hz. nom. No. of reeds: 11 general purpose, 21 high resolution. Accuracy ±0.3% of mid-scale. Temp. Coeff. −0.017% per°C max. Operating voltage 100-150VAC. Uses tuned steel reeds to indicate AC frequency.



2½″ and 3½″ AC ELAPSED TIME METERS



SIZE CHART			
Model	A	B	C
108 ET	2.69	2.20	2.30
55 ET	3.50	2.75	2.55
57 ET	3.12	2.75	2.60
1357 ET	3.25	2.75	2.37
2153 ET	3.00	2.69	1.34

55 ET

57 ET

1357 ET

2153 ET

Widely used by research laboratories, manufacturing plants, and broadcast stations. 120 or 240 V AC operation. Synchronous accuracy. **Model 55 ET**; Standard round styling. **Model 57 ET**; Standard rectangular styling. **Model 108 ET**; Interchangeable round and square front mounting bezels. **Model 1357 ET**: Wide-Vue styling. **Model 2153 ET**: Century Series styling.

120 VAC Models (±10%) 60 Hz

Maximum Indication (Hours)	Power Req.	Acc.	Model Size	Model (Type) No.	Stock No.	Each
99,999.9	5 W	synch.	3½″	55 ET	55F4359	47.55
99,999.9	5 W	synch.	3½″	1357 ET	55F4360	47.55
99,999.9	5 W	synch.	3½″	57 ET	55F4361	47.55
99,999.9	5 W	synch.	3½″	2153 ET	55F2473	47.55

240 VAC Models (±10%) 60 Hz

Maximum Indication (Hours)	Power Req.	Acc.	Model Size	Model (Type) No.	Stock No.	Each
99,999.9	5 W	synch.	3½″	55 ET	55F4363	47.85
99,999.9	5 W	synch.	3½″	57 ET	55F4364	47.85
99,999.9	5 W	synch.	3½″	1357 ET	55F4365	47.85
99,999.9	5 W	synch.	3½″	2153 ET	55F2475	47.85

Simpson Meter Relays and Controllers

METAL CASED "RUGGED SEAL" CONTROLLERS AND METER RELAYS

3½"

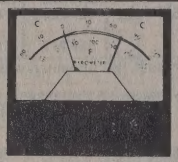
4½"

Contactless type. Photoconductor sensing. High gain transistor switch circuit. Fail safe circuitry. DPDT output relays, 10 amp contacts. Sealed metal case. Glass window. Self-shielding annular movement. 115 VAC, 50-500 Hz. Acc. ±2% FS.

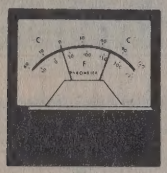
Range	Approx. Res. (ohms)	3½" Single Control Pt. (High Limit)		3½" Double Control Pt.		4½" Single Control Pt. (High Limit)		4½" Double Control Pt.	
DC MICROAMPERES		Model 3623AIXA				Model 3324AIXA			
		Stock	1-9	Stock	1-9	Stock	1-9	Stock	1-9
0-50	2000	58F1252	114.10			55F2467	182.40		
0-100	570	58F1253	158.25			57F2540	176.85		
DC MILLIAMPERES						Model 3324AIXA			
0-1	43	58F1254	151.50			57F2527	169.80		
DC MILLIVOLTS						Model 3324AIXA			
0-50	50	58F1280	155.70					57F2508	219.75

PYROMETERS

Model 29



Model 2123



Model 3324

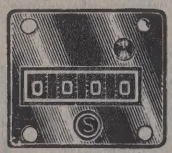
Available in a variety of styles and ranges, all models are manufactured with ambient (bi-metal) cold-junction and circuit copper compensation. Accuracy: 2%. Each pyrometer furnished with external, adjustable series resistor to permit use of lower resistance thermocouples in the field. Thermocouples not included. Thermocouples required are either Iron/Constantan (I/C) or Chromel/Alumel (C/A). Model 29-standard phenolic. Model 2123-3½" Century series style. Model 2124-4½" Century series style. Modest 3324-Rugged seal, metal cased for extreme conditions.

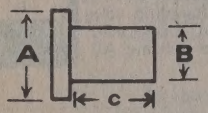
Temperature Range °F	Temperature Range °C	Approx. Sen. (mA)	Model 29 Stk. No.	Model 29 Each	Model 2123 Stk. No.	Model 2123 Each	Model 3324 Stk. No.	Model 3324 Each
-150/+250*†	-100/+120*†	.40			62F3216	63.30		
0/+300*†	-20/+150*†	.40	55F701	65.40	62F3217	63.30		
0/+500*†	-20/+260*†	.35	55F702	65.40	62F3218	63.30	55F706	89.10
0/+750*†	-20/+400†	.30	55F703	65.40	62F3219	63.30	55F707	89.10
0/+1000†	-20/+540†	.28					62F3232	89.10
0/+1500**	-20/+820**	.42			62F3221	58.50		
0/+2000**	-20/+1200**	.43					62F3234	84.30
0/+2500**	-20/+1380**	.40			62F3233	58.50	62F3235	84.30

(*) Taut Band. (†) I/C Thermocouple. (**) C/A Thermocouple.

ELECTRO-MECHANICAL COUNTERS

MODELS 103 & 104 4-DIGIT COUNTERS





SIZE CHART

Model	A	B	C
103+104	1.84"	1.03"	1.88"

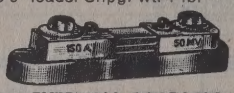
Four-Digit Counters, rated at 10 counts per second. Are reset to 0000 with a single push-button control. The black matte finish bezel is made from tough thermosetting materials which withstand high impacts. Min. pulse duration is 50 millisec. "on" and 50 millisec. "off". Power Consump; 4.2 watts (nominal).

Stock No.	Type	Voltage	NET
55F4853	103	117VAC	38.25
55F4854	104	6VDC	
55F4855	104	12VDC	

THERMOCOUPLES, SHUNTS AND TRANSFORMERS

SHUNTS FOR DC AMMETERS

For use with switchboard and panel meters where external shunts are required. Includes 5" leads. Shpg. wt. 1 lb.



EXTERNAL PORTABLE

Stock No.	Type	Amps	Each
55F294	6700	1	20.70
55F295	6703	5	
55F264	6704	10	
55F265	6705	15	
55F296	6707	25	

EXTERNAL PORTABLE (Cont'd)

Stock No.	Type	Amps	Each
55F266	6709	50	20.70
55F267	6711	75	
55F2569	6713	100	
55F2570	6715	200	

SWITCH BOARD SHUNTS

55F2572	6504	200	22.20
55F2573	6506	300	22.20
55F298	6508	500	31.80

CURRENT TRANSFORMERS FOR AC AMMETERS

Inserted one turn primary type for use with switchboard and panel ammeters where external transformers are required.

Stock No.	Type	Pri.	Sec.	Each
55F269	1293	50 amps	5	18.75
55F2575	1306	75 amps	5	
55F270	1297	100 amps	5	
55F2576	1298	150 amps	5	
55F2577	1299	200 amps	5	
55F2578	1300	300 amps	5	
55F2579	1301	500 amps	5	

THERMOCOUPLES

Types 21221 and 21224. Iron-constantan thermocouple wire in stainless steel overbraid. Glass cloth overbraid. Wt. ¼ lb.

Types 21222 and 21233. Glass cloth overbraid. For gen. purpose use.
Types 21231 and 21232. C/A types.

Stock No.	Type	Resistance	Each
55F708	21221	5 ohms	28.65
55F709	21222	10 ohms	10.40
55F710	21223	10 ohms	8.70
55F711	21224	10 ohms	51.25

Wide-Vue Panel Meters

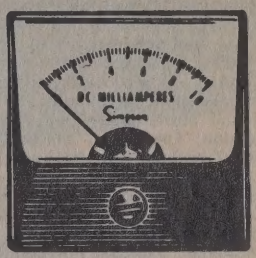
Simpson

SPECIFICATIONS OF WIDE VUE METERS

Size	Type and Model No.				
	DC	AC		RF	Watt
		Rectifier	Iron Vane		
1½"	1212, 1212T	1214	.....	.....	.....
2½"	1227, 1227T	1247	1257	.....	.....
3½"	1327, 1327T	1347	1357	1337	.....
4½"	1329, 1329T	1349	1359	1339	1379

Range	Approx. Resistance (ohms)	Model 1212 1½"		Model 1227 2½"		Model 1327 3½"		Model 1329 4½"	
		Stock No.	NET	Stock No.	NET	Stock No.	NET	Stock No.	NET
DC VOLTMETERS Self-Shielding Meter Movements									
0-5	1000 ohms per volt	**55F436**	37.35	**55F1143**	39.90	**55F1146**	41.10	.....	.....
0-10		**55F437**	37.35	**55F1500**	39.90	**55F1550**	41.10	**55F1600**	44.70
0-15		**55F438**	37.35	**55F1501**	39.90	**55F1551**	41.10	**55F1601**	44.70
0-25		**55F439**	37.35	**55F1502**	39.90	**55F1552**	41.10	**55F1602**	44.70
0-30		**55F440**	37.35	**55F1503**	39.90	**55F1553**	41.10	**55F1603**	44.70
0-50		**55F441**	37.35	**55F1504**	39.90	**55F1554**	41.10	**55F1604**	44.70
0-100		**55F442**	37.35	**55F1505**	39.90	**55F1555**	41.10	.....	.....
0-150		**55F443**	37.35	**55F1506**	39.90	**55F1556**	41.10	**55F1606**	44.70
0-200		.....	.....	.....	.....	**55F1148**	41.10	.....	.....
0-500	2000 ohms per volt	.....	.....	.....	.....	**55F1558**	43.20	.....	.....
DC AMMETERS Self-Shielding Meter Movement (*) require external shunt.									
0-1	.050	**55F447**	37.35	**55F1172**	38.10	.....	.....	.....	.....
0-1.5	.033	.....	.....	**55F1173**	38.10	**55F1181**	39.90	**55F1191**	43.20
0-2	.025	**55F448**	37.35	.....	.....	**55F1560**	39.90	.....	.....
0-3	.0166	**55F449**	37.35	.....	.....	**55F1561**	39.90	.....	.....
0-5	.010	**55F466**	37.35	**55F1512**	38.10	**55F1562**	39.90	**55F1612**	43.20
0-10	.005	**55F467**	37.35	**55F1513**	38.10	**55F1563**	39.90	**55F1613**	43.20
0-15	.0033	.....	.....	**55F1176**	38.10	**55F1564**	39.90	**55F1614**	43.20
0-25	.0020	.....	.....	**55F1177**	38.10	**55F1565**	39.90	**55F1615**	43.20
0-30	.0017	.....	.....	.....	.....	**55F1182**	39.90	**55F1192**	43.20
0-50	.001	.....	.....	**55F1178**	38.10	**55F1566**	39.90	**55F1616**	43.20
0-100	10.0	.....	.....	**55F1179**	38.10	**55F1183***	39.90	**55F1193***	43.20
0-200	10.0	.....	.....	.....	.....	**55F1185***	39.90	**55F1195***	43.20
0-300	10.0	.....	.....	.....	.....	.....	39.90	**55F1196***	43.20
0-500	10.0	.....	.....	.....	.....	.....	.....	**55F1197***	43.20
DC MILLIAMMETERS Self-Shielding Meter Movement									
0-1	43	**55F481**	35.55	**55F1517**	37.65	**55F1567**	38.40	**55F1617**	41.10
0-3	2.0	.....	.....	**55F1198**	37.65	**55F2501**	38.40	.....	.....
0-5	2.0 (20†)	**55F482**	35.55	**55F1518**	37.65	.....	.....	.....	.....
0-10	10-0(2.2†)	**55F483**	35.55	**55F1519**	37.65	.....	.....	.....	.....
0-15	6.6 (2.2†)	.....	.....	.....	.....	**55F2502**	38.40	.....	.....
0-20	5.0	.....	.....	.....	.....	**55F2503**	38.40	**55F2508**	41.10
0-25	4.0 (6.0†)	**55F485**	37.35	**55F1520**	38.10	**55F1570**	39.90	.....	.....
0-50	2.0 (3.0†)	**55F486**	37.35	**55F1521**	38.10	**55F1571**	39.90	.....	.....
0-100	1.0 (1.5†)	**55F487**	37.35	.....	.....	**55F1572**	39.90	**55F1622**	43.20
0-200	.50 (.75†)	**55F489**	37.35	**55F1524**	38.10	.....	.....	**55F1624**	43.20
0-250	.40 (.60†)	.....	.....	**55F2500**	38.10	.....	.....	.....	.....
0-300	.33 (.50†)	**55F491**	37.35	.....	.....	.....	.....	.....	.....
0-500	.20 (.30†)	**55F492**	37.35	**55F1527**	38.10	**55F1577**	39.90	**55F1627**	43.20
DC MICROAMMETERS Self-Shielding Meter Movement									
0-50	1800 (5500†)	**55F473**	46.50	**55F1529**	47.85	**55F1579**	48.75	**55F1629**	52.35
0-100	1800	**55F474**	41.55	**55F1530**	43.20	**55F1580**	44.70	**55F1630**	49.65
0-200	1100	.....	.....	**55F1531**	39.30	**55F1581**	41.10	**55F1631**	44.70
25-0-25	1800 (5500†)	**55F477**	46.95	.....	.....	.....	.....	.....	.....
50-0-50	1800	**55F478**	41.85	**55F1533**	43.95	**55F1583**	44.70	**55F1633**	49.95
100-0-100	1100	**55F479**	38.10	**55F4850**	39.90	**55F2513**	41.55	.....	.....
TAUT BAND DC MICROAMMETERS									
0-10	4900	.....	.....	.....	.....	**55F2228**	79.20	.....	.....
0-25	1960	.....	.....	**55F2225**	65.85	**55F2230**	69.00	.....	.....
0-100	500	.....	.....	.....	.....	.....	.....	**55F2237**	53.85

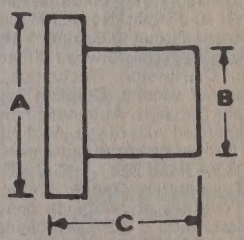
(†) Resistances of Model 1212 shown in ( ).



Accuracy
DC; RF; AC Iron Vane Wattmeters ±2% AC Rectifier Meters ±3%

Scale Length	Pointer
1.50" (38.1mm)	Lance, Black
2.30" (58.4mm)	Spade, Black
3.14" (79.7mm)	
3.93" (100mm)	

All meters have self shielded type movement (calibration not affected by magnetic fields or magnetic mounting). DC ammeters up to 50 amps are self contained. All meters are accurate ±2% of F.S. Plastic covers for maximum protection of meter face. Average shipping weight 1 lb.



SIZE CHART

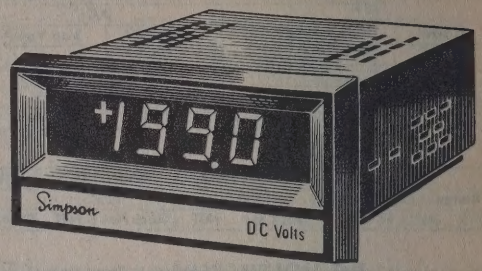
Model	A	B	C
1212	1.76"	1.50"	.87"
1227	2.47"	2.17"	1.06"
1327	3.25"	2.73"	1.08"
1329	4.68"	2.75"	1.08"

Simpson Digital Panel Meters

MODEL 2840 4½ DIGITAL PANEL METERS

SPECIFICATIONS

Accuracy: ±.02%, voltage; ±.05% current. **Temperature Coef.:** ±.003% +.1 digit, voltage: ±.01% +.1 digit, current. **Resolution:** 1 part in 20000. **Sensitivity:** 10 μV for 200 mV; 10 nA for 200 μA. **Input Bias Circuit:** 100 pA max. at reference conditions. **Response Time (to rated accuracy):** 1 sec max. **Common Mode Rejection (with 1KΩ unbalance @ 60 Hz):** 120 dB min. (2840). **Normal Mode Rejection:** 60 dB @ 60 Hz. **Rated Circuit to Ground Voltage (maximum common mode voltage):** 250 VDC between either input terminal and power line ground (2840) or VDC terminals (2841). **Conversion:** Technique, charge balance. Rate, 2 samples/sec. **Display:** Type 7-segment, high efficiency LEDs with .043" numerals. 4 full digits and "1" for overrange. Automatic plus/minus polarity indicators. Fixed decimal. **Power Requirements:** 2840: 120, 220, or 240 VAC ±10%, 50 Hz to 400 Hz, 4 VA. 2841: 5 VDC ±5% at 750 mA. **Temperature Range:** 0° C to 55° C, operating; 40° C to 60° C, storage. **Humidity:** 0 to 85%, non-condensing. **Reference Conditions:** Temperature: +23° C ±2° C. Atmospheric Pressure: 575 to 800 mmHg. Relative Humidity: 30 to 60%. Warm-up Time: 15 min. @ ref. conditions. **Dimensions:** 99 x 49 x 109 mm. fits standard 1.682" x 3.622" cutout. With adapters, fits IEC/DIN 1.77" x 3.622" or 1.682" x 3.92" cutouts.



Utilizes solid-state IC electronics with 0.42" LED display. I/O edge connector incl. Model 2841, 5 VDC; Model 2840, 120/240 VAC.

DC VOLTAGE

MODEL 2840

Stock No.	Type No.	Range	EACH
58F1260	24800	200 mV	189.45
58F1261	24801	2 V	
58F1262	24802	20 V	
58F1263	24803	200 V	

MODEL 2841

Stock No.	Type No.	Range	EACH
58F1268	24826	200 mV	189.45
58F1269	24827	2 V	
58F1270	24828	20 V	
58F1271	24829	200 V	

DC CURRENT

MODEL 2840

Stock No.	Type No.	Range	EACH
58F1264	24804	200 μA	189.45
58F1265	24805	2 mA	
58F1266	24806	20 mA	
58F1267	24807	200 mA	

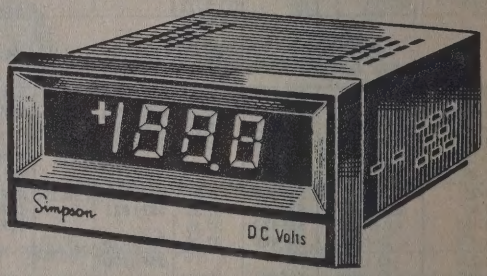
MODEL 2841

Stock No.	Type No.	Range	EACH
58F1272	24830	200 μA	189.45
58F1273	24831	2 mA	
58F1274	24832	20 mA	
58F1275	24833	200 mA	

MODEL 2865 DIGITAL PANEL METER

SPECIFICATIONS

Accuracy: ± (0.1% of reading +1 digit) at reference conditions. **Temperature Coeff.:** ± (0.01% of reading +0.05 digit) per °C from 0°C to 55°C. **Resolution:** One part in 2,000. **Sensitivity:** 100 μV for 200 mV unit; 10 nA for 20 μA unit. **Input Bias Current:** 100 pA max. at reference conditions. **Response Time (to rated accuracy):** Less than 800 msec. **Common Mode Rejection (with 1k ohm unbalance at 60Hz):** 90 dB min. **Normal Mode Rejection:** 50 dB minimum at 60Hz. **Rated Circuit to Ground Voltage (Maximum Common-Mode Voltage):** 350 VDC between either input terminal and power line ground. **Conversion:** Technique, up-down integration. Rate, 4 samples per second. **Display:** Type, 7-segment, LED, 0.43" high numerals. 3½ digit. Automatic polarity, with "-" indication. Decimal point fixed with range. All digits blank except for "1" indicates Out-of-Range. **Power Requirement:** 120 or 220-240 VAC ±10%, 50-400Hz, 3 VA (Mod 2865). 5 VDC ±5% at 100 mA (Mod. 2866). **Operating Temperature Range:** 0°C to +55°C. **Warm-up Time:** Less than 2 minutes at reference conditions. **Reference Conditions:** Temperature: 23°C ±2°C Atmospheric Pressure: 575 to 800 mmHg. Relative Humidity: 30 to 60%. **Dimensions:** 3.9" wide x 1.93" high x 4.27" deep (99 x 49 x 109mm). **Weight:** Approximately 1 lb. (453 g).



Single LSI chip contains all analog to digital circuitry and provides high reliability. Compact units are available for 5 VDC (Model 2861) or 120 VAC (Model 2860) input power. Input/Output edge connector included.

DC VOLTAGE

MODEL 2865

Stock No.	Type No.	Range	EACH
55F1688	24500	200 mV	109.20
55F1689	24501	2 V	
55F1690	24502	20 V	
55F1691	24503	200 V	

MODEL 2866

Stock No.	Type No.	Range	EACH
55F1697	24600	200 mV	96.30
55F1698	24601	2 V	
55F1699	24602	20 V	
55F1700	24603	200 V	

DC CURRENT

MODEL 2865

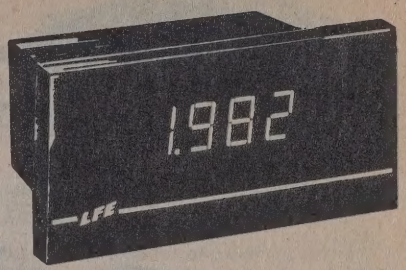
Stock No.	Type No.	Range	EACH
55F1692	24504	20 μA	109.20
55F1693	24505	200 μA	
55F1694	24506	2 mA	
55F1695	24507	20 mA	
55F1696	24508	200 mA	

MODEL 2866

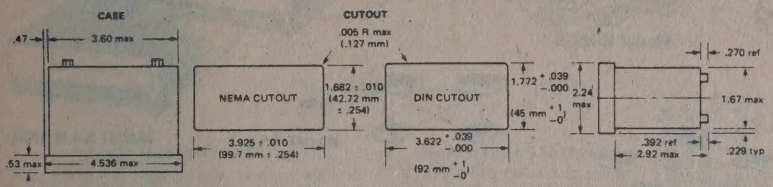
Stock No.	Type No.	Range	EACH
55F1701	24604	20 μA	96.30
55F1702	24605	200 μA	
55F1703	24606	2 mA	
55F1704	24607	20 mA	
55F1705	24608	200 mA	

SERIES 40 DIGITAL INSTRUMENTS

- Universal, "snap-mount" case for DIN or NEMA cutouts
- Large 0.56", high brightness, LED display
- Includes screw terminal connectors as standard feature



DIMENSIONS (cased configuration)



SPECIFICATIONS

ANALOG INPUTS

Basic Accuracy: ± (0.05% reading + 1 count) **Configuration:** Bipolar, floating input **Input Bias Current:** 10 pa (max) basic ranges only **Input Resistance:** Greater than 100 megohms (basic ranges only) **Input Protection:** 220 volts (DC or DC + peak AC) continuous **Temperature Drift:** Basic Ranges: 35 ppm/°C over 0/55°C range Other Ranges: 80 ppm/°C max over 0/55°C range **Zero Drift:** ±1 μV per °C (maximum)

NOISE REJECTION

Normal Mode: 55 db (typical), 45 db (minimum) at 50/60 Hz **Common Mode:** 110 db (typical), 90 db (minimum) at 50/60 Hz; 350 volts maximum—analog signal return to "power line" ground

POWER

AC: 117 volts ±10%, 47-500 Hz, 3.2 watts nominal **DC:** +5 volts ±5%, 220 mA nominal

DISPLAY

Type: 0.56" high brightness LED **Polarity:** Positive assumed, negative sign displayed **Decimal Points:** One of three positions displayed, selected by internal "solder bridge" **Overrange:** An above 2000 count positive input will blank out all digits except display a 1. (MSD)

ENVIRONMENT

Operating: +5° to +55°C, 105 VAC to 130 VAC, 50/60/400 Hz ±2 Hz **Storage:** −20 to +85°C

PHYSICAL

Board Only: Approximately 3¼" length (including terminals) × 3½" wide **Case:** Universal for NEMA/DIN cutout with "snap-in" mounting (no mounting hardware). The case is manufactured from UL-recognized polycarbonate plastic for additional strength. **Connections:** Screw terminal connections on the PCB, accessible from the rear (solder-type edge connector optional)

CONVERSION

Reading Rate: 2.5 readings/second

SERIES 40 LOW-COST DIGITAL PANEL INSTRUMENTS

MODEL 40

DC CURRENT 117V AC LINE POWERED

Stock No.	Part Number	Range	Price
81F2864	CA-0802-0000	0 to ±19.99 μA	$90.00
81F2865	CA-4702-0000	0 to ±199.9 μA	90.00
81F2866	CA-1003-0000	0 to ±1.999 μA	90.00
81F2867	CA-4303-0000	0 to ±19.99 μA	90.00
81F2868	CA-7703-0000	0 to ±199.9 μA	90.00

DC VOLTAGE—117V AC LINE POWERED

Stock No.	Part Number	Range	Price
81F2860	CA-4700-0000	0 to ±199.9 mV	$90.00
81F2861	CA-0401-0000	0 to ±1.999 V	90.00
81F2862	CA-4301-0000	0 to ±19.99 V	90.00
81F2863	CA-7701-0000	0 to ±199.9 V	90.00

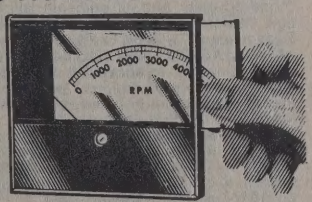
ACCESSORIES

Stock No.	Description	Part Number	Price
81F2869	Edge-Card Connector	1125-401	6.00

Panel Meters, Indicators, Controllers

SERIES 7000 DC PANEL METERS

- **Scratch-proof glass windows**
- **Taut band; 1% tracking**



Series 7000 brings you distinctive style, functional flexibility and outstanding performance. Basic stock of meters is easily modified with slide-out scales. Choice of front mount or bezel mount. Glass windows are scratch-proof and static free. Has phenolic fronts and cases. Self shielding for mounting on either magnetic or non-magnetic panels. Accuracy is ±2%.

METER DIMENSIONS

Model	Flange	Body dia.	Depth
7035	3.01x3.51"	2.79"	1.94"
7045	4.05x4.61"	2.79"	1.94"

DC MILLIAMMETERS

Range	Stock No.	7035-3½" Scale 1-up	Stock No.	7045-4½" Scale 1-up
0-1	62F2627	42.00	62F2633	44.00
0-10	62F2629	42.00	.....	.....

BEZEL

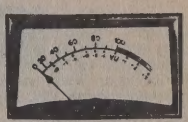
Stock No.	Type 7045	NET
55F5674	1125-223	4.00

DC MICROAMMETERS

Range	Stk. No.	Type 7035	Stk. No.	Type 7045
0-10	66F550	79.00		
0-20	.....	.....		
0-50	62F2600	55.00	62F2606	57.00
0-100	62F2601	48.00	62F2607	50.00
100-0-100	62F2604	45.00	62F2610	47.00
0-500	.....	.....	62F556	44.00

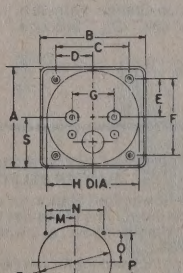
STYLIST VU METERS

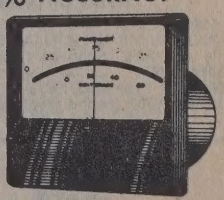
Model 361 measures amplitude of audio signals. Two scales, Type A scale; for recording uses. Type B scale emphasizing percent modulation for broadcasting. Illuminated from behind thru a lucite window at top of case. Conforms to ASA C16.5-1954 specs.



Stock No.	Scale	Type	Size	1-up
55F4662	A	361	3 1/32" x 1 7/8"	72.50
55F4663	B	361		72.50

MODEL 503 PYROMETER-2% ACCURACY

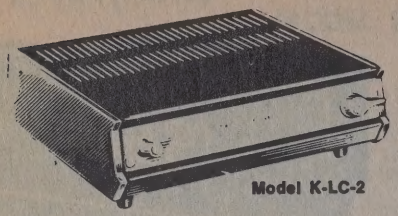




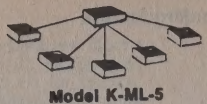
Thermocouple actuated with copper error compensation. Auto. bimetal gold junction correction. External resistor adjusts for thermocouples to 10 ohms. I/C for iron-Constantan: C/A for Chromel-Alumelt; Cu/C, Copper constantan Phenolic case. Scale arc, 4", 21 lbs.

Stock No.	Temperature Range °F	Temperature Range °C	Thermo-Couple	Type	Each
55F4606	0/300	0/150	I/C	J	108.00
55F4607	0/500	0/260	I/C	J	104.00
55F4608	0/750	0/400	I/C	J	104.00

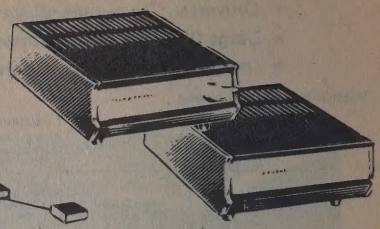
DELUXE INTERCOM SYSTEMS



Model K-LC-2

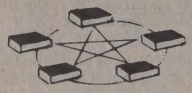


Model K-ML-5

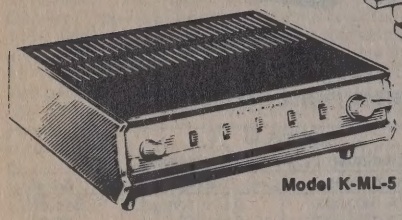


Model K-LR-2(M)

Model K-CL-5



Model K-LS-5



Model K-ML-5

SUPER SELECTIVE ALL MASTER SYSTEMS

Intercom system consisting entirely of Masters. Permits several separate conversations to be carried on without interfering with each other. System provides privacy. Stations may be located up to 1000 feet apart. Operates on 110-120 volts, AC-DC. Complete with instructions. Transistorized. Charcoal gray and brushed chrome. Cabinet size: 10½x8¾x3⅛". Shpg. wt. 7 lbs.

95F406. Model K-LS-5. For 5 stations. **NET** 114.00
95F407. Model K-LS-10. For 10 stations. **NET** 141.00

HI-VOLUME MASTERS

Operates the same as the above masters with the added feature of 10 times volume output. For 120 volts, AC only. Masters K-AC510 and K-AC-505 may not be intermixed with any other Master.

95F437. Model K-AC-505. Hi-Volume, 5 station. **NET** 143.00
36FX441, 5506 (6-conductor) cable. For interconnecting K-LS-5 or K-AC-505. **NET** per foot ..... .17
36FX442. 9911 (11-conductor) cable. For interconnecting K-LS-10. **NET** per foot ..... .31

2-STATION WIRELESS SYSTEM

A quality intercom system for Office, Factory, and Farm. No installation. Plug into 110V AC or DC electrical outlet on the same transformer. Uni-Trans gives you dictation and supervisory control. Provides continuous transmission when set for Uni-Trans. Cabinets are charcoal gray and brushed chrome. 10½"x8¾"x3⅛". Two master stations. With tubes and instruc-tions. 16 lbs.

95F413. Model T-LC-33. Two station system. **NET** 235.00
95F414. Model T-LC-17. Additional single station. 8 lbs. **NET** 117.00

2-STATION INTERCOMMUNICATION SYSTEM

Model K-LC-2. Transistorized Master Station and Sub-Station. With 50 ft. cable. For 110-120 volts, AC-DC. Master size: 10½"x8¾"x3⅛". Sub size: 7½"x8¾"x2⅞". Shpg. wt. 12 lbs.

95F412. NET 120.00
36FX440. Type 5303. Extra 3-cond. cable. **NET per ft.** ..... .07
36F449. 6303. 3-cond. shielded cable. **NET per ft.** ..... .10

COMBINATION SYSTEMS

For the more flexible type of system requiring the operation of more than one Master, along with Sub-Stations which need not originate calls. Masters may talk to each other and to each Sub in the system selectively; or, one or more Subs can be exclusive to only one Master. Masters can switch themselves "private" so that other Masters cannot listen in to them, or "non-private" at will. Masters in charcoal gray and brushed chrome cabinets. 10½"x8¾"x3⅛". Sub-Stations: 7½"x8¾"x2⅞". With instructions. Transistorized. Masters operate on 110-120 volts AC-DC Electric curr. not needed for Sub-Stations. Shpg. wt. 7 lbs. K-AC-605 and K-AC-610 operate on 120 volts, AC only. Masters K-AC-610 and K-AC-605 may not be intermixed with any other Master.

95F408. K-CL-5. Master for 5 stations. **NET** 133.00
95F409. K-CL-10. Master for 10 stations. **NET** 164.00
95F410. K-LR-2. Sub-Station (in same deluxe finish as Master for use with either of above Masters. Shpg. wt. 4½ lbs. **NET** 49.00
95F411. K-LR-2M. Sub-Station (as above, but ingrained, baked enamel finish) for use with either Master. Wt. 4½ lbs. **NET** 39.95
95F442. K-LR-2R. Sub-station for flush wall mounting 39.95
95F439. Model K-AC-605. Hi-Volume, 5 stations. **NET** 166.00
95F440. Model K-AC-610. Hi-Volume, 10 stations 185.00
36F438. 6210. 5 pair cable for interconnecting K-CL-5 or K-AC-605. **NET per foot** ..... .28
36FX439. 6226. 13 pair cable for interconnecting K-CL-10 or K-AC-610. **NET per foot** ..... .67
36FX446. 6902. 2 conductor cable for substation. **NET per ft.** ..... .05
36FX448. 6202. (1 pr.) cable for substation. Overall jacket. **NET per foot** ..... .07

MASTER SELECTIVE INTERCOMMUNICATION SYSTEMS

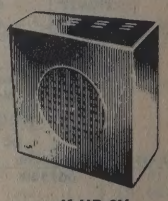
A system consisting of one Master Station and one to ten Sub-Stations. Only the Master Station plugs into an electrical outlet. System has operational feature whereby Sub-stations can be connected "privately" or "none-privately" and still originate calls to the Master under either application. Cabinets are charcoal gray and brushed chrome. 10½" x 8¾" x 3⅛". Subs measure 7½" x 8¾" x 2⅞". With instructions. Transistorized. For 110-120 volts, AC-DC. HIGH VOLUME OUTPUT MASTERS K-AC-5406 and K-AC-5411 operate as above with the added feature of 10 times volume, for large areas or noisy locations. Operate on 120 volts, AC only. Note: Only one master station can be used in each Master Selective System. Weight: Masters—7 lbs. Sub-Stations—4½ lbs.

95F400. K-ML-5 Master. For up to 5 Subs. **NET** 114.00
95F404. K-AC-5406. High Vol. Master. 5 Sub capacity 143.00
95F405. K-AC-5411. Hi Vol. Master. 10 Sub. capacity. **NET** 165.00
95F403. K-LR-3M. Sub-Station (as above, but in grained, baked enamel finish) for use above Masters. **NET** 39.95
95F448. K-LR-3R. Sub-Station for flush wall mounting. **NET** 39.95
95F685. K-SM-L. Surface mfg. accessory for K-LR-3R. **NET** 11.75
36FX440. 5303. Three-cond. indoor cable. **NET per foot** ..... .07
36FX449. 6303. Three cond. shielded cable. **NET per foot** ..... .10

KC-20V

ADDITIONAL ACCESSORIES FOR COMBINATION & MASTER SELECTIVE SYSTEMS

95F415. K-HP-3. Hi-Power Staff Station for wall mounting. Charcoal gray metal case. Wt. 9 lbs. Provides twice the volume of regular substation. **NET** 53.50
95F444. K-HP-3V. Same as above, but with built-in volume control, adjustable to full output. Wt. 9 lbs. **NET** 64.00
95F416. K-C-20. Nine inch weatherboard Re-entrant Horn. Charcoal gray color. Wt. 5 lbs. Provides over 4 times volume of regular substation. **NET** 74.40
95F446. KC-20V. Same as above, but with built-in weather resistant volume control, adjustable to full output. Wt. 5 lbs. **NET** 89.30
95F417. K-S-100. Wall switch for origination of call through K-C-20 or K-HP-3 with Master Selective Systems. **NET** 13.50



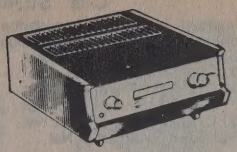
K-HP-3V

Intercoms

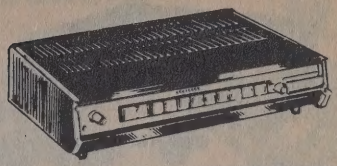
TALK-A-PHONE

K-C-42

K-C-41R



K-C-41



MASTER STATION

"CHIEF" MASTER STATIONS

Full intermix of masters and remotes: six and twelve stations. Master to Master Communications. Also to Staff Stations. Staff Stations can reply to all masters; call one or two private masters. No AC power required for Staff Stations. Masters can be private (no eavesdropping) or non-private (answer hands-free). Visual Signal indicates "non-private" station is being monitored. Visible signal indicator when called station is busy.

All Stations have facility to override busy signal. Multi-station selector switch enables selection of up to 30 stations with 12 for siren, gong, lights, etc. Masters operate on 120 VAC. Up to 30% of "Chief" masters can operate without being connected to AC. KHP-3 horn provides four times volume.

Wall Switch with Horns or Hi-Power Staff for call origination feature. Incoming Chime Call on Masters. Chief Masters come with a junction box attached with six foot cables. Built-in Power Supply. Master Size: 14½"Wx3⅛"Hx8½"D. U/L Listed.

Model K-C-4906 Master for 6 stations. Shpg. wt. 15 lbs.
95F425. NET PER STATION 231.00

Model K-C-4912. Master for 12 Stations. Shpg. wt. 15 lbs.
95F426. NET PER STATION 261.00

CHIEF STAFF STATIONS

STAFF STATION. For use with "Chief" Master. Staff Stations may be connected "privately" or "non-privately". Connected "non-privately", Master can be answered at a distance from the Staff without operation of any controls. "Non-private" Staff may reply to all Masters in the system (whether connected directly to them or not) and can originate calls to one or two "Private" Masters, depending upon its capacity. Connected "privately" no one can "listen-in", but any Master can call. Staff Stations do not need electrical outlets.

Model K-C-41. Staff Originates calls to 1 Master. Gray leatherette and brushed chrome. Size 7½x8¾x2⅞". 5 lbs.

95F428. NET PER STATION 64.40

K-C-41R. Same as K-C-41, but for flush wall mounting.
95F433. NET PER STATION 55.00

CABLE AND ACCESSORIES FOR CHIEF SERIES

36FX447. Type 6206. 3-pair cable for connecting K-C-20, K-C-41, K-C-42, and K-HP-3 with call origination.
Net per foot 17

36FX437. Type 6214. 7-pair cable to interconnecting K-C-4906 Masters. **Net per foot** 36

36FX439. Type 6226. 13-pair cable for interconnecting K-C-4912, K-C-4920 for K-CRP-5912 Masters.
Net per foot 67

36FX446. Type 6902. Cable 2 cond. for connecting K-C-20, and K-HP-3 without origination of call. **Net per foot** 05

Model K-C-42. Staff originates call to 2 Masters. Gray leatherette and brushed chrome. Wt. 5 lbs. Size: 7½x8¾x2⅞". 5 lbs.
95F430. NET PER STATION 80.00

Model K-C-42M. Same as K-C-42 but with painted finish. 5 lbs.
95F431. NET PER STATION 75.00

Model K-C-42R. Same as K-C-42 but for flush wall mtg.
95F445. NET PER STATION 75.00

Model K-HP-3. Hi-Power Staff Station for wall mounting. Charcoal gray metal case. Size: 12x8x12". 5 watt capacity. Provides twice volume of regular staff. Shpg. wt. 10 lbs.
95F415. NET PER STATION 53.50

Model K-HP-3V. As above, but with built-in volume control, adjustable to full output.
95F444. NET PER STATION 64.00

Model K-C-20. Nine-inch Weatherproof Re-Entrant Horn. 15 watt capacity. W mounting bracket. Charcoal grey. Provides over 4 times volume to reg. staff. Shpg. wt. 6 lbs.
95F416. NET PER STATION 74.40

Model K-C-20V. As above, but with built-in weather resistant volume control, adjustable to full output.
95F446. NET PER STATION 89.30

K-W-1. Wall mounting brackets for K-C-41, K-C-41M, and K-C-42, and K-C-42M.
95F436. NET per pair 1.00

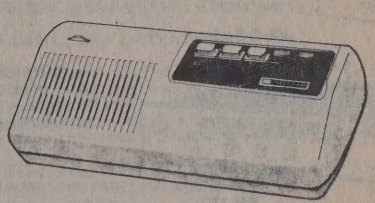
BOGEN

81F1338. IE4B Master can call up to 3 remotes. Tone call in, Annunciator on master indicates which remote is calling. Remote converses hand-free. AC or battery operation (power supply module furnished) 337.50
81F1339. RIE1B Desk mounting remote 23.70
81F1340. RF-2 Weatherproof wall mounting speaker 57.80
81F1343. RBRS Surface mounting box for RF2 ..... 30.00
81F1344. Flush Box for RF-2 ..... 10.50

SERIES T I S COMMON LINE WIRED TELEPHONE INTERCOM

System permits up to 13 stations with one intercom channel shared by all stations (busy light on each phone indicates when system is in use), and allows selective ringing to each station. Up to four phones may be included in conference calls. Separate button permits paging through P.A. system using TPA-10 paging adaptor. Phones incorporate electret microphone for superior speech quality.

Stock No.	Type	Description	Each	Uses Cable	Stock No.	Per 100'
79W339	TIS-1	Single Station Phone	42.00	7SC	96F787	19.50
79W341	TIS-4	Up to Five Stations	51.00	12SC	96F788	30.00
79W342	TIS-8	Up to Nine Stations	58.50	12SC	96F788	30.00
79W343	TIS-12	Up to 13 Stations	63.00	16SC	96F789	39.00
79W425	PRS-10*	Power Supply	52.50	.....	.....	.....
79W426	TPA-10	P.A. Tie-in	48.00	.....	.....	.....



IE-4B

SERIES TIM MULTI-CHANNEL PHONES

Multiple channels permit several simultaneous conversations (100% trunkage). Separate button permits paging through P.A. system using TPA-10 paging adaptor. Up to three phones may be included in a conference call. One PRS-10 required per system.

SERIES TIM MULTI-CHANNEL PHONES

Multiple channels permit several simultaneous conversations (100% trunkage). Separate button permits paging through P.A. system using TPA-10 paging adaptor. Up to three phones may be included in a conference call. One PRS-10 required per system.

Stock No.	Type	Description	Each	Uses Cable	Stock No.	Per 100'
79W427	TIM-12	Master calls 12 stations	84.00	16SC	96F789	73.50
79W429	TIM-6	Master calls 6 stations	63.00	12SC	96F788	30.00
79W425	PRS-10	Power Supply	52.50	.....	.....	.....
79W426	TPA-10	P.A. Tie-in	48.00	.....	.....	.....

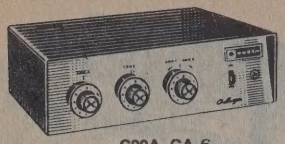
*One required per system.

TIS-4

TIS-12
TIM-12

BOGEN

P. A. Amplifiers

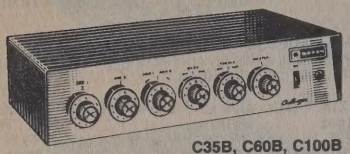


C20A, GA-6

"C-B" SERIES SOLID STATE AMPLIFIERS

2 microphone inputs high impedance—MCIF connector. C20A have one mike input and one aux. 2 auxiliary inputs on fader control. Outputs balanced 25 and 70 volts, 4, 8, 16 ohms, tape booster. 2 loudspeaker quick connect sockets.

97F803 C-20A 20 watt amp. Net 132.00
97F802 C-35B 35 watt amp. Net 183.00
97F801 C-60B 60 watt amp. Net 223.00
97F800 C-100B 100 watt amp. Net 264.00
81F1343 GA-6 6 watt amp. Net 75.00

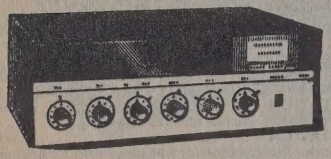


C35B, C60B, C100B

CHS-B SERIES FLEX-PAK PA AMPLIFIER

2 microphone inputs, high impedance low impedance unbalanced-XLR-311 connector. 2 separate aux. inputs with 2 separate controls. PMM-2 optional panel mounting preamp adds 2 mic. inputs to any CHSA amp. Microphone inputs convertible to low impedance balanced with plug in transformer. 1 mic. channel convertible to mag phono (two with optional PMM-2). 1 microphone can be remotely controlled (2 with optional PMM-2). Outputs: 8, 16 ohms, 25 and 70 volts balanced lines, tape booster.

96F501 CHS-35B 35 watt amplifier. Net 228.00
96F510 CHS-60B 60 watt amplifier. Net 270.00
96F503 CHS-100B 100 watt amplifier. Net 312.00

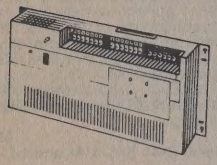


CHS-B Series

TU SERIES TELEPHONE PAGING/UTILITY AMPLIFIERS

3 input channels: (1) Balanced low impedance microphone or 600 ohm balanced telephone line; (2-3) High impedance auxiliary or 600 ohm balanced telephone line, transformer isolated. Outputs, 25 and 70 Volts 16 ohms. 1 line input can be muted for announcements. Wall or 19" rack mounting. Screwdriver adjustable controls. Built-in telephone line input transformers. Operable from 48 VDC positive or negative ground, or 120 VAC.

83F612 TU-35A. 35 watt amplifier. Net 244.50
83F611 TU-60A. 60 watt amplifier. Net 283.50
83F610 TU-100A. 100 watt amplifier. Net 330.00

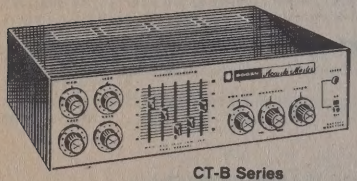


TU Series

CT-B ACOUSTA MASTER

4 microphone inputs high impedance convertible to low with plug-in transformer facilities to add two more with PMM-2B. 10 equalizer filters provide anti-feedback and tone control circuit. Built-in adjustable electronic compressor. Remote control 4 mic and aux. Built-in power supply for condensor mikes. Outputs: balanced 25 and 70 volts tape booster, 8, 16 ohms. Auxiliary input for record player, tuner or tape recorder.

96F513 CT-100B 100 watt amplifier. Net 435.00
81FX013 CT-60DB 60 watt amplifier. Net 390.00
96F513 CT100B 100 watt amplifier. Net 435.00



CT-B Series

RM-350 30W. FM/AM Receiver (Tuner Amplifier)

FM/AM High Fidelity Broadcast Reception. Digital Display of Station Frequency. Microphone input for paging with automatic precedence over music. (Requires SPST switch in mic). 25 & 70 Volt Output, 8 and 16 ohms. All Solid State circuitry. Radio Frequency Range: FM-88-108 MHZ, AM 550-1650 KHZ.

81F1335 Net 247.50

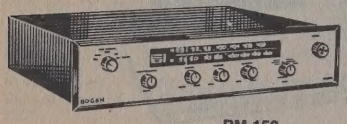
MODEL: RM-150 as above with: 15 watt amplifier. Standard Tuning Dial.

81F1336 Net 210.00

TP-50 AM and FM Tuner

Connects to Aux input of amplifier. Frequency Range: FM 88-108 MHZ, AM 550-1650. Solid State, signal strength indicator, fly wheel tuning, AFC with defeat switch supplied with FM antenna and built-in AM loopstick.

81F1337 Net 109.50

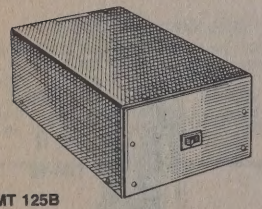


RM 150

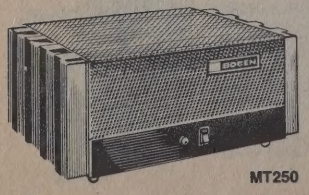
BOOSTER AMPLIFIERS

Designed for use in quality sound reinforcement systems. Can also operate from a 20 VAC battery back-up power source.

Type	MT250C	MT125C	MT60C
Power Output	250 watts	125 watts	60 watts
Freq. Response	±2 db, 20 Hz to 20 kHz.	±2 db, 40 Hz to 20 kHz.	±2 db, 30 Hz to 20 kHz.
Stock No.	**96F551**	**96F837**	**96F515**
Price	748.50	420.00	345.00



MT 125B



MT250

ACCESSORIES

MODEL TM-200A—Low impedance plug-in mic transformer for CHS-B, CT-B Series. 200 ohms.
95F538. Net 15.75

PL-1 microphone connector for C-B amplifiers (Switchcraft A-3M).
81F1341 Net. 270.00

MC1F—microphone connector for "C-10 and C-20A" amplifiers.
39F000. Net 1.50

WMT-1—connects any Bogen amplifier to telephone line through aux input or mic input.
96F516. Net 15.75

CON-1—microphone connector for CHSA and CT-B amplifiers.
96F520. Net 3.75

PMM-2B—provides 2 additional mic channels for CHSA line. Panel mounted complete with all mounting hardware.
96F518. Net 45.00

UNIVERSITY SOUND Speakers

MLC

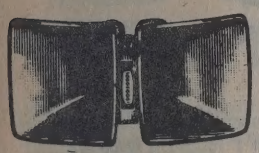
MM-2

SH

PH

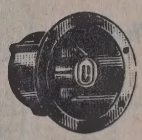
MIL Series

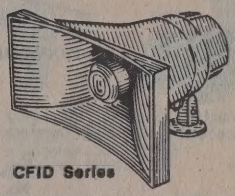
IB Series

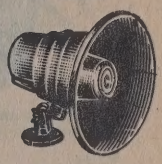

COBRAFLEX II & III

ID40C-8

DLC Series


MIS-8


CFID Series


FID Series

TRUMPETS AND PROJECTORS

Reflex Trumpets. These larger p.a. indoor/outdoor horns require separate drivers. The newer extra wide angle Cobraflex III and the new LH-1 require the New ID-40C or ID-60C 1" throat driver. The other horns can use any driver listed below. All horns have all angle mounted brackets.

Stock No.	Type	Cutoff	Belt Dia.	Horn Lgth.	Wt. Lbs.	Net
88F233	PH	150 Hz	20⅜"	15¾"	11¾	70.20
88F075	SH	350 Hz	8¾"	7"	3¼	61.80
88F230*	Cobra 3	250 Hz	14½ × 27½"	15"	10	83.40
79W513*	LH-1	150 Hz	25.5"	20"	18	108.00

*1" Throat

DRIVERS

The ID40B (8&T) and the ID60B (8&T) have a 1" throat and offer high efficiency, broader response and lower distortion. They are especially designed for use with the LH-1 and the Cobraflex III, but can be used with any horn. All other horns can use any driver.

Stock No.	Type	Power Rating	In. Dia.	Wt. Lbs.	Net Each
88F142	ID-30	30 Watts	4⅛	3	48.60
88F143	*ID-40C-8	40 Watts	4½	4¼	66.60
88F144	*ID-40CT	40 Watts	5	4	83.40
88F145	*ID-60C-8	60 Watts	4 11/16	5¾	76.80
88F146	*ID-60CT	60 Watts	6¾	6¾	91.80
88F138	ID-75	75 Watts	4¼	5	111.60

*1" Throat

MULTI-DUTY SPEAKERS

Model MLC. Especially designed for quality music reproduction. Weatherproof, hi-fi, 2-speaker system with high output. 150-15,000 Hz, 15 watts, 8 ohms, 120° dispersion. Size: 12¾ × 9⅛ × 10⅝". Wt.: 10¾ lbs.
88F135. NET 111.60

Model MLCT. Same as above, but with 70V adjustable transformer.

88F228. NET 121.80

Model MM-2. Rugged speaker immune to salt spray, gases, live steam, fungus and harmful dusts. 350-10,000 Hz 25 watts. 16 ohms. 150° dispersion. 6" o.d., 5" deep/ UL Listed. Wt. 5¼ lbs.
88F108. NET 94.80

7110X EXPLOSION-PROOF DRIVER

Meets and surpasses UL standard classifications for use in hazardous areas (Class I, Groups B, C, D, plus Class II. Groups E, F, G.) Constructed of diecast aluminum casing with sintered bronze acoustic screen. Can be combined with any University Sound reflex trumpet. University Sound Model 5436B Transformer and Mounting bracket Kit needed for 70V line matching.
88F231. NET 166.20

LINE-MATCHING TRANSFORMERS

Model 5436B Transformer Accessory Kit. For use with 7110X driver only. Includes 60 watt transformer, mounting bracket, all hardware. 1½ lbs.
88F232. NET 27.00

Model 5433 Transformer. 30 watt capacity. Wide selection of impedances and constant voltage power taps. 1 lb.
88F128. NET 13.80

Model 5434 Transformer. 15 watt capacity. ¾ lb.
88F129. NET 12.00

PAGING/TALKBACK SPEAKERS

All the following models have built-in drivers and are suitable for indoor or outdoor use.

Model IB-C8. 105° dispersion angle. With adjustable wall mounting bracket. Aluminum 30 watts and 8"Ω. Wt. 4½ lbs.

Model MIL-C8. Reflex type speaker for low-power use. High efficiency and ineligibility at speech frequencies. Dispersion angle, 120°. Aluminum 10 watts and 8"Ω. Wt. 3¼ lbs.

Model MIS-8. Compact, weatherproof low-power reflex speaker. Mounts flush in wall. Dispersion: 150° 7"-½ watts and 8"Ω. Wt. 2½ lbs.

Model DLC-8. Low-cost reflex speaker. Dispersion: 120°. Aluminum 7"-½ watts amd 8"Ω. Wt. 1¾ lbs.

Model DLCT. Has 70V line transformer.

Model CFID15-8. Rectangular reflex exponential. 15 watts with 8Ω. Dispersion: 120° horizontal: 80° vertical. Weatherproof, virtually indestructible cycolac material. Easy installation with Uni-Lok swivel mount. Wide frequency response and unusually low distortion. Shipping weight 3¼ lbs.

Model CFID15-T. Similar to CFID15-8, but includes a 70V and 25V line transformer w/6 screwdriver selectable wattage taps. Wt. 4.25 lbs.

Model CFID32-8. Similar to CFID15-8 but 32 watts.

Model CFID32-T. Similar to CFID15-T but 32 watts.

Model FID15-8. Round reflex horn speaker similar to CFID 15-8. Dispersion: 120°—all planes. Weatherproof, virtually indestructible cycolac material. Easy installation with Uni-Lok swivel mount. Wide frequency response and unusually low distortion, modern wide throat design insures wide frequency response and low distortion with high efficiency. Shpg. wt. 3¼ lbs.

Model FID15-T. Similar to FID15-8. but includes a built-in 70V and 25V transformer, 6 screwdriver selectable taps. 3¾ lbs.

Model FID32-8. Similar to FID15-8 but 32 watts.

Model FID32-T. Similar to FID15-T but 32 watts.

Stk. No.	Type	Response	Mic. Sens.	Power	Size	Net
88F110	IBC8	250-13K	—20 DBM	30W	10½ × 9"	57.00
88F111	MIL-C8	350-13K	—23 DBM	10W	7 13/16 × 6 7/8"	48.00
88F220	MIS-8	500-13K	—22 DBM	7.5W	5½ × 4 7/16"	53.40
88F221	DLC-8	400-10K	—30 DBM	7.5W	5⅞ × 4"	31.80
88F223	DLC-T	400-10K	—30 DBM	7.5W	5⅞ × 6⅛"	49.80
88F082	FID15-8	260-14.5K	—28 DBM	30W	9 × 8¾"	46.80
88F083	FID15-T	260-14.5K	—28 DBM	30W	9 × 8¾"	58.20
88F112	FID32-8	220-14.5K	—26 DBM	32W	10½ × 10⅞"	58.20
88F113	FID32-T*	220-14.5K	—26 DBM	32W	10½ × 10⅞"	68.40
88F226	CFID15-8	220-14.5K	—26 DBM	15W	6¾ × 11⅞ × 10⅜"	46.80
88F227	CFID15-T	220-14.5K	—26 DBM	15W	6¾ × 11⅞ × 10⅜"	58.20
88F114	CFID32-B	220-14.5K	—26 DBM	32W	7⅛ × 14⅜ × 12½"	58.20
88F115	CFID32-T	220-14.5K	—26 DBM	32W	7⅛ × 14⅝ × 12½"	68.40

UNDERWATER SPEAKER

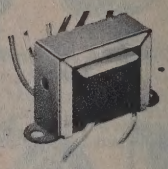
Model UW30. The only speaker truly designed to reproduce sound underwater. Ideal for swimming pools. Has self-contained driver. 8 Ω. 30 watts. Shipping weight 4 lbs.
84F111. NET 139.80

Quam LOUDSPEAKERS *the sound Decision*

8C10C0 COAXIAL

BR8W

BR8A
C5 SERIES



TBL70

4A1 INDUSTRIAL

BR8WP

INDUSTRIAL LOUDSPEAKERS

Stock No.	Model Number	Size (inches) and Shape	Frequency Response (Hertz)	Power Handling Capacity (Watts)	Voice Coil Impedance (ohms)	Depth. (inches)	Shipping Weight (lbs.)	NET
81F2824	30A05Z8	3 SQ	150 Hz to 12K Hz	2	8-10	1 9/32	¼	5.28
81F2825	35A05Z8	3x5 Oval	130 Hz to 14K Hz	2	8-10	1½	¼	5.49
81F2826	4A1	4 SQ	180 Hz to 12K Hz	3	3-4	1¾	¾	6.03
81F2827	4A1Z8	4 SQ	200 Hz to 12K Hz	3	8-10	1⅝	¾	6.03
81F2828	4A2Z80T	4 SQ	130 Hz to 9K Hz	4	8-10	2¾	2	7.89
81F2829	4C5Z8	4 SQ	120 Hz to 15K Hz	7	8-10	1⅝	1	6.99
81F2830	5C3Z8	5 PC	130 Hz to 14K Hz	5	8-10	1⅞	1	6.21
81F2831	6C5Z8	6½ PC	70 Hz to 14K Hz	7	8-10	3	1¾	7.83

MINIATURE SPEAKERS

81F2832	2A05Z8	2 RD	300 Hz to 6K Hz	1	8-10	⅞	¼	5.58
81F2833	2A05Z45	2 RD	300 Hz to 6K Hz	1	45	⅞	¼	5.76
81F2834	25A07Z8	2½ SQ	150 Hz to 12K Hz	1½	8	1¼	¼	5.70
81F2835	25A07Z45	2½ SQ	150 Hz to 12K Hz	1½	45	1¼	¼	5.70

INTERCOM

81F2836	30A05Z45	3 SQ	130 Hz to 14K Hz	2	45	1 3/16	¼	5.49
81F2837	8C6Z45	8 PC	70 Hz to 12K Hz	12	45	3	2½	9.75

BACKGROUND MUSIC, PUBLIC ADDRESS SPEAKERS

X = Dual cone
OT = Outdoor treated
FEX = Dual cone, foam edge
CO = Coaxial

81F2838	8C5PAX	8 PC	70 Hz to 18K Hz	8	8-10	2¾	2	8.82
81F2839	8C6PAX	8 PC	75 Hz to 19K Hz	12	8-10	3	2½	9.84
81F2840	8C10PAX	8 PC	75 Hz to 20K Hz	15	8-10	3	2¾	10.32
81F2841	8C10FEX	8 RD	40 Hz to 15K Hz	18	8-10	3⅛	3	12.81
81F2842	8C10C0	8 RD	65 Hz to 30K Hz	20	8-10	3¼	3	22.80
81F2843	12C12PAX	12 RD	50 Hz to 12K Hz	25	8-10	4½	5½	18.15

TRANSFORMERS

Stock No.	Model Number	Power Rating	Primary Volts	Primary Taps	Mounting Centers	Core Size	Secondary Load	Shipping Weight	NET
81F2844	TBL25	4W	25	¼-½-1-2-4W	2"	½ x ⅝	8	½ lb.	6.39
81F2845	TCL25	8W	25	½-1-2-4-8W	2⅜"	⅝ x ⅝	8	¾ lb.	7.14
81F2846	TBL70	4W	70.7	¼-½-1-2-4W	2"	½ x ⅝	8	½ lb.	6.39
81F2847	TCL70	8W	70.7	½-1-2-4-8W	2⅜"	⅝ x ⅝	8	¾ lb.	7.14

CEILING BAFFLES

Stock No.	Model Number	Type	Speaker Size (inches)	Baffle Diameter (inches)	Material	Finish	Ceiling Projection (inches)	Shipping Weight	NET
81F2848	BR8W	One-step contour	8	12⅞	22-ga. steel (Zincrometal)	White epoxy	⅜	1½ lb.	4.17
81F2849	BR8A	One-step contour	8	12⅞	22-ga. aluminum	Brushed aluminum	⅜	1 lb.	4.36
81F2850	BS8W	One-step contour	8	11½ square	22-ga. steel (Zincrometal)	White epoxy	⅛	1½ lb.	7.87
81F2851	BR8WP	Louvered two-step contour	8	12¾	White plastic	—	5/16	1 lb.	4.17

C5 SERIES LOUDSPEAKER ASSEMBLIES

Three-piece assemblies including loudspeaker, baffle and transformer. Utilizes model 8C5PAX 8" dual-cone loudspeaker with 5 oz. ceramic magnet. Completely wired and factory tested. Supplied with complete hardware for mounting to backbox or other support.

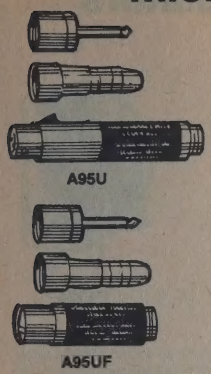
Stock No.	Model	Baffle Finish	Baffle Diameter	Contour	Transformer Volts	NET
81F2852	C5/B70/A	Brushed aluminum	12⅞"	one-step	70	16.52
81F2853	C5/B70/W	White steel	12⅞"	one-step	70	
81F2854	C5/B70/WP	White plastic	12¾"	louvered two-step	70	
81F2855	C5/B25/W	White steel	12⅞"	one-step	25	
81F2856	C5/B25/WP	White plastic	12¾"	louvered two-step	25	
81F2857	C5/B25/A	Brushed aluminum	12⅞"	one-step	25	

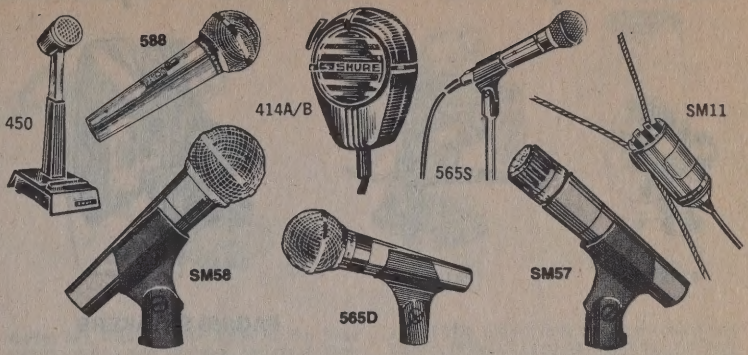
ENCLOSURES

4" deep backboxes of corrosion-resistant steel for use with baffles and assemblies listed above.
81F2858 Model ES-8 square backbox. . . . . NET 9.92
81F2859 Model ER-8 round backbox . . . . . NET 9.92

Microphones and Accessories

SHURE®





Model 401. Controlled magnetic microphone for outdoor-indoor communications activity. Free from undesirable peaks. 200-4,000 Hz.
61FX215. 401A. Hi-Z. NET 33.50
61FX153. 401B. Lo-Z. NET 33.50

Model 404. Hand-held. Ideal for outdoor use. Designed for high speech intelligibility. Push-to-talk leaf switch. 400-4,000 Hz.
61FX104. 404C. Hi-Z. NET 49.00
C1FX103. 404B. Lo-Z. NET 49.00

Model 414. Switch controls microphone and external relay. For miniaturized or portable communications systems. 400-4,000 Hz.
61FX216. 414B. Lo-Z. NET 45.00
61FX217. 414A. Hi-Z. NET 45.00

Model 450. Dispatching and paging use. Telescoping height adjustment. Hi or Lo-Z. Push-to-talk switch bar activates both microphone and relay communications. 100-10,000 Hz.
61FX172. NET 69.00

LINE TRANSFORMERS

Makes it possible to connect low impedance lines to high impedance, or vice versa. Designed to mate with Cannon XL, Switchcraft X3, equiv.

Model A95U. Low-impedance connector is 3 pin audio—Hi-impedance connector is Amphenol MC1M type with mating standard ¼" phone jack and phone plug.
83F055. NET 23.75

Model 95UE. Low-impedance connector is 3 socket audio. Hi-impedance connector is amphenol. MC1M type with mating standard ¼" phone jack and phone plug.
83F081. NET 28.50

Model 588. General purpose unidirectional dynamic mike. All the most desirable features at economy price. Built-in windscreen. On-Off switch. Built-in locking plate. Freq. response 80 to 13000 Hz. Cable has 3 socket conn. at mike end.
61FX181. 588SA. Hi-Z. 77.50
61FX182. 588SB. Lo-Z 77.50

Model 565D. General purpose unidirectional dynamic mike. Excellent reproduction, effective built-in spherical windscreen. Freq. response: 50 to 15000 Hz. Dual impedance with ratings of 150 ohms. Connector is 3 pin audio. Cable has 3-socket conn. at mike end.
81FX014. NET 129.75

Model SM57. Unidirectional dynamic mike. Hand held or stand mounted. Freq. response 40 to 15000 Hz. Impedance rating: Dual 38/150 ohms. Cable—20 feet 2 conductor shielded with 3 socket audio conn. at mike end.
81FX015. NET 139.00

Model SM58. Unidirectional dynamic mike. Able to withstand abuse. Comfortable for hand held applications. Weighs only 11 oz. Cable has 3 socket conn. at mike end.
81FX016. NET 175.00

515SB-G18. Unidyne B. Includes On-Off Switch. Ideal for low-budget sound systems. 80-13,000 Hz. High impedance. −58 dB. 1½" dia. 6⅞" long. 18' gooseneck 51' cable.
61FX195. 515SB-G18. NET 60.75

Model 575S and 575SB. Versadyne Dynamic Microphones. Lightweight for tape recording, general public address, etc. Built-in filters. Slide-to-talk locking switch, lavalier cord, and stand adapter are included. 40-15,000 Hz.
61FX148. 575S Hi-Z. NET 37.25
61FX149. 575SB Lo-Z. NET 37.25

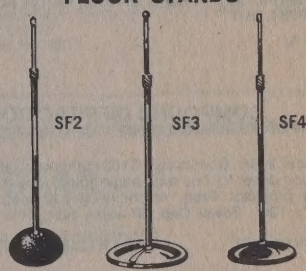
ADAPTER

Model A15LA. Line input adapter. Converts balanced low impedance microphone input to bridging line level input.
83F076. NET 31.00

Model 565. Unisphere I. Unidirectional dynamic. Wind/pop filter. Solves feedback problems. Dual impedance. 50-15,000 Hz.
61FX196. 565SD. NET 132.75

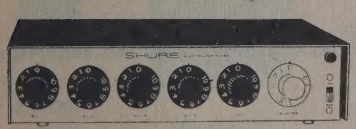
Model SM11. Dynamic miniaturized lavalier microphone. Flat natural frequency response ideal for broadcasting, motion pictures, and sound reinforcement. 50-15,000 Hz.
61FX777. NET 95.00

BOGEN MICROPHONE FLOOR STANDS



Models SF-2, SF-3, SF-4. Grip action clutches for positive locking control. Chrome plated tubing std. ⅝"-27 threads for attachment of mike. Bases weighted to outer rim for stability. Models SF-3 and SF-4 extend 35" to 63" and have low profile bases. Model SF-2 extends 34" to 62" and has a normal base. Bases are 10" dia.

Stk. No.	Type	Base Color	Lbs.	Each
96F521	SF-2	Charcoal Wrinkle	10	17.80
96F522	SF-3	Bright Chrome	12	21.30
96F523	SF-4	Charcoal Wrinkle	10	18.15



M68FC MICROPHONE MIXER

Each of four microphone-level inputs has switch for selection of low-impedance or high-impedance mikes and a high-level auxiliary input is suitable for inputs from tape recorders, tuners, or other sources. Has two outputs: microphone-level output for connection to a sound system amplifier or tape recorder input high-impedance, high-level output to feed any power amplifier or tape recorder requiring a 0.5 to 2V input signal. Can be powered by an external power source. Freq. Response: ± 3 dB from 40 to 20000 Hz. Operating Voltage: 108 to 132 VAC 50/60 Hz. 3 socket inputs. UL listed and CSA listed as certified. Size 2¾ × 11⅜ × 5¼". Wt. 4 lbs.
61FX774. NET 205.00

M268 MICROPHONE MIXER

Compact, lightweight, five-channel microphone mixer. Ideal for public address and paging in hotels, schools, community centers, and hospitals, as well as an excellent add-on mixer for expanding current equipment. It is also an excellent mixer for use by the serious tape recording enthusiast.

Features mix bus, simplex (phantom) power, automatic muting circuit, active gain controls, and electronic power supply regulation.

Also includes four transformer balanced microphone inputs, high level auxiliary input, individual volume controls, a master volume control. Freq. Response: ± 3 dB from 40 to 20000 Hz. Oper. Voltage: 105-125 VAC 50/60 Hz. U.L. listed and CSA listed as certified. Size: 2³¹⁄₃₂ × 12⁵⁄₃₂ × 9". Wt. 4 lbs. 2 oz.
81F9222. NET 257.00

M267 MICROPHONE MIXER

Features peak program limiter, simplex (phantom) power, built-in battery pack, LED peak indicator, headphone level control, gold contact headphone ampl/line switch, automatic muting circuit, active gain controls, and electronic power supply regulation.

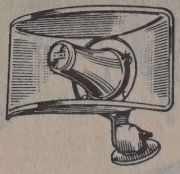
Gold contact Mic/Line switches, battery check function—*does not interrupt program*. Front panel headphone jack and gold contact tone oscillator switch.

Transformer balanced inputs and outputs; mix bus; VU meter; low cut filters; low RFI and line noise susceptibility. 105-125 VAC 50/60 Hz. Freq. Response ± 2 dB from 30-2000 Hz. UL listed, CSA listed as certified. Size: 2³¹⁄₃₂ × 12⁵⁄₃₂ × 9". Wt. 5 lbs. 2 oz.
81F9223. NET 415.00

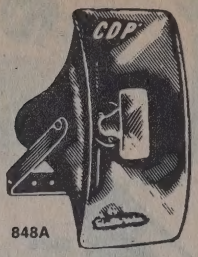
20

Electro-Voice® Sound Projectors and Speakers

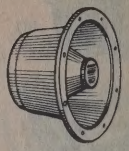
PA12



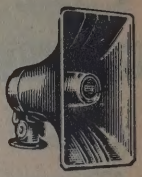
PA15B



848A



PA12F



PA30A

PAGING SPEAKERS

Model PA12. Power handling capacity 12 watts, with voice coil impedance 8 ohms. Wide dispersion of 130°. Frequency response: 440-11.5KHz. Swivel bracket easily removable from horn for convenient mounting. 7½" Dia. × 7⅛" Deep. Shpg. wt. 5 lbs.
88F196. NET 32.00

Model PA15B. Rectangular projector. Handles 15W program power. Tan, die-cast aluminum. Speech/music. Universal bracket. Freq. Response: 360-12KHz. Sound Pressure Level: 117dB. Dispersion: 80° Horizontal.
83F015. NET 44.55

Model PA15BT-2. Same as model PA15B, except with 25V transformer.
90F752. NET 61.00

Model PA15BT-7. Same as model PA15B, except with 70.7V transformer.
90F753. NET 61.00

Model PA12F. Paging projector rated at 12 watts. Frequency response: 620-16KHz. 140° dispersion, with voice coil impedance of 8 ohms. Sound pressure level: 115.5db. Dimensions: 6" × 3⅝" × 3½".
86F669. Wt. 1 lb. 10½ oz. NET 38.70

Model PA30AT-7. This 30 watt paging projector features easily selected line power taps at 30, 15, 8, 4, and 1 watts. Rectangular horn designed for wide dispersion. Frequency response: 340-11KHz. Dispersion: 105° × 72°. Sound pressure level: 125db. 11" × 6½" × 8½". Wt. 7¾ lbs.
88F190. NET 68.75

Model PA30A. Same as above, without line matching transformer.
88F173. NET 53.00

COMPOUND DIFFRACTION PROJECTOR

Model 848A. Combines FC100 compound diffraction horn plus 1828C compound driver for fine wide angle sound, low distortion, and highest quality of any projector. Freq. response 107-13.5KHz.; Imp. 8 ohms; Dispersion, 90° × 120°. Power Cap. 30 watts. Size, 10½" × 20½" × 20". NET WT. 15½ lbs.
88F152. NET 129.00

UNIVERSAL PA TRANSFORMERS–70.7 or 25V

Model TM30. 30 watt transformer with taps for 3.75, 7.5, 15, 30 watts. Shpg. wt. 2 lbs.
54F1002. NET 18.50

Model TM60. 60 watt transformer with taps for 7.5, 15, 30, 60 watts. Shpg. wt. 2½ lbs.
54F1003. NET 22.25

Model TM5. 5 watt line transformer with taps for .62, 1.25, 2.5, 5 watts. Shpg. wt. 1 lb.
54F1000. NET 14.25

Model TM 15. 15 watt transformer with taps for 1.87, 3.75, 7.5, 15 watts. Shpg. wt. 1½ lbs.
54F1001. NET 16.25

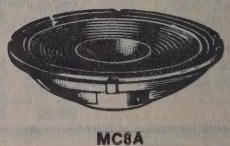
CONVERTIBLE DRIVER

1828C

Peak free response with max. efficiency. Easily adapted for use with all Re-entrant-type horns.

Stk. No.	Type	Dim.	Watts	Imp. Ohms	Freq. Resp. Hz.	NET
88F184	1828C	4" × 3¼"	30	8	170-13.5KHz	45.00

LOUDSPEAKERS



MC8A

Model MC8A. 8" diameter. Frequency response 35-20,000Hz. 8 ohms impedance.
86F338. NET 43.25

Make Newark your Complete 1-Point Stock Source

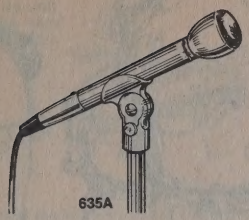
At Newark—fast, efficient service always!

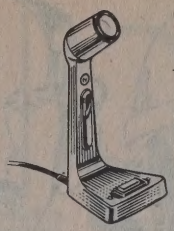
Quantity Prices Competitive with Manufacturer

Microphones

Electro-Voice® EV

602F


635A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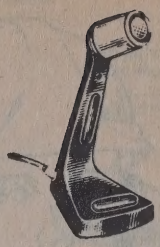
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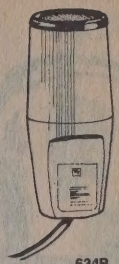

634B

Model 602F. Noise canceling dynamic. Rejects sounds originating more than 1/4" away. Cycolac case. 200-5,000 Hz. −60 dB. 2 1/2" x 4" H x 1 3/4" D. Wt. 10 oz.
61FX538. 602FL. Lo-Z. **NET** **68.00**

Model 635A. Omnidirectional microphone for hand and stand. Built-in four stage pop and breath blast filter eliminates need for wind screen. 80-13.00 Hz. Lo-Z output. −55 dB. 5 5/16" x 1 13/32. Wt. 6 oz.
61FX504. NET **92.00**

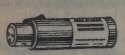
Model 621. Press to talk dynamic. For base station paging and two-way. Switch in base movable to upper stand for grip-to-talk. Has locking "on" position. 70-10,000 Hz. −57 dB. Wt. 2 lbs., 4 oz.

61FX514. 621 H. Hi-Z. **NET** **85.50**
61FX515. 621 L. Lo-Z. **NET** **85.50**

Model 622L. Similar to 621; noie cancelling base station. Perfect for paging or communication in noisy environments. 200-4,000 Hz. −57 db, with 7 ft. 5 cond. cable. Shpg. wt. 2 lbs. 4 oz.
61FX611. 622L Lo-Z. **NET.** **90.00**

Model 634B. Dynamic paging. Less stud and on/off switch. 70-10,000 Hz. −57 dB.
61FX587. 634BL. Lo-Z. **NET** **48.00**

ACCESSORIES


502C

Model 502C. Matching transformer Lo to Hi Z.
61FX617. NET **30.00**

502CP

Model 502CP. Same as 502C but with 1/4" phone plug output.
61FX618. NET **30.00**

Argos SOUND

SPEAKER SYSTEMS

SPEAKER SYSTEMS AND COMPONENTS

SD-1064

WB-8D

WB-408CSVT

TPB-508

MSD-1060

MSD-1060 SOUND COLUMN

Provides uniform sound level and intelligibility in areas where baffles, horns, or ceiling speakers fail. Response: 70 to 15,000 Hz., power 60 watts. Six 8" speakers, 16 ohms. Vertical sound projection angle is 30°. Two 1060's will cover the largest indoor areas with ease. Includes mounting clips for instant installation. Walnut wood grain vinyl finish, cane grill. Dimensions: 10 3/4" wide x 50 1/2" high x 8 1/4" deep. Shipping weight 52 pounds.
86F400 MSD-1060. NET 149.50

SD-1064 SOUND COLUMNS

Designed for use in areas where feedback or reverberation is a problem. Has six 5 1/2" 30 watt speakers, for small rooms up to 60 feet long. Input impedance 16 ohms, freq. response 200-10,000 Hz. Vertical sound projection angle 30°. Size 30 1/4" x 7" x 3 1/8". Ship wt. 12 lbs.
86F410 SD-1064. NET 72.75

WALL BAFFLES

Type WB-4/5D. For 4/5" speaker, max. speaker depth 2 3/4". Capacity 100 cubic in. Wt. 2 lb. Walnut vinyl finish.
3/8 6F401 NET 7.85

Type WB-8D. For 8" speaker, max. speaker depth 4 3/8". Capacity 400 cubic in. Wt. 4 lb. Walnut vinyl finish.
86F402 NET 9.40

Type WB-12D. For 12" speaker, max. speaker depth 6 3/8". Capacity 1180 cubic in. Wt. 7 lbs. Walnut vinyl finish.
86F403 NET 14.65

"THINLINE" SPEAKER SYSTEMS

Type WB-408CS. 4.8 oz. ceramic magnet. 10W capacity, 8 ohm imped. 9 3/4 x 12 1/4 x 4 3/8". Wt. 4 1/2 lb. Walnut vinyl finish.
86F404 NET 20.25

Type WB-408CSVT. Same as WB-408CS, except has volume control and 70.7 V transformer. Wt. 5 lb. Walnut vinyl finish.
86F405 NET 29.05

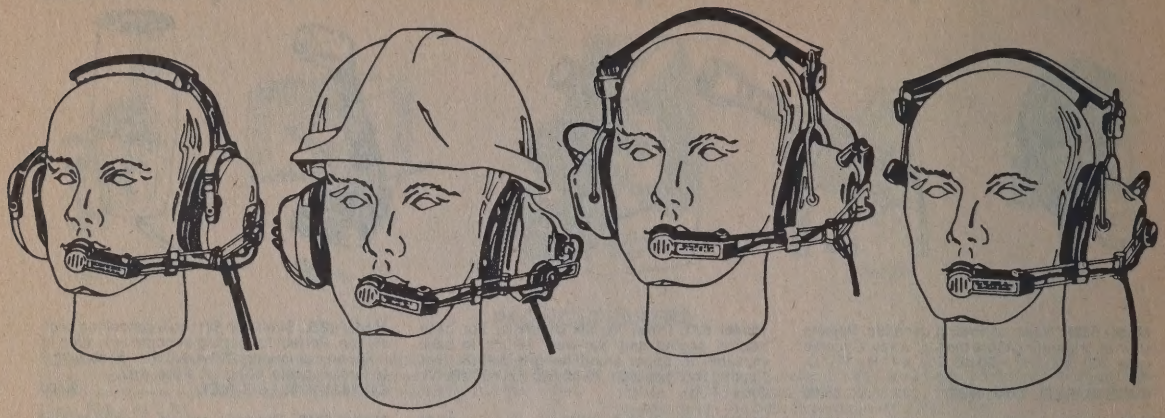
Type WB-212CS. 12" speaker w/10 oz. ceramic magnet. 18W capac. 8 ohm imped. 14x16 1/4 x 6 1/4". Walnut vinyl finish. Wt. 10 lb.
86F406 NET 33.00

Type WB-212CSVT. Same as WB-212CS, except has volume control and 70.7 V transformer. Wt. 10 1/2 lb. Walnut vinyl finish.
86F407 NET 41.30

8" BAFFLE/SPEAKER WITH DUAL VOLTAGE TRANSFORMER

General purpose music/PA speaker for both 25 and 70V systems. Walnut finish on white birch cabinet. Prewired to 7 tap terminals for instant installation. 8" speaker, 4.8 oz. magnet, 10W impedance. Walnut vinyl finish. Size 12 1/4" x 9 3/4" x 4 3/4". Shipping weight 4 1/2 lbs.
86F408 TPB508CST. Baffle, speaker, transformer. NET 50.95
86F409 TPB508CSVT. As above, w. volume control. NET 54.15

David Clark Communications Systems



MODEL H3330

Headset/Microphone Over-the-head style with boom mounted noise canceling microphone. 600 ohms impedance for noise levels to 125dB.
02F1230. NET 154.75

MODEL H3340

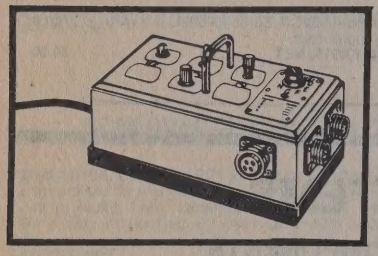
Headset/Microphone Behind-the-head version for use with safety cap. Noise canceling boom mounted microphone for noise levels to 125dB.
02F1231. NET 152.75

MODEL H3370

Lightweight Headset/Microphone Over-the-head style with boom mounted noise canceling microphone. **Not to be used in noise levels above 90dB.**
02F1232. NET 133.25

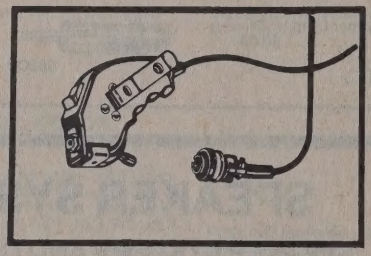
MODEL H3390

Lightweight Headset/Microphone Single ear version with boom mounted noise canceling microphone. **Not to be used in noise levels above 70dB.**
02F1233. NET 117.75



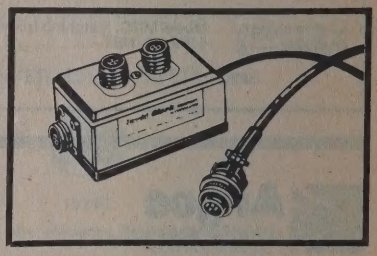
MODEL U3400

Master station contains power supply, amplifier, and impedance selector in a sturdy metal box. Has four output connectors, 12 ft. grounded power cord, roll bar/carry handle, master volume control, and system on/off switch. Belt stations can be connected to four Master stations outputs. Input: 110-125 VAC, 50-60 Hz. Output: 24 VDC. Max. current: ½ amp. Size: 5¾" x 9½" x 4¾".
02F1234. NET 447.25



MODEL U3410

Belt stations serves as preamplifier and interface between headset and system. Every headset must be plugged into belt station for system to operate. Belt station connects to master or remote either directly or via extension cords. Unit features headset jack, individual earphone volume control, push-to-talk/push-to-lock microphone button, belt clip, and 12 ft. cord with connector.
02F1236. NET 117.50

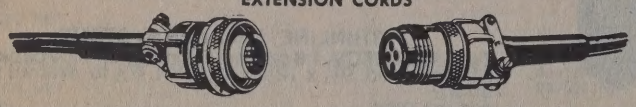


MODEL U3401

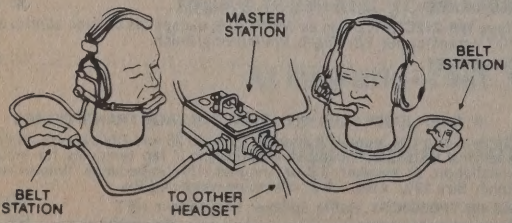
Remote junction modules are used to provide additional belt station connections. Each can accommodate three belt station connections or two belt station connections and one junction box.
02F1235. NET 147.25

Extension cords with screw-on type connectors used to expand system to cover larger area. Cords can be used to connect all components-master station, remote module, and belt stations.
C34-12; 12 ft.
02F1237. NET 60.75
C34-25; 25 ft.
02F1238. NET 70.75
C34-50; 50 ft.
02F1239. NET 92.25
C34-100; 100 ft.
02F1240. NET 139.75

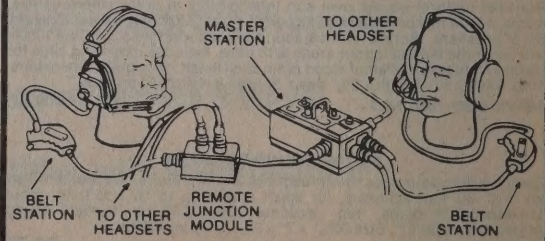
EXTENSION CORDS



1. Two to Four Headsets



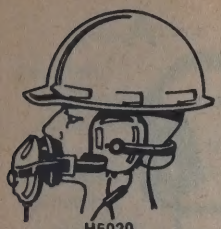
2. Five to Six Headsets



Communications Systems

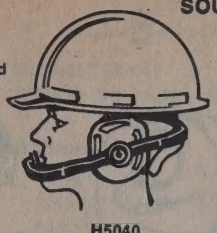
David Clark

SOUND-POWERED SYSTEMS



H5020

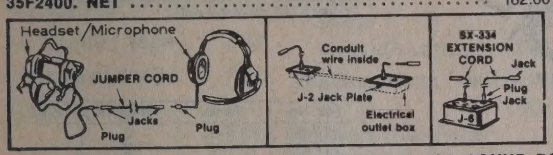
Behind the Head Models



H5040

Type H5010. Noise shielded microphone held in talking position by straps for ease of use. Push-to-talk switch on microphone shield. Clear, reliable communication to 130 dB. Padded headband to ensure comfort. Replaceable foam filled ear seals. Adjustable to fit any head contour. Two conductor 30″ cord with PJ-055 plug.
35F2402. NET 218.15

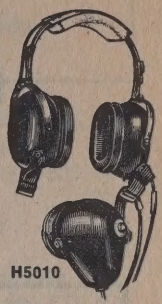
Type H5030. Lightweight acoustic boom rotates to allow easy adjustment. Eliminates heavy microphone element. No push-to-talk switch, your voice activates system. Clear reliable communications in noise to 100dB. Padded headband and replaceable foam filled ear seals ensure comfort. 30″ two conductor cord with PJ-055 plug.
35F2400. NET 162.00



H5090

Over the Head Models

H5030



H5010

Type H5090. Single ear model used in low noise area to 70dB. Lightweight, durable construction for maximum comfort. Boom microphone rotates to permit wearing on either left or right side. No push to talk switch necessary. Foam filled ear seal. 30″ two
35F2435. NET 108.95

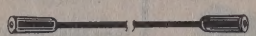
Type H5020. Has all the features of the H5010 but designed to be worn in the behind the head position so as not to interfere with safety hats or face shields. Has soft, pliable, adjustable overhead strap to allow proper fitting. Two conductor 30″ cord with PJ-055 plug.
35F2403. NET 214.50

Type H5040. Has all the features of the H5030 but is in the behind the head configuration. Adjustable overhead strap and nape spring for firm comfortable fit under safety headwear. Lightweight, durable and recommended for use in noise areas to 90dB. 30″ two conductor cord with PJ-055 plug.
35F2401. NET 160.40

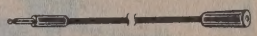
ACCESSORIES FOR SOUND POWERED COMMUNICATIONS GEAR

M5002. Jack Plate. Has two jacks with weatherproof covers in standard outlet faceplate.
35F2405. NET 17.85

M5006. Junction Box. 6 weatherproofed jacks in 2x4x2″ heavy-duty box.
35F2404. NET 74.05



C52-12/C52-25. Jumper Cord. Headsets plug directly into #88 jack at each end.
35F2410. 12 feet. **NET**... 22.35
35F2411. 25 feet. **NET**... 28.90

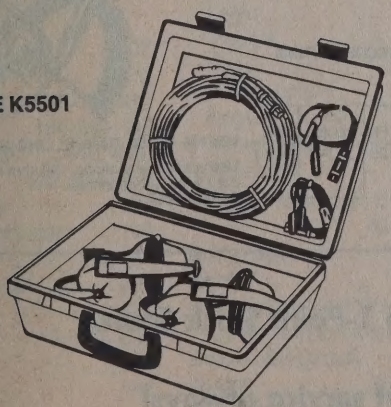


C51-12/C51-25. Extension Cord. Has #88 phone jack one end, PJ-055 plug other.
35F2406. 12 Feet..... 22.35
35F2407. 25 Feet..... 28.90

TELEPHONE COMMUNICATION HEADSETS

Sound Power Communication Kit

TYPE K5501



A complete two person system providing a means of communication for Linemen, Electrical Contractors and General Contractors over extended distances. This easy to use system is ideal when pulling and paring wires, performing continuity checks, calibrating readings, etc.

Packaged in its own compact carrying case, the kit includes two each Sound Power Headsets and adapter cords and a 50 foot jumper cord.

Through the use of the Sound Power accessories, the system can be extended to include up to six people and when proper conditions exist, two way communication is possible for miles.

81FX010. NET 375.00

H8730

Foam filled polyurethane Ear Seals
Listen Volume Control
Noise Canceling Microphone, place ¼ inch from mouth
PJ-327 Connector

H8730 provides noise attenuating domes for both ears and a noise canceling dynamic microphone. This combination assures clear, accurate communication under adverse operating conditions, including noise levels up to 125 dB. This headset carries a noise reduction rating (NRR) of 26.
81FX011. NET 246.00

ELECTRICAL CHARACTERISTICS:

Earphone impedance	300 ohms
Microphone impedance	130 ohms
Voltage accommodation	6 volts to 48 volts

H8790

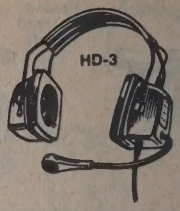
H-8790 is lightweight (12 oz.), with a single noise attenuating ear dome and noise canceling dynamic microphone. The foam cushioned temple pad is self-adjusting, for stability and comfort. High quality reception is provided by the noise attenuating dome, which subdues background noise. The single ear concept permits essential conversation with nearby co-workers. Not recommended for noise levels over 90 dB.
81FX012. NET 228.45

TELEX Telex Headphones and Headsets

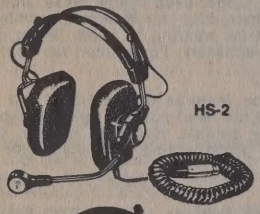
610-1

2400-42

HFR-91



HEADSETS

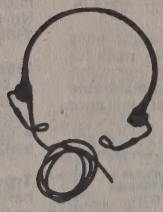

HS-2

HS-3

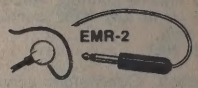
HD-3A

600 ohm dynamic receivers w/150 ohm noise cancelling mike

HS-2. 6′ cord w/XLR-4 type connector. Mike shuts off with boom upright.
26F738 NET **105.00**
HS-3. Same as above, but single muff.
26F739 NET **90.00**
HD-3A. cord w/XLR-4 type connector. For noise level above 90 dB.
26F741 NET **120.00**


HTW-2

Type 2400-42. 600 ohm hdst., 300 ohm mike.
27F442 NET 55.50
Type 600-1. 600 ohm dual phones w/mike.
27F1062. NET 34.60
Type 610-1. 600 ohm dual phones, no mike.
27F426 NET 9.70
Type HTX-2. 1000 ohms.
27F406 NET 54.00
Type HTW-2. 500 ohms. Std. phone plug.
27F404 NET 54.00
HF Series. Freq. response 60-4k Hz. with 5′ cord and phone plug.
HM Series. Light wt. under-the-chin hdst 5′ cord w/¼″ phone plug, adjustable tonearms, removeable eartips. 5 oz.


EMR-2

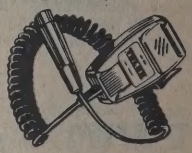
EM Series Earsets. Nylon earloop. 5′ cord w/std. phone plug. 4 oz.
HD Series. For clear two-way communications in noise filled environments.

Stk. No.	Type	Ohms	Net
27F390	HFR-91	15	17.00
27F437	HFV-91	125	
27F375	HFW-91	500	
27F391	HFY-91	2000	
27F373	HMV-2	125	25.00
27F374	HMY-2	2000	
27F379	EMR-2	15	15.00
27F381	EMW-2	500	
27F382	EMX-2	1000	
27F383	EMY-2	2000	
27F408	HD-2 Dynamic, 600 ohm		70.00
27F438	HD-3 as above w/ mike (*)		100.00

*150 ohm noise cancelling dynamic mike.

EXTENSION CORDS/INTERCONNECTING CABLES

Stk. No.	Type	Use	Ft.	Connector	Net
26F733	ME-25	connect between stations	25	XLR-3	34.00



HM-100 NOISE CANCELLING MICROPHONE
Use w/speaker stations. 150 ohm dynamic mike. 5′ cord w/XLR-4 connector.
26F737 NET **42.00**

Make Newark your Complete 1-Point Stock Source

At Newark—fast, efficient service always!

Quantity Prices Competitive with Manufacturer

PRODUCT INDEX

For Manufacturers Index See Pages 798-799

—A—

Adapters
25 Pair Cable 391
Audio Connector . . . 404, 440, 441
Between Series 397, 407
Bridging 452
Cross-Over 391
Double-Ended 391
Dual 451, 452, 459
Fuse Clip 531
Instrument 451, 452
Patch 438, 452
Plug 393
Socket 486
Telephone 391
Trimmer 154

Adhesives 508

All Weather Tape 523

Alignment Tools 687

Alligator Clips . . . 452, 461, 507

Ammeters 750, 765, 771, 773, 774, 776

Amplifiers
AM/FM Receiver 780
Booster 780
Connectors 780
PA 780
Preamplifier 783
Solid State 780

Anchors 688

Anti-Wicking Tool 690

Assortments
Bushings 503
Cable Clamps 536
Capacitor . . 163-179, 181, 184-188, 195
Connector 446, 463, 492, 534, 535
Hardware 504
Pontentiometer 143
Resistor 129, 133
Strain Relief 503
Terminal 525
Trimmer . . 143, 158, 159, 206
Tubing 542

Audio Attenuator 159

Audio Signal Devices 118, 119, 206

—B—

Ballast Tubes 367

Barrier Terminal Blocks 420, 421, 431-437

Batteries
Alkaline 704, 706
Carbon Zinc . . . 704, 705
Mercury 706
Nickel Cadmium 704, 707
Rechargeable 704, 707, 708
Zinc Chloride 704

Battery
Clips 507
Holders 487, 709
Packs 708
Plugs 709
Tester 750
Voltage Inverters 625

Binding Posts . . 451, 459, 462

Blowers (See Fans)

Boards, Circuit (See also Printed Circuit Hardware)
Breadboard . . . 470, 471, 477-479, 482
Copper 484, 485
Enclosures 430, 470, 475-478
General Purpose . . . 479, 484
Glass Epoxy 479
IC 470, 471, 477-479, 482
Logic 470
Module 356
Plug 475-477
Prototyping Kit 491
Socket 475
Vectorbord 479
Wirewrap 486

Boards, Terminal . . . 487, 491, 510

Bolts, Spade 506

Books 7

Boxes (See Cabinets, Cases and Enclosures)

Boxes, Electrical

Outlet 697-701

Breakers, Circuit (See Circuit Breakers)

Bulbs (See Lamps and Lights)

Burnisher 692

Bushings . . . 385, 501-504

—C—

Cabinets, Cases and Enclosures
Index 723
Bins 739, 740
Bottom Plates 734
Boxes
Die Cast 458, 731, 739
Plastic 458, 739
Cabinets 724, 730, 732, 735, 738
Casters 737
Chassis 734
Desk Tops 728
Doors 726
Drawer Cabinets 738
Drawers 726
Handles 487, 737
Levelers 737
Meter Cases 735
Mini Boxes 732
Mini Slides 730
Modular 478, 481, 728, 729
Mounting Hardware 401, 728
PC 430, 475, 478, 481, 729, 740
Portable 733, 734
Rack Panels 736
Racks 723-727, 732
Racks, Relay 727
Shadow 730
Show Case 733
Sliding Drawer Assembly 724
Sloping Panel 736
Small Cabinets . . . 731
Upright 725

Cable (See Also Wire, Cord)
Index 545, 571
Audio 550, 578, 590
CATV 558
CCTV 559
CRT 558
Computer 551, 553, 559, 572, 592
Coax 558
Data 551, 576, 57
Direct Burial 550
Ethernet 553
Fire Alarm 560

Cable (cont.)
Flat 403, 556, 586
Instrumentation 551, 560, 580, 593
MATV 558
Microphone . . . 548, 559
Molded 552
Multiple conductor 546-549, 569, 576, 578
Neoprene 546, 584
Plenum 561, 562
Power/Control 546, 548, 562, 573, 574, 575
Ribbon 403, 587
Shielded . . 549-551, 558, 559, 572, 575, 592
Speaker 549
Special Use 550
Stereo 548
Teflon 560, 577
Telephone 559
TV Camera 559
TV Studio 559
Video Retractile 559
Vinyl 549

Cable and Wire Hardware
Adapter, Grounding . 703
Caps 399
Clamps, Cable 385, 501, 506, 513, 515, 516, 521-523
Clamps, Cable Assortment 492, 534, 535
Clamps, Cushioned 501, 515
Clips
Cradle 506, 519
Cup 114
Harness 515
P 519
Tension 515
Connectors
Assortment 446, 492, 534, 535
Cord 702, 703
Screw-On 689
Cutters 403
Duct
Latching 521
Wiring . 518, 519, 521
Hangers, Cable 514
Holders
Cable, Adhesive . 513, 517
Wire Tie 512, 517
Hospital Grade 703

International Shipments Special Information on Page 800

PRODUCT INDEX

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

Cable and Wire Hardware (cont.)
Jackets, Cable.....559
Lacing Tape.....591
Locking Devices....702
Markers
Adhesive.....520
Booklets.....688
Clip-On.....519
Slip-On.....519
Marking Kits.....520
Marking Pens..517, 523
Mounting Strap.....514
Saddles, Wire.....514
Spiro Band.....519
Strain Relief
Assortment 502, 536
Strain Reliefs 502, 520
Stripper.....689
Ties
Cable 517, 522, 523
Wire..... 512, 513, 516, 536
Tools
Cabling..... 512, 517, 522, 525
Strain Relief
Insertion.... 503, 520
Wall Plates.....703
Wire Restraints.....412
Wrap
Harness.....513
Spiral.....513, 519

Cable Clamps 385, 389, 423, 501, 506, 513, 515, 516
Cable Cutters.....556
Cable Strippers. 688, 694
Cable Ties.. 512, 513, 516, 517, 519, 522, 536
Cabling Tools... 512, 517, 522
Caddy, Fuse.....374
Calipers.....693

Capacitors
Index.....163
AC/DC Power..200, 201
Air.....213, 219
Aluminum. 170-172, 174, 175, 178, 179, 181, 182, 187-189, 191
Assortment... 163, 179, 181, 184, 186-188, 192, 195, 197, 213
Ceramic.. 168, 169, 179, 192, 194-199 202, 204, 205, 208, 213

Capacitors (cont.)
Chip.....208
DIP.....168
Disc..... 163, 168, 169, 194, 195, 202, 205
Electrolytics... 163, 166, 167, 171-174, 178, 181, 182-184-191
Encapsulated Glass...197
Film..... 163, 168, 176-180
Glass.....203
High Capacitance.....182
Metallized.....168, 176
Miniature... 167, 172, 173, 175, 176, 178, 180, 181, 187, 188, 198, 209
Mica.....182, 183, 199
Mylar.....190, 203
Orange Drop.... 168, 177, 179
PC Mount..... 166, 172, 176, 181
Paper Filter.....203
Polyester....176, 177, 180
Polystyrene.....193
Tantalum.....164-167, 184-186, 187
Tester.....757
Transmitting.....219
Trimmers..... 202, 205
Variable.....213

Capacitor Hardware
Brackets.....201
Bushing Protectors..201
Clamps.....193
Clips.....193, 495
Insulating Sleeves..193
Mounting Plates....193
Terminal Bushing...171

Card Guides (See Printed Circuit Hardware and Accessories)
Cases (See Cabinets, Cases and Enclosures)
Casters.....737
Cements.....508
Chart Recorders 718, 719, 724, 769, 771
Chassis (See Cabinets, Cases and Enclosures)

Chemicals (See Also Paints)
Acrylic.....509
Adhesive, Thermal..113
Anti-Sieze.....624

Chemicals (cont.)
Anti-Static.....509
Cement.....508
Cement Solvent....508
Cleaners
CRT.....510
Flux.....510
Motor.....509
Plastic and Glass..... 508, 509
Relay and Contact..... 508, 509
Tape Head.....518
TMC.....510
Tuner..... 508, 509
Coolers..... 508, 509
Copper Print...509, 519
Defoamer.....484
Developer.....484
Dope.....508
Glue.....508
Insulating.....509, 510
Lacquer.....508
Lubricating.....508, 510
No Noise.....493
Oil.....509
Photo Resist.....484
Plastic Repair.....508
Silicones
General Purpose..... 510, 511
Heat Sink Compound.....114, 508, 519
Metal Lubricating.....508, 511, 517
Silver Print.....508
Solvent.....508
Stripper Concentrate 484
Stripping Compound 508
Thermal Compound 114
Varnish.....509
WD-40.....690

Chokes
Adjustable Coil 216, 217
Frequency Selective 216
High Current.. 596, 605
Iron Core.....216
RF.....216, 217
Smoothing.....596
Subminiature...216, 217

Circle Cutters.....693
Circuit Boards (See Boards, Circuit)
Circuit Breakers 368-371
Circuit Cards (See Boards, Circuit)

Circuit Testers..... 638, 640, 654, 657, 659, 672, 676, 689, 721

Clamps
Cable.....505, 506, 513, 515-517, 522
Scissor..... 640, 690

Cleansers, Ultrasonic.... 630, 659

Clips
Alligator..... 452, 461, 465, 507
Battery.....507
Component.....193
Copper.....507
Cradle.....506, 519
Crocodile.....507
Cup.....114
Harness.....515
Heatsink.....114
IC Test.....456, 482, 483, 486
P.....519
Panel Mounting.....412
Tension.....515
Test.....260, 453, 454, 456, 552

Coils (See Chokes)
Color Bar Generator..754
Color Coded Tape....523

Connectors
Index.....380
Adapters (See Adapters)
Amplifier.....735
Amphenol RF Connector Cross Reference..396
Assembly Tools.... 392, 403, 409, 411, 413, 429, 492, 499, 527, 646
Assortment...446, 463, 492, 512, 534, 535
Audio.....404, 416, 440, 441, 454-456
BNC 394, 406, 407, 457
Binding Post..276, 439, 451, 459, 463, 467, 474, 562
Blue Ribbon.....390
Cable.....399
Card Edge. 104, 392, 393, 402, 418, 419, 424-427, 465, 477, 486, 553, 683
Clips (See Clips)
Coaxial..397, 406, 407, 535

For Your Nearest NEWARK Location See Pages 2 and 3

PRODUCT INDEX

—C—

Connectors (cont.)
Component Clamps .440
Contact Hand Staking Tool .429
Contacts . 381, 411, 425-428, 479
Contacts, Printed Wiring .474
Cutting Tool .403
Crimping Tool . 381, 392, 400, 403, 405, 407, 409, 411, 413, 419, 429, 446, 473, 492, 521, 531, 684
D-Subminiature . 389, 408-411, 553, 555
Electrical .492
Fiber Optic .398
Flat Cable. 401, 402, 533, 553-555 555, 588, 589
HN .396
Headers . 402, 405, 472, 483, 555
Hexagonal .590
High Current .492
Hoods 400, 401, 411, 412
Hospital Grade .659
Insertion/Removal Tools . 381, 392, 397, 400, 409, 411, 413, 429, 433, 473, 481, 489, 492
Insulation Displacement . 401, 402, 405, 408, 409, 526, 527, 552, 553
Jacks (See Jacks)
Kits . 446, 463, 492, 534, 535, 553
Locks . 401, 415
Male .555
Mass-Terminated . 405
Microphone . 404, 456
Micro-Ribbon .391
Miniature .381
Min-Rac .389
Mounting Panels .430
Mounting Shells .399
N .395
Nylon .447
PC . 392, 393, 419, 424, 427, 429
Polarized .510
Plugs (See Plugs)
Rack and Panel 413, 428
Receptacles (See Receptacles)

Connectors (cont.)
Ribbon .413
SMB/SMC .396
Sockets (See Sockets)
SHE .555
Spade Lug .451
Splices .529
Subminiature . 397, 555
Super-D . 408, 409
Super-Ribbon .412
Switch .237
TNC . 395, 407
T-Bar . 307, 487
Terminals (See Terminals)
Terminating Tools . 403, 409, 413, 480
Tong .307
Types . 382, 383, 386
Transmission Line . 397
VHF . 395, 406, 411
Voltage Selecting . 213, 407

Continuity Tester .688

Controls (See Also Potentiometers, Rheostats)
Motor Speed .150
Photo .337
Power .337
Temperature .681
Converters, DC .617
Coolers (See Heatsinks)
Cords (See Also Cable, Wire)
3 conductor . 212, 564-566, 568, 584, 585
Air Conditoner .565
Business Machine . 566, 568
Coiled .566
Electrical Power 564-566, 568, 584, 585
Extension . 565, 566, 568, 585
Hospital Grade .565
Patch . 452, 454, 455, 461, 482, 487
Portable . 541, 551, 564, 567, 569
Power Cord Index . 545, 570
Projector . 566, 568
Telephone .559
Corner Notcher .494

International Shipments
Special Information on Page 800

For Manufacturers Index
See Page 798-799

Counters
Electromechanical . 286, 287, 298, 728, 775
Electronic . 288, 289, 294-296, 748
Frequency 703, 714, 748
Mechanical 286, 287, 298
Relay .296
Crystals
Clock Oscillators .127
Microprocessor . 65, 113
Quartz .205
Cutters (See Tools)

—D—

Decade Boxes
Capacitor . 133, 215
Resistor . 129, 133, 215
Desoldering Equipment
Adapter . 628, 658, 662
Bulbs 625, 628, 658, 662
Cleaning Tool . 625, 658
Sponge . 631, 658, 667
Station . 625, 628, 658, 662, 663
Tips . 625, 646, 658, 662, 663
Tool . 628, 630, 646, 658, 662
Dial Cord .687
Digital Multimeters . 747, 748, 759, 764, 768, 770
Diodes . 27, 82, 92
Displays
Alpha-Numeric . 53, 105, 106, 110
Assemblies .104
Bezels .104, 109
Character .104
Decoder/Driver .109
Flat Back .108
Gas Discharge .259
Hex .104, 110
LED . 53, 103-105, 107, 109, 110
Numeric . 103-105, 110
Sockets .109
Universal Mounting Hardware .109
Vacuum Fluorescent 112
Wire Wrap Terminals 109
Dividers .693
Drills . 441, 485, 685
Drive Pins .501

—E—

Earphones (See Headphones, Headsets)
Elapsed Time Indicators 291, 293, 294, 298
Elapsed Time Meters 727, 773
Electrical Sleeving . 544
Electrical Tape .523
Electric Marking Pen 655, 689
Electronic Stop Clock 281
Etched Circuit Materials (See Boards, Circuit)
Extension Cords (See Also Cords) .568

—F—

Fans
Air Cooling . 710-722
Blowers .712
Radial Blowers .722
Solid State DC . 715, 772
Fasteners . 501, 504, 505
Fiberglass Sleeving . 568
Files .674, 691
Filter Chokes (See Chokes)
Filters
EMI/FRI . 207, 209, 210-212, 214, 215
Fish Tape .688
Flashlights .705
Foot Switches .285
Forceps .676
Frequency Counter . 748
Function Generator . 749, 756
Fuse Accessories
Blocks . 374, 376
Caddy .374
Clips . 374, 376, 378, 494, 531
Holders . 374-376
Pullers .378
Fuses
Ceramic . 372, 377, 378
Dual-Element .377
Fast Action . 372, 377
Indicating .377
Instrument .372

21

PRODUCT INDEX

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

—F—

Fuses (cont.)
Pig Tail 372, 377
Rectifiers 375, 379
Slow-Blow 372, 373, 377
Subminiature . . 373, 376, 379
Time Delay 372

GFL 703
Gauges 692
Glass Cloth Insulated Tape 523
Glue 508
Grommets 506, 515
Ground Fault Leakage Tester 703
Guns, Heat 542, 657, 688, 695

—G—

Hacksaw 679
Hammer 679
Hand Press 403
Hand Vise 693
Handles 487, 737

Hardware
Angle Brackets 504
Assortment 504
Bolts, Spade 506
Bushings . . 385, 501-504
Clamps (See Clamps)
Clips (See Clips)
Drive Pins 415, 501
Grommets 506, 515
Grommet Strips 515, 519
Hole Plugs 503, 506
Insulating Wafers . . . 114
Metric Assortment . . . 686
Nuts 501, 504, 505
Nylon Assortment . . . 687
Rivets 501, 504
Rubber Bumpers 506
Screws . . . 504, 505, 687
Soldering Lugs 506
Snap Rings 676
Spacer Assortment . . 536
Spacers 473, 475, 489, 496-500
Strain Reliefs . . 447, 502, 503, 520, 536
Teflon Insulators 114
Washers
Fiber 505
Finishing 504

Hardware (cont.)
Flat Metal 505
Lock 505
Nylon 505
Headphones 756-758
Headsets 756-758
Heat Guns 542, 657, 688, 695
Heat Shrinkable Tape 564
Heat Shrinkable Tubing 537-541, 583

Heatsinks
Clips 114
Circuit Board 113-117
Extrusions 116
Feather Weight 114
King Size 116
Mounting Brackets . . 114
Natural Convection 113-117
Radial Fin 113-117
Slanted Fin 117

Holders
Battery 457, 709
Fuse 374-376
Hole Plugs 503, 506
Hole Punch 484, 685

—I—

IC Tester . . 456, 482, 483, 486
Impact Staking Kit . . . 491
Incandescent Lamps (See Lamps and Lights)
Indicator Lights
Assemblies . . . 627, 631-635, 646, 647
Cartridges
Clip 514
Connectors 596 646-648
Holders 627, 628
Lenses 648
Sockets 648
Displays (See Displays/Readouts)
End Color Caps 648
Holders 628
Incandescent 629, 632, 634, 641, 646, 647, 651, 653
LED . . . 53, 102, 103, 105, 107, 627, 630, 646, 647, 652

Indicator Lights (cont.)
Miniature 103, 631, 633, 634
Modular 627
Mounting Clips 105
Neon 629, 632, 634, 641, 646, 647, 651, 652
Oil Tight 635
PC Board Mounting Hardware 102
Panel Mounting Hardware 102
Press-To-Test 633
Readouts (See Displays/Readouts)
Sockets . . 648-650, 653
State/Fault 105
Subminiature . . 632, 638, 639
Switch Matching 231, 232
Telephone Slide Base 633
Universal 627, 638, 646, 647
Ultra-Miniature 630
Water Tight 632

Inductors
Adjustable .216, 217, 606
Hermetically Sealed 606
Miniature 218, 606
Subminiature 218

Industrial & Special Purpose Tube Directory 120-122
Inspection Mirror 693
Insulated Shield Caps 532
Insulated Sleeving . . . 544
Insulating Tubing 543
Insulating Wafers 114

Integrated Circuits
Advanced Low Power Schottky 38, 39, 57-59
Advanced Schottky 57-59
CMOS 42, 71, 72
Digital 57-59, 75, 76
Hi Speed CMOS . . 39, 72
Hi Speed Schottky . . . 39
Linear 40, 41, 44, 54-56, 73, 74, 77, 78
Low Power Schottky 38, 39
Memories 43, 44, 60
Schottky 57-59

Intercoms
Accessories 779

Intercoms (cont.)
Master Station 778, 779
Remotes 778, 779
Systems 778, 779
Telephone 779
Transistor 778
Wireless 779

—J—

Jacks
Banana 448
Bantam 438
Covers 439
Extensions 442, 443
Long Frame 439
Miniature 430, 438, 439, 449, 450
PC Board 438, 490
Panels 438, 439
Phone 438, 439, 443-445, 450
Phono 444, 450
RF 450
Right Angle . . . 449, 459
Telephone 450
Test 449
Tip . . . 449, 457, 460, 462

—K—

Keyboards, ASCII . . . 258, 465

Kits
Circuit Board Prototyping 482, 491
Jumper Wire 482
Marking 520
PC Production 485
Solder Terminal Repair 473
Terminal 496, 534
Tools 669, 671, 672, 675, 679
Tubing 542
Wire 557

Knives 668, 691
Knives, Electrician . . . 668

Knobs
Aluminum 743, 744
Locks 741
Plastic 741, 742, 744

—L—

LCDs 101, 109, 267
LEDs 53, 102, 103, 105, 107, 110

For Your Nearest NEWARK Location See Pages 2 and 3

PRODUCT INDEX

Lacing Tape 591
Lamps and Lights (See Also Indicator Lamps and Lights)
Index 626
Audio Visual 650
Bi-Pin 637, 642
Filters 255
Halogen 650
Holders . . . 641, 645, 653
Incandescent . . 228, 283, 636, 637, 642-644
Indicator 646-648
Neon 637, 641, 644
Pilot . . 228, 639, 640, 644
Pilot Bulb Remover . 631, 634
Slide Base 644
Sockets 276, 645
Switchboard . . . 644, 648
Telephone 644, 468
Lamps, Adjustable Desk 696
Leads, Test 453, 454, 456, 461, 751, 761, 769
Light Meter 765
Line Monitors 701
Loudspeakers (See Speakers)
Lubricants 509, 510
Lugs 688

—M—

Magnifiers 691, 693
Marking Devices
Cable/Wire
Adhesive 520
Booklets 688
Clip-On 519
Kits 520
Pens 517, 523
Slip-On 519
Electric Marking Pen 689
PC Marker Strip 430
Terminal Marker Strip 422
Megohmmeters 769
Meter Relays/ Controllers 775
Meters (See Also Test Equipment)
Amp 750, 765, 771, 773, 774
DMM 747, 748, 755, 759, 764, 768, 770
Meters (cont.)
Elapsed Time 774
Light 765
Megohm 769
Micro Amp 773, 774, 776
Mili Amp . . 767, 773, 776
Ohm 750
Panel 776, 767, 771-777
Pyro 775
Test Probe 751
Thermo 746
VOM 745, 749, 750, 760-762, 764, 765, 768
VU 773
Volt . . 766, 767, 772-776
Watt 774
Metric
Hardware 686
Tools 671, 675
Microammeters 773, 774, 776
Microphone Mixer 783
Microphones
Base Station 783
Cardioid 785
Directional 785
Dynamic 783, 785
General Purpose . . . 783, 785
Headset 787, 788
Lavalier 783
Miniature 783
Noise Cancelling 785
Omnidirectional 783, 785
Push-To-Talk . . 783, 785
Unidirectional 783
Microphone Accessories
Adapters 783
Attenuators . . . 783, 785
Filters 783
Line Transformers . 783, 785
Stands 783
Microprocessor Crystals 113
Microprocessors 45-49, 61, 63, 64, 66, 69
Milliammeters . . 767, 773, 776
Motors
Instrument 625
Stepping 624, 625
Synchronous 625

Semiconductor Listings Begin on Page 6

For Manufacturers Index See Page 798-799

—N—

Nameplate and Panel Kit 485
Needle Files 674, 691
Neon Indicators (See Indicator Lamps and Lights)
Neon Lamps (See Lamps)
Nibbling Tool (See Tools)
Noise Filters (See Filters)
Nut Drivers . 669, 671, 677
Nuts 504, 505

—O—

Oil 509
Ohmmeters 750
Oscillators 127, 205
Oscilloscopes . . 706, 712, 713, 752, 753
Outlet Boxes and Strips 697-701
Outlet Tester 689

—P—

PA Systems
Amplifiers 780
Preamplifiers 783
Speakers 781, 782, 785
Systems 785
PC (See Printed Circuit Hardware)
Paints (See Also Chemicals)
Flat Black 509
Wrinkle Finish 509
Panel Meters 767, 771-776
Parts Bins 739, 740
Patch Cords 439, 452, 454, 455, 482, 486, 487
Pencil Wiring Kits 656-659
Phone Jacks (See Jacks)
Phone Plugs (See Plugs)
Phono Jacks (See Jacks)
Phono Plugs (See Plugs)
Photo Layout Kit 485
Photo Reversing Kit . . 485
Photoconductive Cells 100
Pilot Bulb Remover 631, 635
Pilot Lights (See Lamps and Lights)
Pliers (See Tools)
Plug, Hole 503, 506
Plugs
3 Wire 702, 703
Adapters
Board 393
LSI 472
Male Plug 393
Angle 394
Assemblies 473
Banana . . . 448, 451, 452, 457, 460, 462, 463
Bantam 438
Battery 709
Cable 381, 390, 404
Dust Caps 385
Flat Cable 401-403, 472
General Purpose . . . 386, 388, 399, 414, 415, 417, 438
Grounding 399
High Density 472
Hospital Grade 703
Jumper 473, 483
Long Frame 439
Miniatures 436, 438, 450, 487
Phone . . . 438, 443, 445, 450, 460
Phono 442, 444, 450
RF 450
Ribbon Cable 401, 402, 472, 483
Straight 384
Tip 449
Waterproof 381
Posts, Binding 276, 451, 459, 460, 462, 467
Potentiometers
Assortment 143, 158, 206
Carbon 136, 138, 141
Cermet . . . 136-139, 143-145, 147, 153, 155, 156
Digital Readout 149, 153
DIP 125, 142
Dual 140
Mod-Pot 136
Modular 147
Multi-Turn . 139, 143-148, 153-155, 157
Plastic 147, 148, 152, 153, 156
Pushbutton 149
Single-Turn 138-141, 144-147, 152, 154, 156-159
SIP . . . 125, 127, 135, 142

PRODUCT INDEX

—P—

Potentiometer (cont.)
Slip Clutch 152
Thick Film. 152
Trimming . . 138, 143-145
Variable 140, 141
Wirewound. . . . 146, 148, 152-154 157, 159

Potentiometer Accessories
Dials 153
Turns Counting Dials 149, 158

Power Inverters 607, 625

Power Outlets 702

Power Outlet Boxes and Strips 697-701

Power Regulators 613

Power Supplies
AC. 611-619
AC/DC 621
DC 611-613, 616-618, 770
DC Converters 612, 617
Lab 754
Microprocessor 613
Regulators 613
Switching 611, 615, 617

Preamplifiers 783

Press Brake 484

Printed Circuit Hardware and Accessories
(See Also Boards, Circuit)
Binding Posts . 459, 462
Boards (See Boards, Circuit)
Cages. . . 430, 470, 475, 478, 481, 740
Capacitor Clips 495
Card Enclosures 430
Card Guides . . 430, 431, 495, 740
Cases 481, 740
Chemicals 484, 485
Cleaner. 485
Component Clamps . 495
Connectors . . . 392, 395, 418, 419, 424-427, 465
Cup Clips 114
Defoamer. 484
Developer 484
Disconnect Tabs 494
Drawer Assembly . . . 470
Drill 485
Dry Film Laminator . . 484
Ejectors 495

Printed Circuit Hardware and Accessories (cont.)
End Guide Plates . . . 450
Etched Circuit Lab . . 485
Exposure Frame 484
Extender Card 470, 477
Frames. 470
Fuse Clips 494
Handles 487
Holders. 673, 695
Impact Staking Kit. . . 491
Insulating Wafers . . . 114
Jacks 438, 490
Marker Strip. 422
Mounting Straps 422
Nameplate and Panel Kit 485
Patch Cords. 438, 454, 455, 461
Photo Layout Kit 485
Photo Resist 484
Photo Reversing Kit 485
Plug-In Housing 491
Plugs. 490
Production Kits 485
Rack 740
Rack Assembly 470
Reinforcement Bar . 430, 481
Quick Disconnects . . 494
Silk Screen Kit. 485
Soak Tank 484
Sockets . . 300, 301, 416, 417, 464, 466-469, 486
Spacers . . . 491, 496-500
Spray Etcher 484
Standoffs 488, 491, 496-500
Stripper Concentrate 484
Terminals 395, 446, 479, 490, 494
Tin Plating Kit 485
Universal Hand Tool 494
Vises. 673

Probes (See Test Equipment)

Pulse Generator 756

Punches (See Tools)

Pyrometer. 775

—R—

RF Generator . . . 749, 756

Racks and Accessories (See Cabinets, Cases and Enclosures)

Readouts (See Displays/Readouts)

Reamers 691

Receivers, AM/FM. . . . 780

Receptacles
3 Wire 702, 703
BNC 407
Box Mounting 384
Cable 381, 384, 390
Dust Caps 385
General Purpose 386-388, 395
Grounding 395
Hospital Grade 703
Low Impedance. 438
Panel 404
Square Flange. 404
UHF 407
Wall Mounting 385
Waterproof. 381

Rectifiers 28, 84, 85, 91, 92

Regulators (See Power Supplies, Transformers)

Relays
Index. 299
Amp Drivers. 317
Antenna Switching . . 320
Compact. 303, 304
Contactors 317, 364
Counter 296
Crystal Case 303
DIP 266, 319, 351, 354, 357
Gas Discharge Arrestors 350
General Purpose . . 302-310, 328, 329, 332, 339, 350, 357
Ground Wire 355
Heavy Duty 344
Hybrid. 322, 342
Impulse. . . 317, 322, 345
I/O Systems. . . 323, 356
Isolated. 230
Latching . 321, 322, 335, 354, 360, 365, 366,
Mechanical 346
Mercury Displacement 334
Mercury Wetted. . . . 265, 318, 325, 350, 351, 362
Miniature Industrial . . 330
MIP 325
Motor Start. 312

Relays (cont.)
Multiple Leaf 303
Open. 347
PC Mount. 308-310, 319, 324-327, 330, 336-342, 344, 350-352, 355, 357, 361, 362, 364-366
Power. . . . 306, 312, 313, 327,331, 358, 359, 362, 364
Reed. 266, 319, 324-326, 336-338, 350-352, 357, 365
SIP 266, 354
Solenoids. 323, 348, 349, 367
Solid State 86, 87, 279, 317, 328, 342, 353, 362
Special Purpose . . . 316, 322, 331
Stepper. 345
Subminiature. 321
Telephone 352
Time Delay. . . . 314-316, 320, 322, 346, 353, 362, 363, 366, 367
Voltage Sensing 317

Relay Hardware
Bails 301
Cases 304
Dust Covers. 306
Mounting Strip. 303, 307, 309, 316
Mounting System . . . 301
Racks 727
Retainers 301, 355
Sockets 300-304, 306, 307, 309, 310, 316, 320, 328-330, 332, 334, 339, 341, 344, 360, 361, 365
Springs. . 301, 303, 309, 360, 361

Resistors
Index. 123
Adjustable 131, 134, 137
Assortments . . . 129, 133
Axial 134, 135
Carbon . . . 124, 129, 133
Carbon Film. 129
Cermet 125
Decade Box. . . 129, 133, 215
DIP 125, 142
Industrial Grade . . . 124, 132, 135

For Manufacturers Index See Page 798-799

International Shipments Special Information on Page 800

PRODUCT INDEX

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

Resistors (cont.)
Metal Film .126, 128, 133
MIL-Spec 124, 126
Molded Composition 128
Networks 125, 127, 135, 142
Precision 126, 128
SIP 125, 127, 142
Thick Film.....142
Vitreous Enamel 130-132, 134
Wirewound.... 126, 128, 130, 132, 134, 135

Rheostats
Dial Plate 150
Knobs.....150
Miniature 150
Tandem Coupling Kit 150
Vitreous Enamel 151
Wirewound.....150, 151

Rivets (See Hardware)
Riveters (See Tools)
Rubber Bumpers 506
Rulers (See Tools)

—S—

Saw Blades.....679
Saws 679
Screwdrivers (See Tools)
Screw Launchers 677
Scribers..... 690, 693
SCR's... 37, 38, 50, 69-71, 83, 88-91
Sealant-Silicone 510
Semiconductor Tester.....757

Semiconductors
Master Index 6
Price Lists
Discrete Devices 8-21
Integrated Circuits 21-66
Micro Systems.....6
Data Books 7
Shears..... 670, 674
Seizers.....668
Sensors.....290
Pressure.....27
Temperature 27, 75

Signals, Solid State
Chime Tone..... 119
Chirp Tone..... 119
Continuous Tone.... 118
Fast Pulse 119
Fast Warble 119

Signals, Solid State (cont.)
Panel Mounting Hardware.....118
Piezo alarms 206
PC Board 119
Short Pulse 119
Slow Pulse..... 119
Slow Warble..... 119
Transducers 119

Silicone Rubber Sealant 510
Silicone Rubber Tape 523
Silk Screen Kit.....485
Sleeving 544

Sockets
2 Prong.....417
DIP 417, 464, 468, 469, 486
General Purpose 415-417, 432
High Density 472
IC.....464, 466-469, 481, 483, 485, 486
Indicator Light 648-650, 653
Lamp.....276, 645, 653
Miniature 416, 417
PC.....416, 417
Panel 441
Rectifier 491
Relay 300-304, 306, 307, 309, 310, 316, 320, 328-330, 332, 334, 339, 341, 344, 360, 361, 365, 395, 416, 437
Semiconductor 417, 479
Transistor. 417, 479, 491
Tube 416
Vidicon 417
Wire Wrappable 401

Solder 666, 667

Soldering Equipment (See Also Desoldering Equipment)
Cartridges 657
Cord Sets.....657
Handles 657
Heaters.....656, 661
Holders.. 657, 660, 663, 665
Irons 654, 655, 659-665
Pots.....659
Solder..... 666, 667

Soldering Equipment (cont.)
Sponges..... 658, 667
Stations ..654, 661-663, 665
Tips..655-657, 659-661, 663-665

Soldering Lugs 506
Solderless Terminals 526-531, 533
Solenoids 323, 348, 349, 367
Snap Rings.....676
Snips 675, 690
Spacers.... 489, 496-500

Speakers
Assemblies 782
Baffles 782, 785
Columns.....785
Drivers 781, 784
Enclosures.....782
Horns 781
General Purpose... 781, 784, 785
Miniature 782
Paging ... 781, 782, 784
Trumpet 781

Spring Adjuster.....692
Spring Hooks.....692
Staking Tool 517, 522, 525
Strain Reliefs...502, 520, 536
Strippers (See Tools)

Switches
Index.....220
Actuators 264
Aircraft 244
Barriers.....262
Bases 232, 233
Button Guards 230, 276
Buttons... 230, 259, 263
Cap Covers 246
Caps.... 230, 232, 233, 246, 251, 254, 257, 261, 262
Coaxial.....367
Connectors 241
Contact Blocks 227
Cord/Pendant 283
DIP 229, 241, 278
Foot.....285
Foot Switch Guards .285
Hesitation.....248
Illuminated....225, 227, 232, 233, 235, 245, 251, 253, 254, 261-263, 274

Switches (cont.)
Keyboard 258, 271, 280, 465
Keylock.....227, 228, 239, 244, 271
Knobs.....272
Lever.....231, 241, 253, 274, 283
Leverwheel 257
Miniature 222, 223, 225, 231, 234-237, 241, 247, 250, 252, 273
Modular Panel.....259
Multi 282
Oil Tight 227
PC Mount..... 221-225, 231, 234-237, 242, 246, 247, 253
Paddle.238, 242, 251
Panel 234, 251, 256, 259
Power Tap 281
Proximity 230, 266, 268, 290
Pushbutton ... 223-225, 227, 232, 233, 235, 241, 245, 247, 251, 253, 254, 261-263, 274, 276, 279, 282-284
Reed..... 230, 265
Rocker ...221, 231, 236, 237, 241, 242, 245, 252, 253
Rotary... 226, 238, 239, 270-273, 277, 280
Seals..... 230, 255
Sealed 250
Slide 221, 223, 229, 236, 260, 284
Snap Action ...225, 235, 254, 256, 264, 269
Solid State 233
Subminiature..... 224, 235, 242, 244, 246, 247, 251, 252
Switch Plates.....230
Thumbwheel ..240, 241, 257
Toggle..... 221-224, 229, 231, 234, 235, 241-244, 246-248, 250
Waterproof.....225
Wire Wrap 222

Substitution Boxes
Capacitor 133, 215
Resistor ...129, 133, 215

For Your Nearest NEWARK Location See Pages 2 and 3

PRODUCT INDEX

See Pages 4 and 5 for Terms and Conditions of Sale and Shipping Information

—T—

Tachometer 294
Tape
All Weather 523
Color Coded 523
Electrical 523
Fish.....689
Glass Cloth Insulated 523
Heat Shrinkable 542
Lacing.....591
Silicone Rubber.....523
Tinned Copper Shielded.....523
Teflon Insulators.....114
Telephone Keyboard Seals 255
Telephone Tester 762
Temperature
Meters 746
Pyrometers 775
Terminals
Barrier Block Jumper 423
Blocks 420, 421, 431-437
Board 422, 434, 435, 487, 491, 510
Fanning Strips.....422
General Purpose... 423, 524, 525
Hi-Temp 533
Kits 525, 534
Marker Strips.....422
PC..... 395, 447, 479, 490, 494
Press Mount ..487, 488, 490
Quick Clamp 423
Solder... 423, 439, 447, 487, 488, 490
Solder Terminal Repair Kit 473
Solderless 526-531, 533
Solderless Kit 446, 530, 534, 676
Solderless Tool 517, 522, 525, 527, 531, 684
Strips 423, 431, 433, 468, 482, 510
Tiepoint 483
Wirewrap 487, 488, 490
Test Accessories
Adapters.....407, 451
IC Test Clips ..456, 482, 483, 489
Jacks 449, 459, 463
Test Accessories (cont.)
Leads 461, 676, 725, 751, 768
Patch Cords.....452
Probes ...461, 463, 753, 759
Test Clips..... 276, 453-455, 482, 483, 489
Test Equipment and Testers
Ammeters 750, 765, 771, 773, 774, 776
Ammeters, Clamp-On, ...749, 760, 765, 768
Ammeters, Clamp-On Adapter.....746
Battery Tester 750
Capacitance Tester 757
Chart Recorders 769, 771
Chart Recorder Paper 769, 771
Circuit Testers 676, 689
Color Bar Generator 754
Continuity Tester....689
Decade Boxes
Capacitance 129, 133, 215
Resistance.. 129, 133, 215
Digital Multi Meters. 747, 748, 755, 759, 764, 768, 770
Elapsed Time Meter 774
Frequency Counters 748, 754
Frequency Meters...774
Function Generators 749, 756
GFI 703
Ground Fault Leakage Tester..... 703, 704
IC Tester..... 453-455, 482, 483, 489
Light Meter.....765
Megohmmeters.....769
Meter Relays/ Controllers.....775
Microammeters.... 773, 774, 776
Milliammeters 767, 773, 776
Ohmmeter 750
Oscilloscope Probes 456, 753
Oscilloscopes 752, 753
Testers (cont.)
Outlet Tester .. 689, 703
Panel Meters ..766, 767, 771-777
Probes ...456, 461, 753, 759
Pulse Generator 756
Pyrometer 775
RF Generator ... 749, 756
Semiconductor Tester 757
Telephone Tester ...762
Temperature Probes 746, 757
Test Leads.... 453-455, 461, 676, 751, 761, 769
Test Probe Meter 751
Test Prods 461, 704
Thermocouples.....775
Thermometer.....746
Transistor Tester....757
VOM 745, 749, 750, 760-762, 764, 765, 768
VU Meter 773
Volt-Ammeter, Clamp-On 765, 769
Volt-Amp-Wattmeter, Clamp-On 768
Voltmeters 766, 767, 772-776
Voltage Tester 689, 768
Wattmeter 774
Thermistors
Current Limiters 160
Diode 162
Disc.....160, 162
Glass 162
Engineering Packages.....162
Networks 161
Precision 161
Probes 161
Uni-Curve.....162
Timers
Delay 291, 292, 295
Elapsed Time Indicators 291, 293, 294, 298
Electronic..291-293, 296
General Purpose Electrical 297
Hour 292
Interval..... 293, 294
In-Wall 297
Mounting System ...437
Multi-Cam 293, 294
Photo 297
Timers (cont.)
Programmable 297
Reset 291, 294
Tin Plating Kit 485
Tinned Copper Shielded Tape 523
Tools
Alignment.....687
Anti-Wicking 690
Boxes/Chests 679
Burnisher 692
Cable Cutters 403, 689, 694
Cable Stripper..... 407, 689, 694
Cabling... 517, 522, 525
Calipers 693
Circle Cutter.....693
Coaxial Termination 694
Connector Tong ... 381, 392, 409, 413, 429
Corner Notcher 484
Crimping. .381, 392, 407, 492, 517, 522, 525, 531, 676, 684, 694
Cutters
Cable 403, 694
Circle 693
DIP Insertion 683
Dividers 693
Drill
General Purpose. .685
PC Board 485
Drill Sharpener 693
Electric Marking Pens 689
Files, Needle .. 674, 691
Forceps, Heat Sink..676
Gauges
Push-Pull 692
Spring.....692
Hack Saw.....679
Hammer, Electricians 679
Hand Press ... 489, 556
Heat Guns 542, 657, 688, 695
Holders.....693
Impact Stacking Kit. .491
Insertion/Extraction 492, 683, 692
Insertion, Strain Relief, ... 502, 520
Insertion, Tie 522
Inspection Mirror... 691, 693

For Your Nearest NEWARK Location See Pages 2 and 3

PRODUCT INDEX

Tools (cont.)
Kits 669, 671, 672, 675, 677
Knife, Electricians...668
Knives..... 668, 691
'L' Key.....675
Magnifier 691, 693
Metric 67., 674, 675
Multi-Purpose 531, 673
Needle Files... 674, 691
Nibling 690
Nut Drivers669, 671, 677
PC Universal Hand Tool 494
Pencil Wiring Kits ...682
Pilot Bulb Remover 631, 635
Pliers
Chain ..668, 673, 679
Coil Spring.....679
Cutting/Looping...668
Diagonal.....668
Electricians 668
Electronic.....668
Flat Nose 668
Flush Cutting 673, 679
Long Nose 668
Needle Nose 668, 673
Pump 679
Round Nose..... 668
Side Cutting..... 668
Slim Nose..... 679
Slip Joint.....668,679
Snap Ring ...668,676
Strain Relief.....503
Special Purpose ..668
Utility.....668
Press Brake.....484
Punch
2 Hole.....484
Auto Scribe 691
Center.....693
D-Subminiature...685
Key 691
Knockout 691
Ratchet.....691
Round.....691
Socket 691
Square 691
Reamers 691
Riveter 676
Rotary Tool Accessory Kit 691
Rule Gauge 679
Saw Blades 679
Saw, Hack 679

Tools (cont.)
Scissor Clamps.....674
Scissors 670, 674
Screwdrivers
Allen 671
Blade 670
Dual Purpose.....670
Extenders.....671
Hex Key 674, 678
Hex Socket 671
Jewelers.....690
Metric 671
Miniature 671
Phillips 670, 677
Ratchet.....670
Slotted 670
Screw Launchers...674, 677
Scribers 690, 693
Shears 670, 674
Siezers.....668
Solder (See Soldering Equipment)
Snips..... 675, 690
Spring Adjuster 692
Spring Hooks.....692
Staking.....525
Strippers
Cable ..407, 688, 694
Flat Ribbon 694
Wire .. 525, 668, 688, 694
Subminiature.....690
Terminal Extraction..335
Terminal Installation 525, 531,684
Termination, Coaxial, ... 407, 684
Thread Clips 670
Trimmer Adjustor .. 145, 156
Tweezers . 672, 690, 691
Ultrasonic Cleaner ..659
Vises
Hand.....693
PC..... 673, 695
Pin..... 690, 693
Vacuum Base 693
Wire Wrap/Unwrap 680-683
Wrench
Adjustable ..668, 672, 679
Box End 672
Hex.....674
Metric 675
Open end.....672

International Shipments Special Information on Page 800

For Manufacturers Index See Page 798-799

Tools (cont.)
Wrench **(cont.)**
Rachet 693
Socket 690
Transformers
Audio 502, 595, 602, 606
Auto 599, 603
Chokes... 215, 216, 596
Constant Voltage .. 594, 598
Control ... 594, 604, 605
Filament..... 594, 604
Filter Reactor.....601
Inductors 216-218,
Isolation .. 599, 603, 606
Hybrid.....606
Line Adjusting 605
Line to Voice Coil ...597
Microphone 783
PA.....784
Power....594-596, 600, 603-605
Pulse.....606
Rectifier 594, 596, 604, 605
Step Down.... 599, 603
Suppressors 623
Telephone Coupling 602
Transistor 602, 605, 606
Variable 620-622
Voltage Regulators, 607, 610, 620, 621, 623
Voltage Stabilizers ..600
Transistors
Germanium 49
MOS 36, 78, 80, 81
Power....35, 36, 50, 51, 67, 68, 81, 82, 96
Small Signal.. 29-32, 34, 35, 94, 95
SOT Small Signal....32
Transistor Tester.....757
Triacs 37, 38, 50, 69, 70, 93
Trimmers
Adjustment Tool 145, 156
Assortment 143, 159
Carbon 138, 159
Ceramic 202
Cermet 138, 139, 143-145, 155, 156, 158, 206
Miniature 159, 202, 205
Molded Compostion 139
Mounting Adapter...154
Multi-Turn..... 139, 143-145, 155

Trimmers (cont.)
Single-Turn ... 138, 139, 144, 145, 156, 158, 206
Subminiature.....202
Wirewound.....146, 154
Tubes.....120, 122
Tubing, Insulating....543
Tubing, Heat Shrinkable
Assortment 542
Caps.....541
General Purpose 538-541, 583
Property Chart.....537
Tubing, Kits 542
Tweezers..... 690, 691

—U—

Ultrasonic Cleaner...659

—V—

Varistors.....99
VOM..... 745, 749, 750 760-762, 764, 765, 768
VU Meter.....773
Vises 693, 695
Voltage Regulators.. 608, 609, 623
Voltage Suppressors. 27, 29, 600
Voltage Tester .. 689, 769

—W—

Washers 236, 505
Wattmeter.. 765, 773, 774
Wire (See Also Cable, Cord)
Index..... 545, 570
Bus Bar..... 561, 587
Coiled.....559
Jumper Wire Kit.....482
High Voltage 592
Hook-Up..... 557, 568, 571, 576, 593
Kits 482
Magnet.....561
Test Prod 561
Wire Hardware and Accessories (See Cable and Wire Hardware)
Wiring Duct 518
Wrenches (See Tools)

—Z—

Zener Diodes (See Semiconductors)

MANUFACTURERS INDEX

—A—

AC-DC
Power Supplies 614, 615
A-MODE
Connectors, Kits, Tools . 492, 534
ADC
Audio Connectors 439
Audio Jacks and Panels 439
Patch Cords 438
Terminal Blocks 439
AND
LCDS 101
AP PRODUCTS
Breadboard Terminals 482
Connectors 483
Headers 483
Patch Cords 482
Test Clips 482
API (LFE)
Panel Meters 777
Relay Controllers 777
APM
Filters, Seals 255
ADEL
Nibbling Tool 690
ADTECH
Power Supplies 619
AGASTAT
Relays, Switches 363
AKRO-MILS
Boxes, Cases, Consoles 738
Drawer Cabinets 738
Storage Bins 739
ALCO
Knobs 742-744
Lamps 227, 641
Relays 230
Switches 222-230
ALLEN-BRADLEY
Networks 125
Potentiometers 136, 140, 141
Resistors 124, 125, 136, 140, 141
Switches 140
Trimmers 138, 139
Vernier Drives 136
ALLIED CONTROL
Relays 344, 345
ALPHA
Cable Index 570
Cable, Wire, Cords 571-587
Connectors 588, 589
Cords 585
Fit Tubing 583
AMERICAN BEAUTY
Soldering Equipment 659
AMERLOK
Coil Spring Pins 501
Cushioned Cable Clamps 501
Fasteners, Hardware 504-506
Kit (Assortments) 536
Nylon Mtg. Rivets 504
Snap-in Mtg. Buttons 501
Snap-Nuts 504
Self Tapping Bushings 501
Spacers 498-500
AMPERITE
Relays 367
AMPHENOL
Accessories (Connector) 400
Audio 404
Cable 403
Coax Switches 367
Connectors 381-397
D-Sub 389
Fiber Optics 392
Sockets 399
Telephone Products 391
Tools 392, 403
AMPROBE
Chart Recorders 734
Test Equipment 734, 735
ARCO
Capacitors 199
ARGOS
Communication Systems 785
ARROW HART
Switches 242-245
AUGAT
Adapter Plugs 472
DIP Sockets 468, 469
IC Hardware 472
Panels, Racks 470, 471
Plug Assemblies 473
Sockets 474
Tools 473

—B—

B&K
Test Equipment 752-757
BEAU (VERNITRON)
Barrier Blocks and Terminal Strips 432, 443
BECKMAN
Test Instruments 758, 759
BELDEN MFG.
Cable Index 545
Cable, Wire, Cord 546-567
BESTOOL
Solderless Term. Crimptools 684
Coax. Conn. Crimptools 684
D-Submini Chassis Punch 685
Vari-Bit Drill Bits 685
BOGEN
Amplifier Accessories 751
Intercoms 750
P. A. Amplifiers 751
BOURNS
Resistor Networks 142
Potentiometers 142-149
Trimmers 143-145
Turns Counting Dials 149
BUD
Cabinet Accessories 737
Cabinets, Boxes 723-736
Index 723
BUSSMANN MFG.
Fuses 376-379

—C—

C&K
Switches 234-240
C. P. CLARE
Relays 350-352
C. W. Industries
Switches 221
CAMBION
Battery Holders 487
Connectors 487
Handles 487
IC Accessories 486, 487
PC Boards 486
Patch Cords 488
Sockets 486
Soldering Terminals 488
Tools 489
CAROL CABLE
Cords 569
CENTRALAB
Capacitors 194-198, 219
Switches 272-275
CHERRY ELECTRIC
Keyboards 259
Switches 256-259
CHICAGO MINIATURE/GI
Lamps 636-640
LED's 102, 103
CHICAGO SWITCH
Switches 260
CINCH (TRW)
Barrier Terminal Boards 420, 421
Barrier Hardware 423
Econo-D 410
Connectors 408-413, 418, 419
DIP Sockets 417
Marker Strip 422
Plugs, Sockets 414-416
Superibbon 412
Super-D 408, 409
Tools 409, 413
CLARK, DAVID
Communications Systems 756
Headsets 757
CLAROSTAT
Potentiometers 152, 153
Resistors 134
CLAUSS TOOLS
Scissors, Tweezers 690
COMPU-LITE (See Eaton/ Compu-Lite)
CONTROLS COMPANY OF AMERICA (See Singer)
CORCOM
Cords, Line 212, 213
Filters 210-213
Switches 211
CORNELL-DUBILIER
Capacitors 180-183
Decades 215
Filters 214, 215
CRAMER CONTROLS
Timers 291
CRITERION
Transformers 604, 605
CRYDOM
Relays 86, 87
CUTLER-HAMMER/EATON
Switches 246-254

—D—

DALE ELECTRONICS
Crystal Oscillators 127
Networks 127
Resistors 126, 127
DATA INC.
Engineering Data Books 7
DEARBORN
Cable, Wire 592
Coaxial Cable 591
Nylon Lacing 591
DELTA-T (See Wakefield)
DIALIGHT
LED's 105
Lights 628-635
Readouts/Displays 104, 105
Switches 231-233
DIXON (See Maxon)
DURATEC
Solder 667
Soldering Tools 664, 665
DURACELL
Batteries 706
DYNASCAN (See B&K)

—E—

EG&G Rotron
Fans 710-717
EASCO (See Hunter)
EASY-ON
Coaxial Connectors 406, 407
Adapters 407
BNC Plugs and Jacks 406
UHF 406, 407
F-Fitting 406
Crimp Tools 407
Cable Stripper 407
Bulkhead Receptacles 407
TNC 407
Miniature BNC Plugs 407
Commercial/Mil. Crimp BNC Plugs 407
EATON (See Cutler-Hammer)
EATON/COMPU-LITE
Lighted Switches 254
ELCO
Card Edge Connectors 424
Connectors 424-429
Enclosures 430
Tools 429
Varicon Connectors 426
ELECTRO-VOICE
Microphones 785
Speakers 784
ELECTROVERT INC.
Barrier Terminal Boards 431
Wire & Cable Accessories 519
ELMENCO (See ARCO)
ELPAC
Power Supplies 616-618
EPSCO
Inverters 625
ERIE (See Muratra/Erie)
ERSIN/MULTICORE
Solder 666
ESICO
Soldering Pots 659
ESSEX/STANCOR
Relays, Switches, Solenoids 358, 359
Transformers 594-599
EVEREADY
Batteries 704, 705

—F—

FENWAL
Thermistors 162

—G—

GC ELECTRONICS
Chemicals 492
Hardware 686
Tools 659, 686, 687
GENERAL ELECTRIC
Batteries 707
Capacitors 200, 201
Semiconductors 88-98
Silicones 511
Tubes 120-122
GENERAL HARDWARE
Tools 693
GENERAL INSTRUMENT
Arresters 350
Lamps 636-640
Relays 350-352
GENERAL INSTRUMENT OPTOELECTRONICS
Displays 106
LED Lamps 107
Optoisolators and Infrared Devices 108
GENERAL TIME
Timers 292, 293
GLOBE UNION
Batteries and Chargers 708
GORDOS/GRIGSBY-BARTON
I/O Systems 356
Relays 357
Switches 357
GRAYHILL
Hardware 276
Relays 279
Switches 276-278
GREENLEE TOOLS
Punches 691
GTE SYLVANIA
Audio Visual Lamps 650
Lamps, Sockets 648-650
GUARDIAN ELECTRIC
Relays 344-347
Solenoids 348, 349

—H—

HAMLIN
LCD's 267
Magnetic Reed Switches 265
Relays 266
HAMMOND
Plastic Cases 739
HEINEMANN
Circuit Breakers 370, 371
HERZOG
Lamps 639
HEYCO
Bushings 502, 503
Kits 503
Strain Reliefs 502
Vent Plugs 503
HUBBEL, HARVEY
Wiring Devices 702, 703
HUNTER TOOLS
Tools 672-675
HURST
Motors 625

—I—

IDI
Semiconductors 99
IEE
Flip Displays 110
Incandescent Displays 108
LCD's 109
LED Displays 107, 108
IMC
Fans 718, 719
IRC/TRW
Resistors 128
ITT GENERAL CONTROLS (See Redington Counters)
IDEAL
Wiring Devices/Tools 688, 689
IMLEC (Inter-Market)
PC Thumbwheel Switches 241
Indicator Lights 627
INDUSTRIAL TIMERS
Elapsed Time Meters 294
Timers 294, 295
INTERMATIC
Timers 297
INTERNATIONAL RECTIFIER
Semiconductors 80-85
INTERSIL
Semiconductors 75-79

—J—

J.B.T. (See Cutler-Hammer)
JOHANSON
Variable Capacitors 213
JOHANSON DIELECTRIC
Chip Capacitors 208
Prototype Kits 208
JOHNSON, E.F.
Capacitors 219
Connectors 463
Plugs & Jacks 462, 463
JONARD INDUSTRIES
Tools 692

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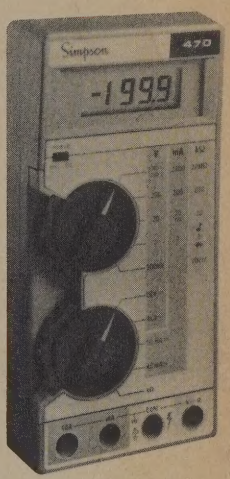

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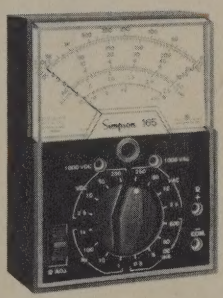

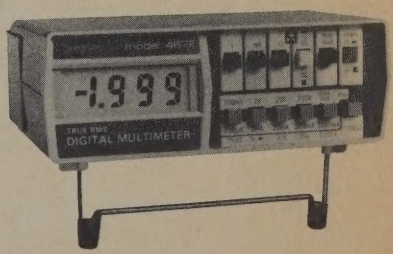

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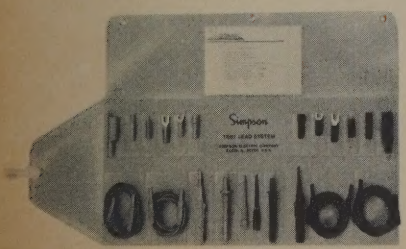

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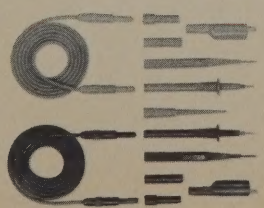

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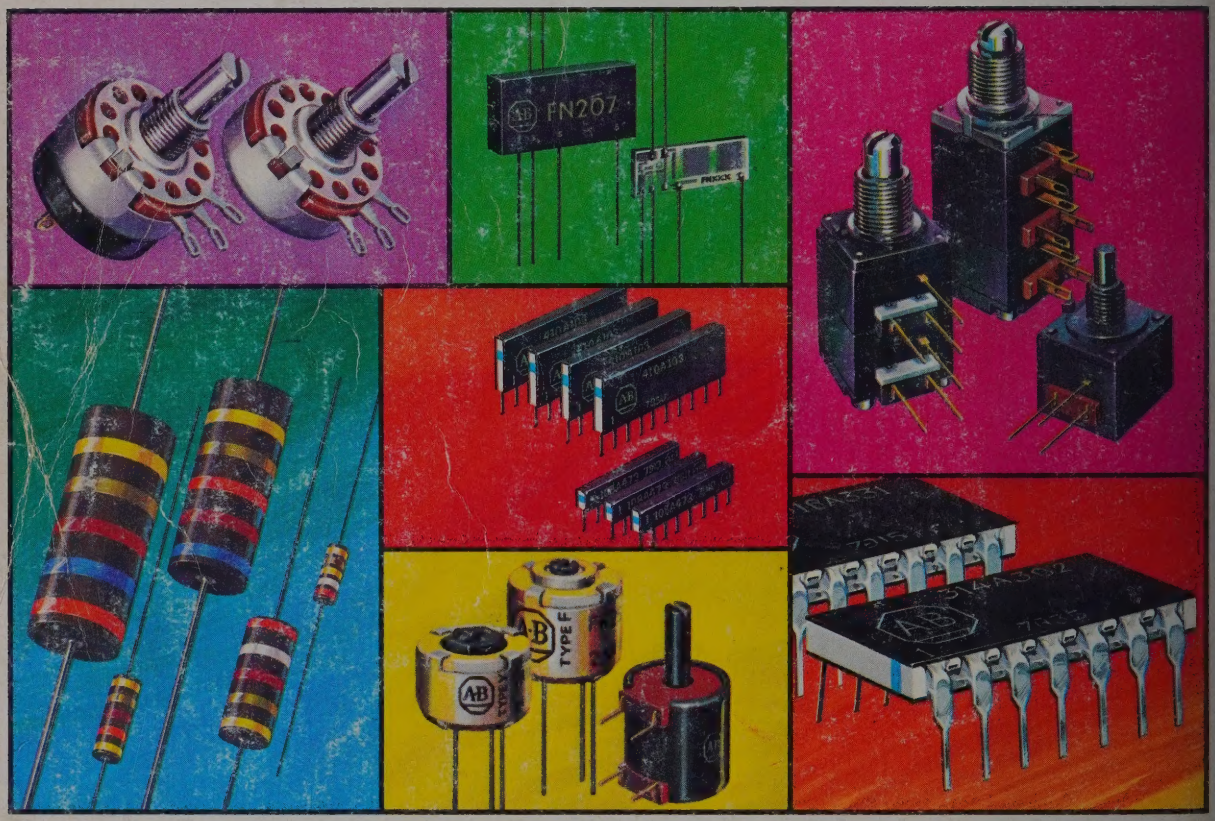

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Fixed Resistors . . . . . Page 124
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